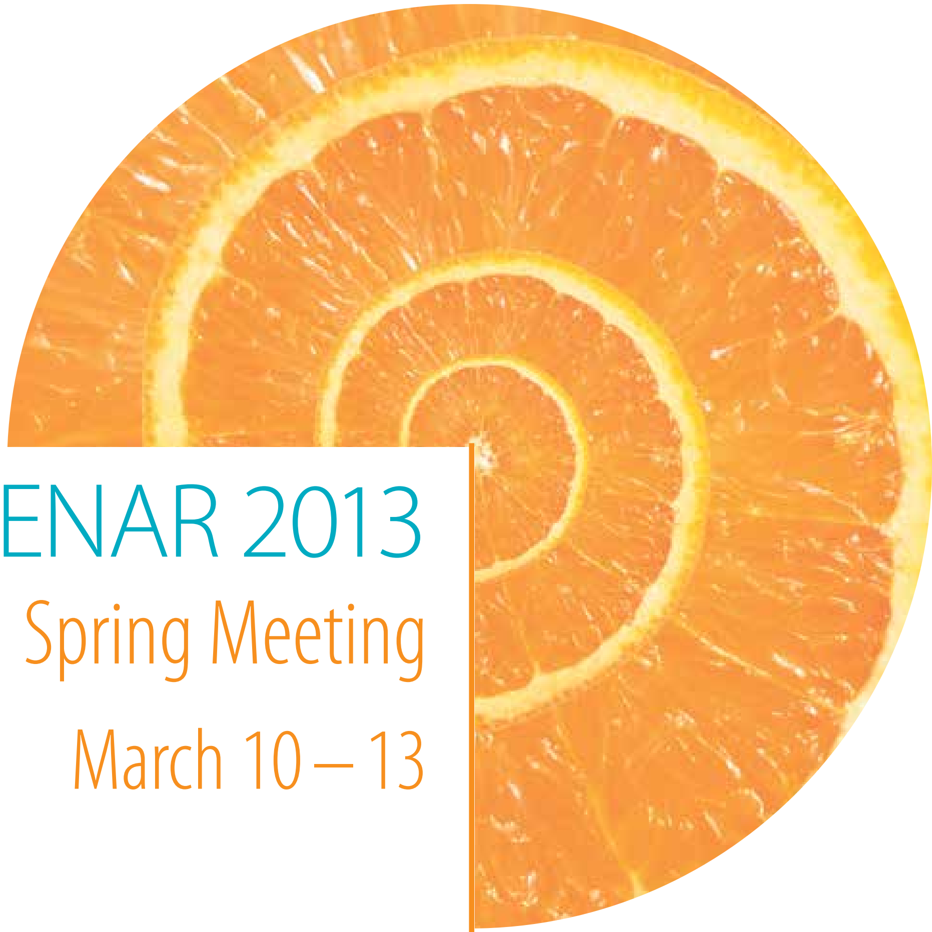
Program



ENAR 2013

Spring Meeting

March 10 – 13

With IMS and
Sections of ASA

ENAR

Orlando World Center Marriott Resort | Orlando, Florida

STATISTICS2013.ORG
INTERNATIONAL YEAR OF
STATISTICS

A global healthcare leader, Novartis has one of the most exciting product pipelines in the industry today. A pipeline of innovative medicines brought to life by diverse, talented, performance driven people. All of which makes us one of the most rewarding employers in our field. We are searching for innovative, strategic statistical professionals who want to contribute to developing innovative healthcare products, targeting patient needs. We have openings all over the world – East Hanover, NJ, Cambridge, MA, Basel, Switzerland, Hyderabad, India and Shanghai, China. View the following postings today to learn more about these positions www.novartis.com/careers.

Expert Statistical Methodologist in Clinical Development Job ID 111858BR
The Expert Statistical Methodologist is as an expert consultant in statistics who, by providing expertise and guidance to biostatisticians and through direct participation in clinical teams, ensures that state-of-the-art methods are effectively used in drug development projects. As a member of the Statistical Methods group, he/she will collaborate with a staff of about 80 biostatisticians in the US and over 170 worldwide, and will be engaged in key Clinical Research and Development activities.

Requirements: PhD in Statistics; outstanding knowledge in an area of applied statistics and experience in clinical/medical statistics and its application to clinical trials. A demonstrated 5 year track record of statistical research and recent record of high-quality publications in relevant areas of pharmaceutical statistics.

Associate Director Statistical Scientist Job ID 111879BR
The Associate Director Statistical Scientist is the global lead for the statistical strategy of a clinical development program in multiple indications, or its equivalent in pre/early clinical development. He/She is responsible for the development and implementation of modern and innovative trial designs, statistical models, and analysis methodologies that optimize the drug development program for each indication. He/She sets the strategic direction for addressing statistical issues in regulatory submissions, and directly influences drug development decisions with internal and external partners.

Requirements: 8+ years industry experience, 4+ years influencing (pre/early/full) clinical development programs and regulatory approvals with global statistical leadership for, within at least one indication/disease area. Strong knowledge of disease area and health authority guidelines.

Principal Biometrician Job ID 111878BR
The Principal Biometrician is responsible for developing and implementing statistical analytic solutions to optimally support Phase I-IV clinical trials and decision criteria within clinical programs. She/He is responsible for the statistical operational aspects of multiple trials which include developing and executing the analysis plan and ensuring statistical reporting deliverables for clinical study reports (tables, listings and graphs) are produced to support decision making. He/She will be working together with the statistical scientist and the programmer to drive scientific and operational excellence. PhD in Statistics with 3+ yrs. of relevant work experience or MS +5 yrs. Fluent in English oral and written. Solid experience in leading statistical reporting activities for multiple clinical trials.

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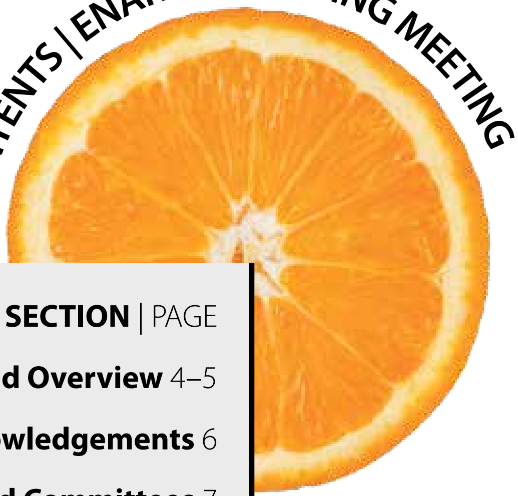

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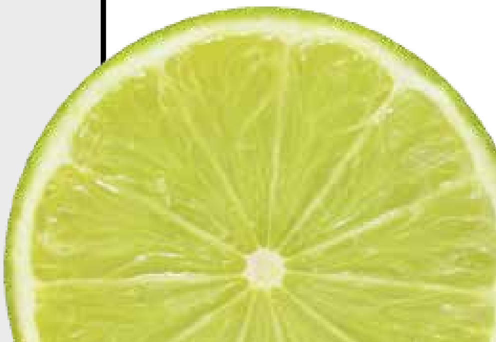

Welcome

The Eastern North American Region of the International Biometric Society Welcomes you to our 2013 Spring Meeting to be held March 10-13 in Orlando, Florida together with the IMS and Sections of the ASA.

Welcome to the 2013 ENAR Spring Meeting. As usual, the meeting has been organized jointly with our colleagues in the Institute of Mathematical Statistics and sections of the American Statistical Association. We invite you to join us for what promises to be an exciting four days of educational events, scientific sessions, and social and networking opportunities. The resort setting and the anticipated mild, sunny Florida weather will make down-time fun and restful for participants and guests alike. I can't think of a better place to spend a March break.

As always, the heart of our meeting is the invited program, organized this year under the leadership of Program Chair Sarah Ratcliffe and Associate Chair Rhonda Szczesniak. Sarah, Rhonda and their committee have assembled a program that is sure to appeal to scientists working on any facet of the application of mathematical and statistical thinking in biology, human health, agriculture and the environment. On behalf of all attendees, I thank them and the dozens of session chairs, organizers and speakers who will surely make this a most intellectually stimulating week.

We also expect to have scores of contributed papers. This is the grass roots of biostatistical research in ENAR, and many of the speakers giving these talks are the future (if not current) leaders of our profession. Be sure to seek out our ENAR Distinguished Young Investigator Award winners, many of whom will be presenting contributed talks.

In Orlando we will continue our new tradition of holding a poster competition at the Sunday night mixer. In DC last year, the competition – and the need for the many judges to immerse themselves in the posters – had the interesting effect of shifting the center of gravity from the food tables to the poster aisles. This gave greater visibility to the outstanding work of the poster presenters and created an ideal blend of social and scientific interaction.

Another staple of our meeting is the educational program. As in previous years, we will have an assortment of half-day and full-day short courses on Sunday, roundtable luncheons on Monday, and tutorials during the concurrent sessions on Monday and Tuesday. Many thanks to our Education Committee, who have assembled a program representing the best of modern biostatistical thinking presented by leading teachers, scholars and practitioners. Please come take advantage of the unmatched concentration of cutting-edge educational events.

A highlight of every Spring Meeting is the President's Invited Lecture, held at a plenary session during the Tuesday late morning time slot. I am pleased to announce that this year's lecturer is Professor Jeremy Taylor of the University of Michigan. Jeremy has been an extraordinary leader in methodologic biostatistics, oncology, and HIV science. He is a former chair of the BMRD study section – the principal NIH panel for the review of statistical grants – and a current editor of Biometrics. His topic, "Modeling Data in a Scientific Context", is sure to be of interest to all.

As in past years, on the Saturday prior to the meeting we will hold a Workshop for Junior Researchers in Biostatistics, organized under the leadership of Mike Wu. On Sunday we will hold a Diversity Workshop, organized by Reneé Moore and Knashawn Morales.

In addition to our traditional Sunday evening mixer, which is open to all attendees, on Monday evening we will hold a Student Mixer. We invite budding members of our profession to meet future colleagues and friends over drinks and appetizers. And those who are looking for a first job, or perhaps exploring a new opportunity in mid-career, can register for our ever-popular Placement Service.

As in most years, our Orlando meeting will include a Tuesday evening social event. We break with tradition this year by inviting all who register for the meeting to attend at no additional charge. The event will take place at Epcot®, and will include transportation and evening admission to the park. Those who wish to spend the evening in networking mode can register (for an additional fee) for a buffet dinner at the park. This event will also include transportation and admission, so attendees who weary of talking statistics – scarcely imaginable, I know – can join the others strolling around Epcot®. The climax of the evening will be the regular nightly fireworks show. Special thanks to Ji-Hyun Lee, our Local Arrangements Chair, and the many volunteers who are poised to make sure that the meeting and your visit to Orlando go smoothly.

Orlando is of course one of the world's most popular vacation destinations, with outstanding attractions all over town. But those who seek fun and relaxation need look no further than the conference venue itself. The Orlando World Center Marriott is a true resort, featuring numerous restaurants, coffee shops and night spots; six swimming pools (including two just for kids); a children's activities center (with daily organized activities); a stunning array of fitness and sports facilities; a spa; and an immaculately groomed 18-hole golf course. Orlando also has a thriving night life, much of it within a short cab ride of the hotel. If that is not enough to keep you and the family busy, we hear there is a large theme park just across the highway, with a couple more in town.

While we're on the subject of the meeting venue, let me add that the conference center, which is integrated into the resort complex, is modern, comfortable and strikingly beautiful. Among its exquisite facilities is the Cypress Ballroom, which at 105,000 square feet is America's largest pillarless ballroom. ENAR will not be using this room, but if you're curious what such a thing looks like I invite you to walk over and take a peek.

The Spring Meeting would not be possible without the efforts of ENAR Executive Director Kathy Hoskins and her associates Micki Francis, Laura Yarborough, Challee Blackwelder, and everyone at Drohan Management. Kathy and her team do an amazing amount of work behind the scenes to help maintain ENAR as the leading professional organization that it has become. Please stop by the registration desk to thank these ladies for their efforts in making the ENAR 2013 Spring Meeting a success.

I encourage you also to say hello to me and the other ENAR officers. It is a privilege and a joy to serve our organization in this capacity. And please share with us your suggestions on how ENAR can better contribute to our professional lives. The care and feeding of our organization is the responsibility of all its members, and we are always on the lookout for new ideas and new talent to lead us on to greater achievements.

Daniel Heitjan

ENAR 2013 President

ACKNOWLEDGEMENTS

ENAR would like to acknowledge the generous support of the 2013 Local Arrangements Committee, chaired by Ji-Hyun Lee, Moffitt Cancer Center and the University of South Florida, and our student volunteers.

We gratefully acknowledge NIH, and in particular the

National Cancer Institute
National Heart, Lung, & Blood Institute
National Institute of Environmental Health Sciences
National Institute of Allergy and Infectious Diseases

For their generous support of the ENAR Junior Researchers Workshop

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Regional Members of the Council of the International Biometric Society

Jane Pendergast, Jeremy Taylor, and Xihong Lin

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Chair: Reneé Moore

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Hormuzd Katki

ENAR Graduate Student and Recent Graduate Council RAB Committee Members

Yulei He, Reneé Moore, Patricia Stephenson

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2014 Spring Meeting – Baltimore, MD

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Program Co-Chair Qi Long
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2013 Joint Statistical Meeting

Melanie Wall

2014 Joint Statistical Meeting

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Yulei He, Harvard Medical School
Xianzheng (Shen) Huang, University of South Carolina
Bhramar Mukherjee, University of Michigan
Brian Reich, North Carolina State University
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Ryan Tibshirani, Carnegie Mellon University
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Hongtu Zhu, University of North Carolina at Chapel Hill

Van Ryzin Award Winner

Laura Boehm, North Carolina State University

Distinguished Student Paper Award Winners

Xiaofei Bai, North Carolina State University
Matthew Cefalu, Harvard University
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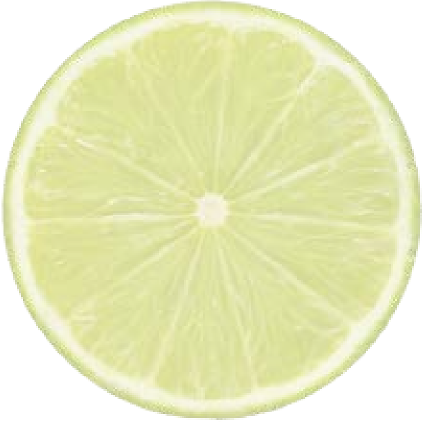
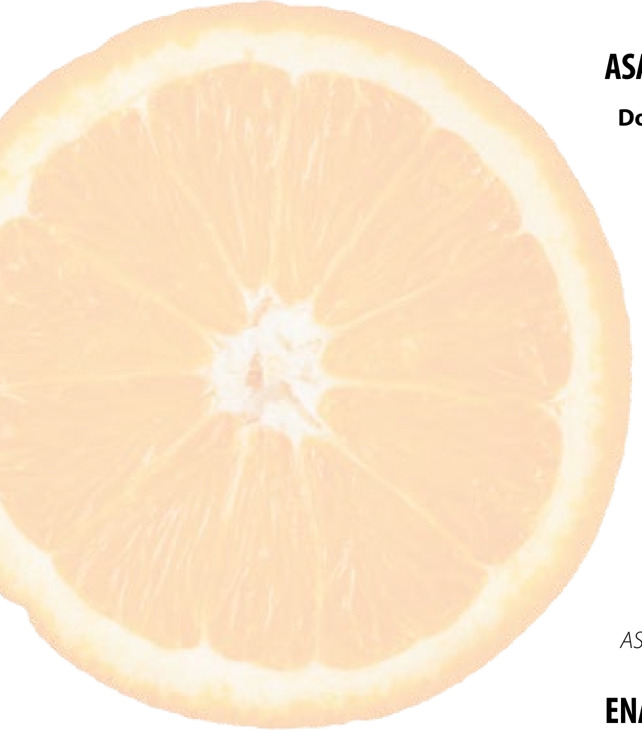
Rui Wang, Brigham and Women’s Hospital
Elizabeth Zell, Centers for Disease Control and Prevention



Special Thanks!



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ENAR Diversity Workshop (2013)

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North Carolina State University

Knashawn Morales | Co-Chair
University of Pennsylvania

ENAR Workshop for Junior Biostatisticians in Health Research (2013)

Michael Wu | University of North Carolina

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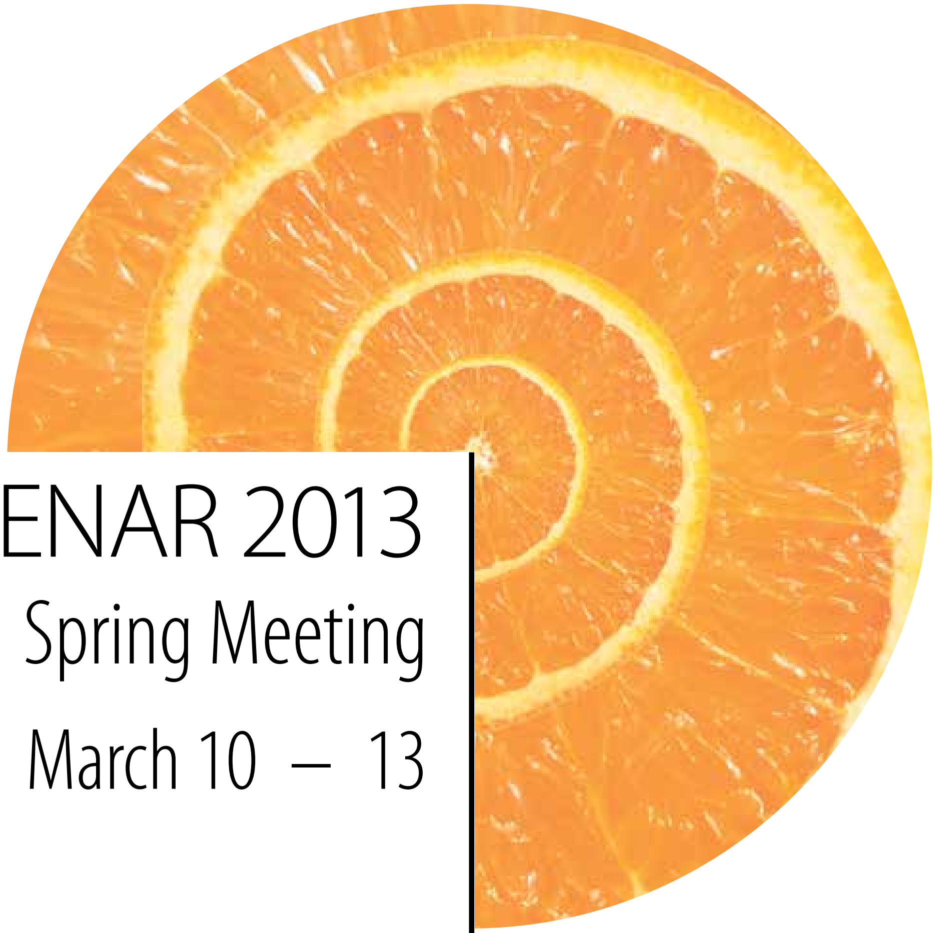
Laura Yarborough | Program Manager

Challee Blackwelder | Administrative Assistant

Visit the ENAR website (**www.enar.org**) as a resource for information on all ENAR activities.



ENAR 2013

Spring Meeting

March 10 – 13

FUN FOR ALL

TWO WAYS FOR YOU TO ENJOY AN EVENING AT EPCOT®

YOUR 2013 Spring Meeting registration fee includes an evening admissions ticket to Epcot® for Tuesday, March 12, 2013. The ticket includes transportation to Epcot® and return to the hotel, leisure time at the park, and the fireworks spectacular – *IllumiNations: Reflections of Earth.*

TUESDAY EVENING DINNER & SOCIAL EVENT at EPCOT®

This year we will hold our traditional Tuesday night social event and networking dinner at *Odyssey*, located within Epcot® between the World Showcase and Future World. The evening will start with a buffet dinner after which guests will have the opportunity to fully explore all of the attractions that Epcot® has to offer as well as enjoy the grand fireworks finale.

Please note that there is an additional fee to attend this dinner event – refer to the registration form for pricing. (Note that there will be a cash bar and that the registration fee does not include the cost of alcoholic beverages.)

General Information

About Epcot®

One of 4 theme parks at Walt Disney World Resort®, Epcot® theme park sprawls across 300 acres – twice the size of the Magic Kingdom® park and is divided into Future World and World Showcase.

Future World®

Explore all the wonders of Future World®, including: Imagination Pavilion®, the Land Pavilion®, Mission: SPACE® Pavilion, The Seas of Nemo and Friends®, and the Universe of Energy®.

World Showcase®

Beyond Future World® is the World Showcase® area, which takes you on an adventure across a collection of international pavilions surrounding the World Showcase Lagoon®. Within the pavilions, you'll find shops, attractions and restaurants that represent the culture and cuisine of 11 countries – Mexico, Norway, China, Germany, Italy, United States, Japan, Morocco, France, the United Kingdom, and Canada.

ORLANDO… SO MANY THINGS TO DO!

Magic Kingdom®

Follow your Disney® dreams to a place where storybook fantasy comes to life and discover the fun where imagination reigns.

Epcot®

Celebrate the fascinating cultures and numerous wonders of the world around you. Plus interactive experiences and amazing attractions, including Mission: SPACE®!

Disney-MGM Studios®

Salute the world of showbiz – from the Hollywood classics of yesteryear to the best in popular entertainment.

Downtown Disney®

Explore Downtown Disney Marketplace® and the West Side, with top-notch restaurants, theaters, shows and the clubs at Pleasure Island.

SeaWorld® Orlando

SeaWorld® Orlando is the world's premier marine adventure park with 200 acres of world-class shows, thrilling rides and unforgettable animal encounters.

Discovery Cove®

Swimming with dolphins is the main attraction of a daylong adventure at Discovery Cove®, located adjacent to SeaWorld® in Orlando.

Universal Orlando®

Get ready to plunge into the action of your favorite blockbuster entertainment! "Ride the Movies" at Universal Orlando.

Islands of Adventure®

You'll defy gravity, escape the jaws of a T-Rex, face the world's first inverted dueling roller coasters, and more at this exciting new theme park.

Pleasure Island®

Become a willing castaway on a party island where there's anightclub haven for your every mood.

Disney©

Cirque du Soleil® La Nouba

Prepare to be amazed by La Nouba, a mesmerizing production of daring artistry and acrobatics. A Walt Disney World® exclusive!

CityWalk

Enjoy one of Orlando's most exciting restaurant collections, including Jimmy Buffett's® Margaritaville®, Hard Rock Café®, NASCAR Café®, Emeril's Orlando®, plus many more dining locations.

Orlando Science Center

A day of experiments and exploration awaits you. Dynamic hands-on exhibits on four floors of fun and discovery.

Kennedy Space Center

Kennedy Space Center Visitor Complex provides an exhilarating and educational experience. Gain a new perspective on the incredible feats accomplished by the space program.

(Note that this is located approximately 60 miles from the hotel)

Wet 'N Wild®

Wet 'n Wild®, the world's premier water park, features a full day of fun for the entire family. One of the nation's best-attended water parks.

SHOPPING

Mall at Millenia

Central Florida's newest upscale mall with Neiman Marcus, Macy's, Bloomingdale's & 150 additional retailers, including seven sit-down restaurants.

The Florida Mall

Central Florida's largest shopping destination featuring Macy's, Dillards, Saks Fifth Avenue, Nordstrom, in addition to over 270 specialty shops and restaurants.

Orlando Premium Outlets

An exciting collection of 110 outlet stores from the world's finest designers and name brands.

Orlando World Center Marriott Major Attractions

Nightlife

Downtown Disney® (3.2 mi, 6 min)
Disney's Boardwalk® (6.4 mi, 13 min)
International Drive/Pointe Orlando (8.4 mi, 12 min)
Universal CityWalk (10.5 mi, 16 min)

Dining

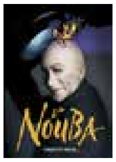
Downtown Disney® (3.2 mi, 6 min)
Celebration (3.9 mi, 10 min)
International Drive/Pointe Orlando (8.4 mi, 12 min)
Sand Lake Road (9 mi, 14 min)
Universal CityWalk (10.5 mi, 16 min)

Theme Parks

Disney's Hollywood Studios® (4.0 mi, 8 min)
Disney's Epcot® (5.6 mi, 11 min)
SeaWorld® (5.7 mi, 9 min)
Discovery Cove® (5.7 mi, 9 min)
Disney's Magic Kingdom® (5.9 mi, 11 min)
Disney's Animal Kingdom® (8.9 mi, 15 min)
Universal Studios® (10.5 mi, 16 min)
Universal Islands of Adventure® (10.5 mi, 16 min)

Entertainment

Cirque du Soleil® La Nouba (3.2 mi, 6 min)
House of Blues Music Hall (3.2 mi, 6 min)
Hard Rock Live Concert Hall (10.5 mi, 16 min)
Blue Man Group (10.5 mi, 16 min)



Shopping

Downtown Disney® (3.2 mi, 6 min)
Premium Outlets (3.6 mi, 8 min)
Prime Outlets (11.1 mi, 17 min)
Millenia Mall (12.4 mi, 16 min)

Other

Orange County Convention Center (8.5 mi, 12 min)
Downtown Orlando (17.5 mi, 25 min)
Orlando International Airport (18 mi, 21 min)
Kennedy Space Center (58.1 mi, 1hr 7min)
Port Canaveral Cruise Terminal (61.1 mi, 1hr 3 min)

DINING AT THE ORLANDO WORLD CENTER RESORT CENTER

Ristorante Tuscany

Orlando's only authentic Tuscan restaurant. Celebrate the freshness and simplicity of true Tuscan cooking.

Hawk's Landing Steakhouse

Hawk's Landing Steakhouse

Overlooking the beautiful resort golf course, this restaurant offers prime beef and fresh seafood.

Solaris

A casual restaurant featuring regionally inspired classic American favorites, burgers, sandwiches and fresh Florida seafood. A relaxed atmosphere, showcasing extensive beers, cool beverages with sports viewing on HDTVs.

Mikado Japanese Steakhouse

Enjoy great Japanese food along with exciting live entertainment by skilled teppan yaki chefs.

High Velocity

One of Orlando's largest sports bars, *High Velocity* is an energetic, classic American restaurant known for its tasty pub fare and appetizers.

Pavilion Pool Bar & Grill

Starbucks

Located in the main lobby of the hotel.
6 am to 9 pm.

Food Court

Brick-oven pizzas, burgers, salads, ice cream and more. Eat in or take-out. The food court is both convenient and affordable.

Pavilion Pool Bar & Grill

Serving lunch daily till 5 pm, weather permitting.

Lobby Bar & Veranda Terrace

Relax in the Lobby Bar overlooking the beautiful million-gallon pool while indulging in your favorite beverage.

Modeling Data in a Scientific Context

Jeremy M. G. Taylor, PhD
Department of Biostatistics
University of Michigan

Data are typically collected in a scientific context, with the statistician being part of the team of investigators. The scientific context involves what data are collected and how they are collected, but can also involve scientific knowledge or theories about the underlying mechanisms that give rise to the data. The traditional role of statisticians is to analyze the data and only the data, with an emphasis on using models and methods that make minimal assumptions, that is, "to let the data speak". For confirmatory clinical trials and large epidemiologic studies this may be appropriate. Increasingly, statisticians are involved in laboratory and basic science or other types of studies where the goals are learning, understanding and discovery. Here the data may be multi-dimensional and complex, and the data analysis may benefit by incorporating scientific knowledge into the analysis models and methods. The assumptions that are incorporated into the models may be mild, such as smoothness or monotonicity; or stronger, such as the existence of a cured group, a coefficient in a regression model being zero, or assumptions about the functional form of a model. In this talk I will discuss the role of models, the bias-variance tradeoff, and distinguish models and methods. I will present case studies from cancer research in which we have incorporated scientific knowledge into the data analysis. Specific examples will include cure models, joint longitudinal-survival models, shrinkage, surrogate endpoints and order-restricted inference.

Biography

Jeremy Taylor earned a BA in Mathematics (1978), a Diploma in Statistics (1979) from Cambridge University and a PhD in Statistics (1983) from the University of California at Berkeley. He was a faculty member in the Biostatistics and Radiation Oncology departments at UCLA from 1983 to 1998. He is currently Professor of Biostatistics and Radiation Oncology and Director of the Cancer Center Biostatistics Unit at the University of Michigan. Jeremy is the winner of the Michael Fry Award from the Radiation Research Society (1996), the Mortimer Spiegelman Award from the American Public Health Association (1996), and the CDC Statistical Science Award for Best Theoretical Paper (2001, 2003). He is a Fellow of the ASA (1996), an elected member of the ISI (2011), and a former Chair (2008) of the ASA Biometrics Section. He chaired the NIH Biostatistical Methods & Research Design study section (2010 – 2012). He is currently a coordinating editor of Biometrics. Jeremy has published over 250 scientific papers and held numerous research grants. His research interests include the analysis of longitudinal and survival data, biomarkers, surrogate and auxiliary variables, and clinical trial design. He has worked extensively in HIV science but currently focuses mainly on problems in cancer research.

ENAR 2013
Spring Meeting
March 10 – 13

SHORT COURSES

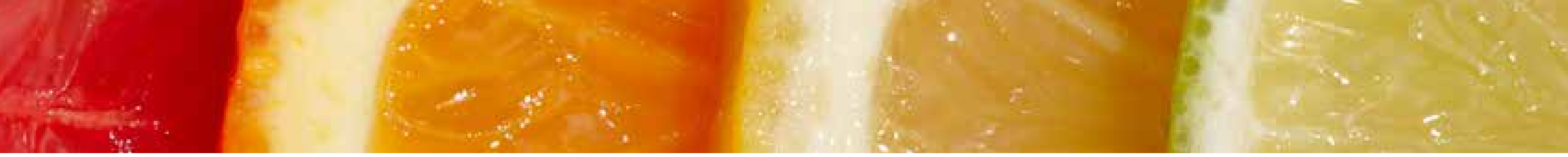
SC1: Multiple Imputation and Its Application
FULL DAY: 8:00 am – 5:00 pm
Grand Ballroom 1

Instructors:
James Carpenter
Michael Kenward
London School of Hygiene & Tropical Medicine

Overview:
The collection and statistical analysis of data are central to research in the medical and social sciences. Unfortunately, it is rarely possible to collect all the data one intends to. The literature on methods for analyzing such incomplete data is now vast, and continues to grow both as methods are developed for large and complex data structures, and as increasing computer power and the growing availability of high-quality software enable more researchers to apply these methods routinely.

This course, based on the forthcoming book of the same name, focuses on a particular statistical method for analyzing and drawing inferences from incomplete data, called Multiple Imputation (MI). MI is attractive because it is both practical and widely applicable. The authors aim to clarify the issues raised by missing data, describing the rationale for MI, the relationship between the various imputation models and associated algorithms, and the method's application to increasingly complex data structures.

The Course
- discusses the analysis of partially observed data, and the assumptions on which analyses rest;
- presents a practical guide for analyzing incomplete data from both observational studies and randomized trials;
- provides a detailed discussion of the use of MI in real-world examples drawn from medical and social statistics;
- covers the handling of non-linear relationships and interactions, survival analysis, multi-level imputation, sensitivity analysis via imputation, the use of non-response weights in imputation, and doubly robust multiple imputation; and
- is supported by a website featuring data used in the examples and illustrative code, principally the freely available REALCOM impute software, but also including SAS, Stata, MLwiN and R.



SC2: Analysis of Life History Data with Multistate Models

FULL DAY: 8:00 am – 5:00 pm

Anaheim Room

Instructors:

Richard Cook

Jerry Lawless

University of Waterloo

Overview:

Individuals with chronic disease often experience a gradual deterioration of their health and a consequent reduction in quality of life, functional ability, and independence. Examples include conditions such as arthritis, diabetes, and dementia. Substantial health care costs can accrue to patients, their families, and their insurers as these diseases progress. Multistate statistical modeling offers a framework for understanding the dynamic aspects of such disease processes through the estimation of rates of disease progression, the identification of risk factors for progression and severity, and the evaluation of interventions. This information, combined with population data on disease incidence and costs, can play a central role in informing policy on the provision of medical resources. Multistate models also offer a simple and convenient way of examining a wide range of problems in the statistical analysis of survival data involving time-varying covariates, truncation and other selection effects. Yet despite their broad relevance and appealing simplicity, multistate models are not widely used.

The aim of this workshop is to introduce a variety of statistical models and methods useful in the analysis of multistate life history data. Models for continuous-time processes will be discussed, including Markov models, semi-Markov models, and more general intensity-based models. We will cover methods for dealing with right-censored and interval-censored data, as well as techniques for model assessment. We will illustrate features of the various models by applying them to datasets from studies in arthritis, diabetes and cancer. Statistical analysis will be carried out using R/S-PLUS code. Some familiarity with basic methods of survival analysis is required.

SC3: Survival Analysis in Clinical Trials

FULL DAY: 8:00 am – 5:00 pm

Grand Ballroom 2

Instructor:

Danyu Lin

University of North Carolina

Overview:

The primary outcome measure in a clinical trial is often defined to be the time to occurrence of a clinically important event, such as death, cancer progression, or stroke. A common complication is that a substantial fraction of the trial participants remain free of the outcome at the end of follow-up; we say that their event times are censored. An important thrust of biostatistical research over the last several decades has been the development of valid, efficient and robust methods for the statistical analysis of potentially censored event times. This course will offer an overview of such methods, focusing on the commonly used Kaplan-Meier estimator, the logrank test, and the Cox proportional hazards model. We will address practical issues in clinical trial applications, including sample-size determination, sequential analysis, covariate adjustment, and model diagnostics. Recent developments in the areas of multiple events, informative drop-out, and joint modeling of repeated measures and event times will also be discussed. Relevant software will be described. Detailed applications to real data will illustrate the concepts and methods.

We will present the materials at a non-technical level. Although cutting-edge research will be discussed, this course is targeted primarily at clinical trial statisticians who wish to analyze their data with the best available methods. A basic knowledge of mathematical statistics and linear models is required; background on survival analysis is not necessary.

SC4: Multiplicity Issues in Clinical Trials

HALF DAY:

8:00 am – 12:00 pm

Grand Ballroom 4

Instructor:

Alex Dmitrienko

Quintiles

Overview:

The course will review common multiplicity problems arising in clinical trials and the methods for addressing them. I will cover traditional problems with a single source of multiplicity, e.g., analysis of multiple endpoints or dose-placebo contrasts, as well as more advanced problems with several sources of multiplicity, e.g., analysis of two or more families of objectives such as multiple endpoints evaluated at multiple dose levels or in multiple patient populations. The course will introduce central concepts in multiple comparisons (error rate definitions) and define main classes of traditional multiplicity adjustment methods used in clinical trials (nonparametric, semiparametric and parametric). I will cover recent advances, including gatekeeping procedures for clinical trials with multiple families of objectives. The course will offer a balanced mix of theory and applications. It will present in-depth case studies based on real clinical trials, and describe the implementation of adjustment methods in SAS and R. We will also cover regulatory considerations.

SC5: Informative Meta-analysis of Diagnostic Test Accuracy Studies

HALF DAY: 1:00 pm – 5:00 pm

Grand Ballroom 4

Instructor:
Patrick Bossuyt
University of Amsterdam

Overview:
Test accuracy studies evaluate how well the test results correspond with findings from the clinical reference standard in correctly identifying patients with the target condition. Systematic reviews and meta-analyses of test accuracy studies can be used to obtain more precise estimates when small studies addressing the same test and patients in the same setting are available. Reviews can also be useful to establish whether and how accuracy estimates vary by particular subgroups, and may provide summary estimates with a stronger generalizability than estimates from a single study. We provide course participants with an overview of existing methods and show how and when meta-analysis can inform the practice of clinical diagnosis.

SC6: Applied Predictive Modeling

HALF DAY: 8:00 am – 12:00 pm

Grand Ballroom 6

Instructors:
Max Kuhn
Kjell Johnson
Pfizer

Overview:
This course is intended for a broad audience as both an introduction to predictive models and a guide to applying them. The class is designed to aid statisticians who wish to extend their expertise, and uses intuitive explanations of regression and classification techniques with an emphasis on problem-solving with real data. We will present examples from clinical and non-clinical statistics. Attendees should have a working knowledge of basic statistical ideas such as correlation and linear regression analysis. Familiarity with R is helpful, but not required.

Course Topics Will Include

- data pre-processing: data transformations, filtering methods;
- model tuning and validation: data splitting and resampling approaches;
- regression and classification techniques: dimension reduction and shrinkage models, tree-based models and ensembles, rule-based models, kernel methods, etc.; and
- special topics: feature selection, measuring variable importance, and approaches for handling severe class imbalances.

SC7: Generalized Nonlinear Models for Correlated Response Data: Overcoming Apparent Limitations in SAS

HALF DAY: 1:00 pm – 5:00 pm

Grand Ballroom 6

Instructor:
Edward Vonesh
Northwestern University

Overview:
Correlated response data – either discrete, continuous or a combination of the two – arise in many disciplines. Common models for the analysis of such data are nonlinear in the parameters of interest. In this course we will describe the major types of correlated response data commonly encountered in practice together with the principal models used to analyze such data. The latter include generalized linear and generalized nonlinear models, both of which can be further classified according to whether they are marginal or mixed-effects models. Our focus will be on illustrating how one can overcome apparent modeling limitations in SAS. Specifically, we will show through a range of examples how to:

1) conduct likelihood-based inference for nonlinear mixed-effects models with intra-subject correlation;
2) fit nonlinear mixed-effects models assuming non-Gaussian random effects; and
3) fit marginal generalized linear models to correlated response data using second-order GEE or ML estimation. In each case, we will apply standard SAS procedures such as GLIMMIX and NLMIXED so that one can easily adapt these techniques to other applications.

ENAR 2013
Spring Meeting
March 10 – 13

TUTORIALS

T1: Risk Prediction with Two-stage Studies

MONDAY MARCH 11
8:30 am – 10:15 am
Grand Ballroom 1

Instructor:
Tianxi Cai
Harvard School of Public Health

Description:
An accurate and individualized outcome prediction promises to dramatically change clinical decision-making in many branches of medicine, for example in early diagnosis of cancer and in selecting patient-specific treatments. But translating the promise into reality is not easy. Clinical evaluations, while remaining an essential basis for risk assessment, may not be sufficient for complex diseases. Improved prediction may be achieved by combining information from biomarkers based on emerging new technology such as gene expression profiling. Prior to incorporating a biomarker into standard clinical care, rigorous evaluation is required. Study designs that efficiently use available specimens and analysis methods that properly model data are vitally important to draw valid conclusions with limited resources. Efficient study designs such as the nested case-control and case-cohort have been widely adopted in practice. However, the proper and efficient analysis of data arising from such designs has not been well studied, especially in the context of risk prediction. This short course will introduce recent statistical developments that can incorporate such study designs for:

i) constructing and evaluating risk prediction models; and
ii) assessing the incremental value of new biomarkers in risk prediction.

T2: Bayesian Methods and Computing for Joint Longitudinal-Survival and Other Multi-component Models

MONDAY MARCH 11
10:30 am – 12:15 pm
Grand Ballroom 1

Instructors:
Bradley P. Carlin
University of Minnesota
Laura A. Hatfield
Harvard Medical School

Description:
Bayesian hierarchical modeling is known for its ability to account for uncertainty and correlation in complex, high-dimensional data. The BUGS language is especially adept at implementing such an approach, because model components may be developed independently and then assembled into complex models. Perhaps the most popular example of this approach is Bayesian joint modeling of longitudinal and survival data, where relatively simple survival and longitudinal model components may be connected using latent variables that induce within-subject correlation. In this tutorial, we describe accessible Bayesian methods and software for joint models that incorporate relationships among outcomes such as informative censoring. We will also describe methods for jointly modeling exposure and outcome, necessary when the exposure is not directly measured and must instead be modeled, or when the exposure is measured with substantial error or missingness. All necessary BUGS and R code will be made available to tutorial participants. We ask that all participants bring their own laptops with the necessary software already installed prior to class; detailed instructions will be emailed in advance.

T3: Hierarchical Modeling of Large Point-referenced Datasets Using the spBayes Package

MONDAY MARCH 11
1:45 pm – 3:30 pm
Grand Ballroom 1

Instructors:
Andrew O. Finley
Michigan State University
Sudipto Banerjee
University of Minnesota

Description:
We will explore recent advances in hierarchical random effects modeling using Markov chain Monte Carlo (MCMC) in the spBayes R package. The focus is on linear and generalized linear models that accommodate spatial and temporal associations. The lecture and illustrations offer an applied perspective on model specification, identifiability of parameters, and computational considerations for Bayesian inference from posterior distributions. We begin with an introduction to Bayesian hierarchical linear models and proceed to address common challenges in environmental data, including missing data and when the number of observations is too large to efficiently fit the desired hierarchical random effects models. Special attention will be given to exploration and visualization of spatial-temporal data and the practical and accessible implementation of spatial-temporal models. Participants should bring their own laptops and follow along with the illustrations.

T4: Visualization with ggplot2

MONDAY MARCH 11
3:45 pm – 5:30 pm
Grand Ballroom 1

Instructor:
Hadley Wickham
Rice University

Description:
This tutorial will introduce you to the theory and practice of ggplot2. I will describe the rich theory that underlies ggplot2, and then we'll get our hands dirty making graphics to help understand data. I'll also point you toward resources where you can learn more, and highlight some of the other packages that work hand-in-hand with ggplot2 to make data analysis easy. You will have the opportunity to practice what you learn, so please bring your laptop with the latest version of R installed. To ensure that your version of ggplot2 is up to date, run install. packages ("ggplot2").

T5: Data Confidentiality – Past, Present and Future

TUESDAY MARCH 12
8:30 am – 10:15 am
Miami Room

Instructor:
Ofer Harel
University of Connecticut

Description:
Data is essential for most types of research. In particular, economic, medical, educational, and health services research require increasing amounts of data. At the same time, there is growing concern for the confidentiality of individual patients' data. Often it is unethical – and in some cases illegal – to release private information to the public. Somehow, a balance must be struck between the release of data for research purposes and the risk of disclosing private information. In this tutorial I will introduce this problem and present some past and current solutions, emphasizing future research directions.

T6: The SEER Population-based Cancer Data: A Research Resource for Statisticians

TUESDAY MARCH 12
1:45 pm – 3:30 pm
Miami Room

Instructors:
Angela Mariotto
Hyunsoon Cho
Nadia Howlader
National Cancer Institute

Description:
The Surveillance, Epidemiology, and End Results (SEER) Program is a premier source for cancer statistics in the United States. SEER collects clinical, demographic, and follow-up information for people diagnosed with cancer from specific geographic areas representing 28 percent of the U.S. population. In addition to reporting cancer statistics, SEER releases updated annual research data files containing individual level data and analytical software (SEER*Stat). These data are increasingly used to answer research questions about cancer etiology, prevention, treatment, and control. Because population data is subject to more sources of variation and biases than data from controlled studies, the methods and models for analyzing population-based data differ from standard statistical methods. For example, relative survival is used to estimate survival when using cancer registry data because it does not rely on cause-of-death information, which is poorly recorded. This tutorial will provide an introduction to SEER data and the variables, methods, and software that are employed, with a particular focus on cancer incidence and survival.

T7: Statistical Challenges in Next-generation Sequencing Data

TUESDAY MARCH 12
3:45 pm – 5:30 pm
Miami Room

Instructor:
Hongyu Zhao
Yale University

Description:
Recent advances in sequencing technologies have revolutionized biological and biomedical research. Today, sequencing the whole human genome at more than 30-fold coverage (a total of more than 60 billion base pairs sequenced per person) costs only $2,000, in contrast to the more than $3 billion spent to sequence the first human genome. These data create unprecedented opportunities and challenges for statisticians. In this tutorial, I will introduce the sequencing technologies and key ideas in state-of-the-art statistical approaches to handling next-generation sequencing data. A number of examples from cancer genomics will be used to illustrate the range of biological questions that can be addressed using these data and insights learned with the help of statistical modeling and analysis.

ROUNDTABLES

MONDAY, MARCH 11, 2013

12:15 – 1:30 pm | Sago Ballroom

R1: Building a Cross-disciplinary Research Team

Discussion Leader:
John Barnard
The Cleveland Clinic Foundation

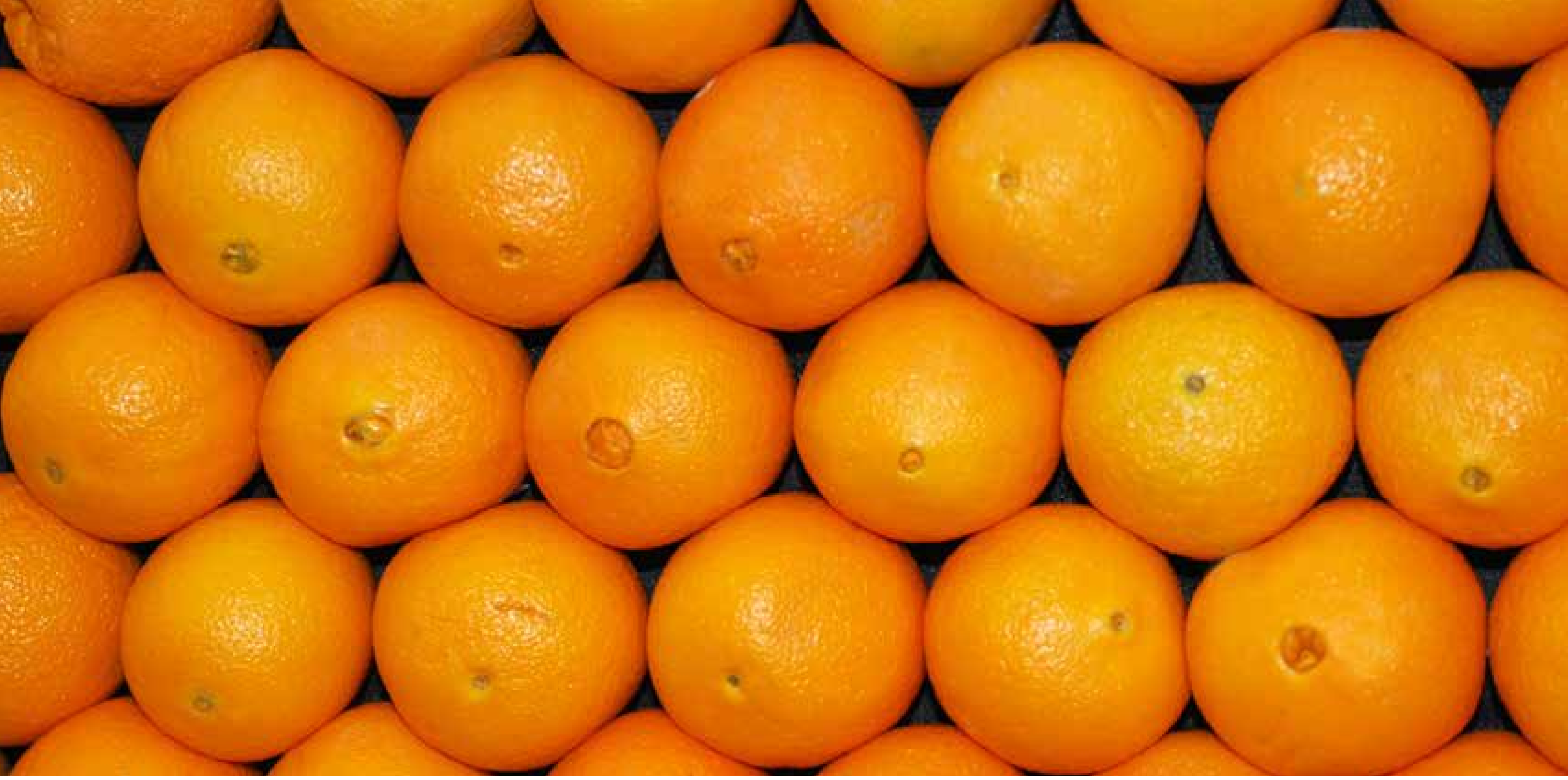
Description:
Many of the most interesting research topics involve multiple disciplines. For example, important questions in the etiology of human diseases have been tackled by collaborative groups with diverse membership, including biostatisticians, geneticists, computer scientists, epidemiologists, bioinformaticians and physicians. However, building a cross-disciplinary research team to tackle such topics can be challenging. At this roundtable we will discuss strategies and pitfalls for biostatisticians to create, lead and participate in effective cross-disciplinary research teams.

R2: Career Transition: Academia to Industry

CANCELED

Discussion Leader:
Jesse A. Berlin
Janssen Research & Development

Description:
Biostatistics is a critical element of research in the pharmaceutical industry, just as it is in academic and government health science, and the common technical training of biostatisticians serves them well to work in any sector. Some aspects of work in industry set it apart from academic research, however. For example, in industry statistical research is more tightly focused on problems arising in drug discovery and evaluation; there is a greater emphasis on corporate and development team goals than on



individual achievement; integration into research teams is paramount; and ability to meet deadlines takes on great importance. Industry can also be more remunerative, and statisticians are often assigned to positions of significant responsibility earlier in their careers. Good communication skills are absolutely essential to career advancement. We will discuss these issues from the perspective of a statistician who worked for two decades in an academic biostatistics group before making the transition to an executive position in the pharmaceutical industry.

R3: Clinical Pharmacologists and Biostatisticians: Opportunities for Collaboration

Discussion Leader:
Seth Berry
Quintiles, Inc.

Description:
In this roundtable we will discuss how biostatisticians and clinical pharmacologists can better collaborate to improve the drug development process. The topic is important because of the continued disconnect between early clinical development (i.e., pre-clinical to proof-of-concept – where there are often positive results in the learning phase) and late-phase clinical development (i.e., phase 3 confirmatory studies – where we often then obtain negative results).

R4: Safety Assessment and Communication: How Can Statisticians Help?

Discussion Leader:
Christy Chuang-Stein
Pfizer, Inc.

Description:
The last 15 years have seen a substantial increase in efforts devoted to safety assessment by statisticians in the pharmaceutical industry. While some of these efforts were driven by regulations and public demand for safer products, much of the motivation came from the recognition of the need for a systematic approach to safety planning, evaluation and reporting at the program level throughout the drug development lifecycle. At this roundtable, we will share ongoing collaborations for more effective approaches for safety assessment and communication, including the development of graphic tools. We will also discuss recent regulatory guidances that create opportunities for statistical contributions to this critical aspect of product development and commercialization.

R5: Career Transition: Industry to Academia

Discussion Leader:
Fang Liu
University of Notre Dame

Description:
Statisticians in industry differ from those in academia with respect to work responsibilities, the types of scientific and administrative colleagues with whom they interact, the criteria for a successful career, and many other issues. It is widely believed that it is much easier to make the transition from academia to industry than the other way around. Apart from the obvious fact that statisticians in industry do not primarily focus on amassing theoretical publications – the main metric for success in academia – the reasoning underlying this view is

obscure. In fact, academic institutions are on the whole becoming more open to forming relationships with industry, and indeed some academic departments welcome as faculty members statisticians with industrial experience. The roundtable leader spent the first eight years of her career in the pharmaceutical industry before moving to an academic position in the newly formed Department of Statistics at the University of Notre Dame. She will share her story, her thoughts on how academic departments can best benefit from candidates like her, and how industrial statisticians with an interest in academic careers can prepare themselves to make this transition.

R6: How to Prepare Yourself to Serve on a Data Monitoring Committee

Discussion Leader:
Kyungmann Kim
University of Wisconsin

Description:
A Data Monitoring Committee (DMC) reviews the accumulating data from a clinical trial in order to protect the safety of trial participants and to ensure the trial's scientific validity and merit. Typically, its charge is to recommend to the sponsor whether the trial should continue as planned, be modified, or be terminated for reasons of safety, futility, or treatment benefit. Since the release of the 1998 NIH policy for data and safety monitoring (http://grants.nih.gov/grants/guide/notice-files/not98-084.html) and the Food and Drug Administration's 2006 Guidance for Clinical Trial Sponsors: Establishment and Operation of Clinical Trial Data Monitoring Committees (http://www.fda.gov/RegulatoryInformation/Guidances/ucm127069.htm), there has been a steady increase in the demand for experienced statisticians to serve on DMCs. In this roundtable we will discuss, from the perspective of a statistician, what the expectations are for service on a DMC, and how to prepare oneself to work effectively in this role.

R7: What Makes a Strong Statistics Core and Collaborative Grant Application?

Discussion Leader:
Mimi Kim
Albert Einstein College of Medicine

Description:
Many of us devote countless hours to writing statistical cores for center grants and statistical sections for collaborative projects. We will discuss ways to accomplish these tasks more efficiently, as well as strategies for increasing the chances of funding success. The perspectives and insights of statisticians who review grants for the NIH will also be shared.

R8: Graduate Programs in Biostatistics: Where Are We Going? How Can We Get There?

Discussion Leader:
Mary Putt
University of Pennsylvania

Description:
Hal Varian, chief economist at Google, famously remarked recently that "the sexy job in the next ten years will be statistics". With the current deluge of biomedical data and the strong demand for our graduates, this is an exciting time for those of us involved in educating the next generation of biostatisticians. It is also a good time for self study. How can we improve the quality of our programs and meet the needs of an ever-evolving field? How can we convince our academic institutions to support educational programs? How can we recruit highly qualified individuals to enter the field? What do employers want in a graduate? We invite current students and recent graduates, educators and employers to brain-storm with us on these important topics.

R9: Development of Leadership in Biostatistics

Discussion Leader:
Paul Rathouz
University of Wisconsin

Description:
In academia, a good leader is essential in building and developing research and education programs. We will discuss necessary qualities to be a good leader; key elements in administrative skill and how to develop them; how to balance methods and collaborative research with administration; and how to deal with conflicts within and outside the department.

R10: Open-source Software in Drug Development

Discussion Leader:
Neal Thomas
Pfizer, Inc.

Description:
Use of open-source software, such as R and OpenBUGS, in drug development in industry is often limited to simulations for trial/program design and exploratory analyses not included in regulatory submissions. A number of factors account for that, chief among them the (incorrect) perception that open-source software cannot be qualified or validated and therefore is not accepted by regulatory agencies for analyses included in submission packages.

Because statistical methods research increasingly makes its way into software via the open-source route, this perception creates further hurdles for the application of novel statistical methods in an industry badly in need of methodologic innovation. In this roundtable we will discuss efforts by the QSPI Open Source Software working group to address the challenges, perceived and real, to the broader utilization of open-source software in drug development, and opportunities for addressing those challenges. The working group features participants from the Food and Drug Administration, academia, and pharma with practical experience in the use of open-source software in drug development.

R11: What You Can Do for ENAR, and What ENAR Can Do for You! Making the Most of Your ENAR Membership

Discussion Leader:
Lance Waller
Emory University

Description:
ENAR provides many opportunities for people in the fields of Biostatistics, Biometrics, Bioinformatics, and related disciplines. In this roundtable, we will discuss options open to members, researchers, students, and practitioners. From participating in the technical program and taking short courses to serving on committees and running for office, from participating in placement as a student to participating as an employer, there are many ways to make the most of your ENAR membership. Former ENAR President (and all-around ENAR advocate) Lance Waller will lead discussions about ENAR opportunities and how these can help bolster your career at any stage. Students, new members, mid-career professionals, and long-time colleagues are all welcome.

R12: Association Analysis of Next Generation Sequencing Studies

Discussion Leader:
Xihong Lin
Harvard School of Public Health

Description:
Rapid advances in next-generation sequencing technologies provide an exciting opportunity to gain a better understanding of biological processes and new approaches to disease prevention and treatment. During the past few years, an increasing number of large-scale sequencing association studies, such as the whole-exome sequencing studies, have been conducted, and preliminary analysis results are becoming rapidly available. These studies could potentially identify new genetic variants that play important roles in understanding disease etiology or treatment response. However, due to the massive number of variants and the rareness of many of these variants across the genome, sequencing costs, and the complexity of diseases, efficient methods for designing and analyzing sequencing studies remain vitally important yet challenging. At this roundtable we will discuss statistical methods for analysis of genome-wide sequencing association studies. Topics will include pipelines for low-level processing of whole-exome sequence data, QC methods, imputation of sequence data, statistical methods for detecting rare variant effects, and designs for whole genome-wide (exome) sequencing studies.

ENAR 2013
Spring Meeting
March 10 – 13

MEETING PROGRAM SUMMARY

SATURDAY, MARCH 9

9:00 a.m. – 9:00 p.m.	**Workshop for Junior Researchers** Grand Ballroom 6
3:30 p.m. – 5:30 p.m.	**CONFERENCE REGISTRATION** Grand Resistration

SUNDAY, MARCH 10

7:30 a.m. – 6:30 p.m.	**CONFERENCE REGISTRATION** Grand Resistration
8:00 a.m. – 12:00 p.m.	**Short Courses**
	SC4: Multiplicity Issues in Clinical Trials Grand Ballroom 4
	SC6: Applied Predictive Modeling Grand Ballroom 6
8:00 a.m. – 5:00 p.m.	**Short Courses**
	SC1: Multiple Imputation and Its Application Grand Ballroom 1
	SC2: Analysis of Life History Data with Multistate Models Anaheim Room
	SC3: Survival Analysis in Clinical Trials Grand Ballroom 2

Unless otherwise noted, all meeting rooms are located in the main convention center level of the hotel.

SUNDAY, MARCH 10 (continued)

12:30 p.m. – 5:30 p.m.	**Diversity Workshop** Grand Ballroom 8A
1:00 p.m. – 5:00 p.m.	**Short Courses**
	SC5: Informative Meta-analysis of Diagnostic Test Accuracy Studies Grand Ballroom 4
	SC7: Generalized Nonlinear Models for Correlated Response Data: Overcoming Apparent Limitations in SAS Grand Ballroom 6
3:00 p.m. – 6:00 p.m.	**Exhibits Open** Grand Ballroom Foyer
4:00 p.m. – 7:00 p.m.	**ENAR Executive Committee Meeting *(By Invitation Only)*** Emerald Room (2nd Floor)
4:00 p.m. – 6:30 p.m.	**Placement Service** Puerto Rico Room (North Tower, 2nd Floor)
7:30 p.m. – 8:00 p.m.	**New Member Reception** Sago Ballroom
8:00 p.m. – 11:00 p.m.	**Social Mixer and Poster Session** Sago Ballroom
	1. Posters: Clinical Trials and Study Design
	2. Posters: Bayesian Methods / Causal Inference
	3. Posters: Microarray Analysis / Next Generation Sequencing
	4. Posters: Statistical Genetics / Genomics
	5. Posters: Survival Analysis
	6. Posters: Longitudinal and Missing Data
	7. Posters: Imaging / High Dimensional Data

8. **Posters:**
Model, Prediction, Variable Selection and Diagnostic Testing

9. **Posters:**
Environmental, Epidemiological and Health Services Studies

10. **Posters:**
Non-Parametric and Spatial Models

MONDAY, MARCH 11

7:30 a.m. – 5:00 p.m.	**CONFERENCE REGISTRATION** Grand Registration
7:30 a.m. – 5:00 p.m.	**Speaker Ready Room** Emerald Room (2nd Floor)
8:30 a.m. – 5:30 p.m.	**Exhibits Open** Grand Ballroom Foyer
8:30 a.m. – 10:15 a.m.	**Tutorial** **T1: Risk Prediction with Two-stage Studies** Grand Ballroom 1

SCIENTIFIC PROGRAM

11. Spatial Statistics for Environmental Health Studies
Miami Room

12. Bayesian Approaches to Genomic Data Integration
Grand Ballroom 7A

13. New Developments in Functional Data Analysis
Grand Ballroom 7B

14. Tools for Implementing Reproducible Research
Grand Ballroom 8A

15. Adaptive Designs for Clinical Trials: Academia, Industry and Government
Grand Ballroom 8B

16. Copulas: Theory and Applications
Grand Ballroom 6

17. Stochastic Modeling and Inference for Disease Dynamics
Grand Ballrooms 4 & 5

MONDAY, MARCH 11 (continued)

18. Contributed Papers:
Model Selection for High-Dimensional Genetics Data
Los Angeles Room

19. Contributed Papers:
Causal Inference
Grand Ballroom 3

20. Contributed Papers:
Health Services and Health Policy Research
St. Louis Room

21. Contributed Papers:
Prediction/Prognostic Modeling
Tampa Room

22. Contributed Papers:
Clustering Algorithms for Big Data
San Francisco Room

9:30 a.m. – 4:30 p.m. **Placement Service**
Puerto Rico Room (North Tower, 2nd Floor)

10:15 a.m. – 10:30 a.m. **Refreshment Break and Visit with Our Exhibitors**
Grand Ballroom Foyer

10:30 a.m. – 12:15 p.m. **Tutorial**

T2: Bayesian Methods and Computing for Joint Longitudinal-Survival and Other Multi-component Models
Grand Ballroom 1

SCIENTIFIC PROGRAM

23. Biostatistical Methods in Forensics, Law and Policy
Grand Ballrooms 4 & 5

24. Bridging to Statistics Outside the Pharmaceutical Industry: Can We Be More Efficient in Designing and Supporting Clinical Trials?
Los Angeles Room

25. New Advances in Functional Data Analysis with Application to Mental Health Research
Grand Ballroom 7A

26. Selection in High-Dimensional Analysis
Grand Ballroom 8A

27. Statistics of Environmental Health: Considering Spatial Effects and Various Sources of Pollutant Exposure on Human Health Outcomes
Grand Ballroom 8B

28. Statistical Analysis of Dynamic Models: Theory and Application
Grand Ballroom 7B

29. Complex Survey Methodology and Application
Miami Room

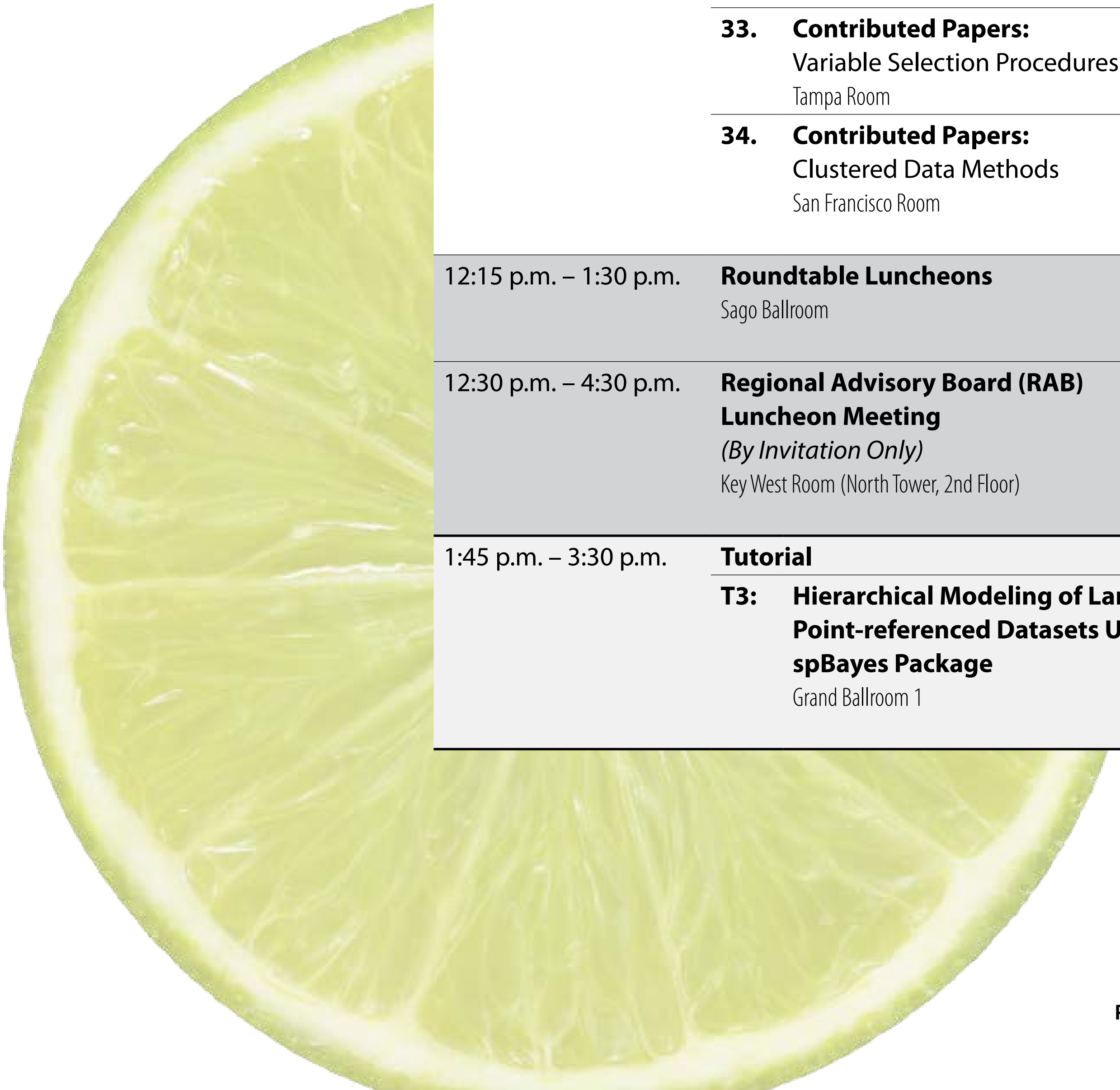
30. **Contributed Papers:**
Dose-Response and Nonlinear Models
St. Louis Room

31. **Contributed Papers:**
Methods and Applications in Comparative Effectiveness Research
Grand Ballroom 6

32. **Contributed Papers:**
Bayesian Methods
Grand Ballroom 3

33. **Contributed Papers:**
Variable Selection Procedures
Tampa Room

34. **Contributed Papers:**
Clustered Data Methods
San Francisco Room



12:15 p.m. – 1:30 p.m. **Roundtable Luncheons**
Sago Ballroom

12:30 p.m. – 4:30 p.m. **Regional Advisory Board (RAB) Luncheon Meeting**
(By Invitation Only)
Key West Room (North Tower, 2nd Floor)

1:45 p.m. – 3:30 p.m. **Tutorial**

T3: **Hierarchical Modeling of Large Point-referenced Datasets Using the spBayes Package**
Grand Ballroom 1

MONDAY, MARCH 11 (continued)

SCIENTIFIC PROGRAM

35. Optimal Treatment Regimes and Personalized Medicine
Grand Ballroom 8B

36. Statistical Methods for Next Generation Sequence Data Analysis: A Special Session for the ICSA Journal 'Statistics in BioSciences'
Grand Ballroom 7B

37. Hypothesis Testing Problems in Functional Data Analysis
Grand Ballroom 7A

38. Pharmacogenomics and Drug Interactions: Statistical Challenges and Opportunities on the Journey to Personalized Medicine
Grand Ballroom 3

39. Translational Methods for Structural Imaging
Grand Ballrooms 4 & 5

40. Flexible Bayesian Modeling
Grand Ballroom 8A

41. Statistical Challenges in Alzheimer's Disease Research
St. Louis Room

42. **Contributed Papers:**
Diagnostic and Screening Tests
Tampa Room

43. **Contributed Papers:**
Causal inference and Competing Risks
Miami Room

44. **Contributed Papers:**
Epidemiologic Methods and Study Design
Los Angeles Room

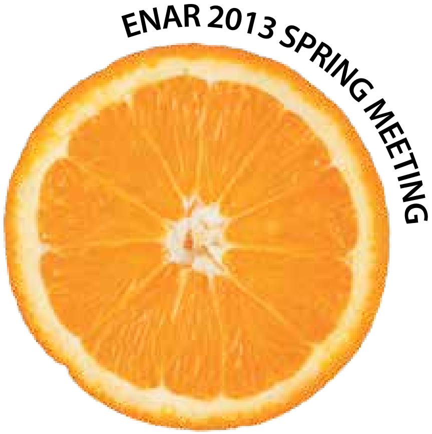
45. **Contributed Papers:**
Longitudinal Data: Methods and Model Selection
San Francisco Room

46. **Contributed Papers:**
Spatial/Temporal Modeling
Grand Ballroom 6

3:30 p.m. – 3:45 p.m. **Refreshment Break and Visit Our Exhibitors**
Grand Ballroom Foyer

3:45 p.m. – 5:30 p.m. **Tutorial**

T4: Visualization with ggplot2
Grand Ballroom 1



SCIENTIFIC PROGRAM

47. Innovative Design and Analysis Issues in Fetal Growth Studies
Grand Ballrooms 4 & 5

48. Bayesian Methods for Modeling Mark-Recapture Data with Non-Invasive Marks
Los Angeles Room

49. Hunting for Significance in High-Dimensional Data
Grand Ballroom 8B

50. New Developments in the Construction and Optimization of Dynamic Treatment Regimes
Grand Ballroom 7B

51. Novel Biostatistical Tools for Current Problems in Neuroimaging
Miami Room

52. Designs and Inferences for Causal Studies
Grand Ballroom 7A

53. Recent Advances in the Analysis of Medical Cost Data
Grand Ballroom 8A

54. **Contributed Papers:**
Risk Prediction and Clustering of Genetics Data
Grand Ballroom 6

55. **Contributed Papers:**
Agreement Measures for Longitudinal/Survival Data
St. Louis Room

56. **Contributed Papers:**
Imaging
Grand Ballroom 3

57. **Contributed Papers:**
Statistical Consulting and Survey Research
San Francisco Room

58. **Contributed Papers:**
Categorical Data Methods
Tampa Room

5:30 p.m. – 6:30 p.m.	**Student Mixer** ***(All Students are Invited to Attend)*** Sago Ballroom
6:00 p.m. – 7:30 p.m.	**President's Reception** ***(By Invitation Only)*** West Terrace

TUESDAY, MARCH 12

7:30 a.m. – 5:00 p.m.	**CONFERENCE REGISTRATION** Grand Registration
7:30 a.m. – 5:00 p.m.	**Speaker Ready Room** Emerald Room (2nd Floor)
9:30 a.m. – 3:30 p.m.	**Placement Service** Puerto Rico Room (North Tower, 2nd Floor)
8:30 a.m. – 5:30 p.m.	**Exhibits Open** Grand Ballroom Foyer
8:30 a.m. – 10:15 a.m.	**Tutorial** **T5: Data Confidentiality — Past, Present, and Future** Miami Room

SCIENTIFIC PROGRAM

59. Graduate Student and Recent Graduate Council Invited Session: Getting your First Job
Grand Ballroom 6

60. Statistical Therapies for High-Throughput Complex Missing data and Data with Measurement Bias
Grand Ballroom 8A

61. Advances in Inference for Structured and High-Dimensional Data
Grand Ballrooms 1 & 2

62. Functional Neuroimaging Decompositions
Grand Ballroom 3

63. Statistical Methods for Trials with High Placebo Response
Grand Ballroom 5

64. Composite/Pseudo Likelihood Methods and Applications
Grand Ballroom 8B

65. Recent Advances in Assessment of Agreement for Clinical and Lab Data
Los Angeles Room

	66.	**Contributed Papers:** Functional Data Analysis Grand Ballroom 4
	67.	**Contributed Papers:** Personalized Medicine St. Louis Room
	68.	**Contributed Papers:** Epidemiologic Methods in Survival Analysis Tampa Room
	69.	**Contributed Papers:** Power and Sample Size Washington Room
	70.	**Contributed Papers:** Multiple Testing San Francisco Room
10:15 a.m. – 10:30 a.m.	**Refreshment Break and Visit Our Exhibitors** Grand Ballroom Foyer	
10:30 a.m. – 12:15 p.m.	**71.**	**Presidential Invited Address** Grand Ballroom 7
12:30 p.m. – 4:30 p.m.	**Regional Committee Meeting** ***(By Invitation Only)*** Key West Room (North Tower, 2nd Floor)	
1:45 p.m. – 3:30 p.m.	**Tutorial**	
	T6:	**The SEER Population-based Cancer Data: A Research Resource for Statisticians** Miami Room
	SCIENTIFIC PROGRAM	
	72.	JABES Showcase Grand Ballroom 8A
	73.	Statistical Challenges in Large-Scale Genetic Studies of Complex Diseases Grand Ballroom 8B
	74.	Analysis of High-Dimensional Data Grand Ballroom 3
	75.	Statistical Body Language: Analytical Methods for Wearable Computing Grand Ballroom 4
	76.	Biomarker Utility in Clinical Trials Grand Ballrooms 1 & 2
	77.	Novel Approaches for Modeling Variance in Longitudinal Studies St. Louis Room

TUESDAY, MARCH 12 (continued)

	78.	Evidence Synthesis for Assessing Benefit and Risk Los Angeles Room
	79.	**Contributed Papers:** Model Selection and Analysis in GWAS Studies Grand Ballroom 6
	80.	**Contributed Papers:** Adaptive Design and Randomization Grand Ballroom 5
	81.	**Contributed Papers:** Methods for Survival Analysis Tampa Room
	82.	**Contributed Papers:** Meta-Analysis Washington Room
	83.	**Contributed Papers:** Statistical Methods in Cancer Applications San Francisco Room
3:30 p.m. – 3:45 p.m.	**Refreshment Break and Visit Our Exhibitors** Grand Ballroom Foyer	
3:45 p.m. – 5:30 p.m.	**Tutorial**	
	T7:	**Statistical Challenges in Next-generation Sequencing Data** Miami Room
	SCIENTIFIC PROGRAM	
	84.	Recent Methodological Advances in the Analysis of Correlated Data Grand Ballroom 5
	85.	Frontiers in Statistical Genetics and Genomics Grand Ballroom 8B
	86.	Big Data: Wearable Computing, Crowdsourcing, Space Telescopes, and Brain Imaging Grand Ballroom 8A
	87.	Novel Developments in the Construction and Evaluation of Risk Prediction Models Grand Ballrooms 1 & 2
	88.	Sample Size Planning for Clinical Development Grand Ballroom 6

	89.	Recent Developments in Change Point Segmentation: From Biophysics to Genetics Grand Ballroom 4
	90.	New Challenges for Network Data and Graphical Modeling Grand Ballroom 3
	91.	**Contributed Papers:** Bayesian Analysis of High Dimensional Data St. Louis Room
	92.	**Contributed Papers:** Missing Data Tampa Room
	93.	**Contributed Papers:** Semiparametric and Nonparametric Methods for Survival Analysis Los Angeles Room
	94.	**Contributed Papers:** Measurement Error Washington Room
	95.	**Contributed Papers:** Graphical Models San Francisco Room

5:30 p.m. – 6:30 p.m.	**ENAR Business Meeting** ***(Open to All ENAR Members)*** San Francisco Room
5:45 p.m. – 9:30 p.m.	**EPCOT®**
	Transportation to-and-from EPCOT® – Buses will depart promptly from the Convention Center entrance
	Special Note to all paid attendees – One entrance ticket to EPCOT® is included in your registration fee
6:15 p.m. – 9:30 p.m.	**Tuesday Night Dinner at EPCOT®**
	Transportation to-and-from EPCOT® – Buses will depart promptly from the Convention Center entrance ***(Separate Registration Required)***

WEDNESDAY, MARCH 13

7:30 a.m. – 12:00 p.m.	**Speaker Ready Room** Emerald Room (2nd Floor)
7:30 a.m. – 9:00 a.m.	**Planning Committee Meeting** ***(By Invitation Only)*** Grand Ballroom 6
8:00 a.m. – 12:30 p.m.	**CONFERENCE REGISTRATION** Grand Registration
8:00 a.m. – 12:00 p.m.	**Exhibits Open** Grand Ballroom Foyer
8:30 a.m. – 10:15 a.m.	**SCIENTIFIC PROGRAM**

96.	Advances in Robust Analysis of Longitudinal Data Grand Ballroom 3
97.	Complex Design and Analytic Issues in Genetic Epidemiologic Studies Grand Ballroom 8B
98.	Large Data Visualization and Exploration Grand Ballroom 4
99.	Statistical Analysis of Biomarker Information in Nutritional Epidemiology Grand Ballrooms 1 & 2
100.	Utilities of Statistical Modeling and Simulation for Drug Development Los Angeles Room
101.	Recent Advances in Survival and Event-History Analysis Miami Room

102. Innovative Methods in Causal Inference with Applications to Mediation, Neuroimaging, and Infectious Diseases
Grand Ballroom 8A

103. Contributed Papers:
Clinical Trials
St. Louis Room

104. Contributed Papers:
Next Generation Sequencing
Grand Ballroom 5

105. Contributed Papers:
Nonparametric Methods
Tampa Room

106. Contributed Papers:
Joint Models for Longitudinal and Survival Data
Washington Room

107. Contributed Papers:
Multivariate Methods
San Francisco Room

10:15 a.m. – 10:30 a.m. **Refreshment Break and Visit Our Exhibitors**
Grand Ballroom Foyer

10:30 a.m. – 12:15 p.m. **SCIENTIFIC PROGRAM**

108. New Statistical Challenges for Longitudinal/ Multivariate Analysis with Missing Data
Grand Ballroom 8A

109. Statistical Information Integration of -omics Data
Grand Ballrooms 1 & 2

110. Exploring Interactions in Big Data
Grand Ballroom 3

111. Assessing the Clinical Utility of Biomarkers and Statistical Risk Models
Miami Room

112. Design of Clinical Trials for Time-to-Event Data
Grand Ballroom 4

WEDNESDAY, MARCH 13 (continued)

113. Statistical Analysis of Substance Abuse Data
Grand Ballroom 8B

114. GLM and Beyond: Book Authors Discuss Cutting-Edge Approaches and their Chosen Venue for Publication
Los Angeles Room

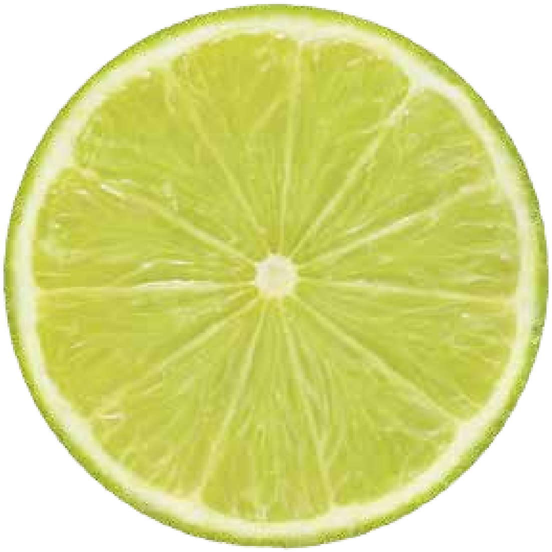
115. **Contributed Papers**:
More Methods for High-Dimensional Data Analysis
St. Louis Room

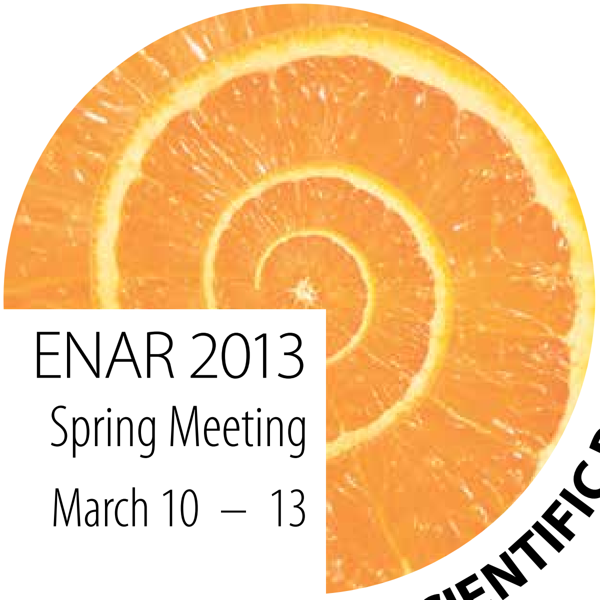
116. **Contributed Papers:**
Semiparametric and Nonparametric Models for Longitudinal Data
Tampa Room

117. **Contributed Papers:**
Time Series Analysis
Washington Room

118. **Contributed Papers:**
Hierarchical and Latent Variable Models
Grand Ballroom 5

119. **Contributed Papers:**
Computational Methods and Implementation
San Francisco Room





ENAR 2013
Spring Meeting
March 10 – 13

SCIENTIFIC PROGRAM

SUNDAY, MARCH 10

7:30 p.m. – 8:00 p.m. **New Member Reception**
Sago Ballroom

8:00 p.m. – 11:00 p.m. **Social Mixer and Poster Presentations**
Sago Ballroom

1. POSTERS: CLINICAL TRIALS AND STUDY DESIGN

Sponsor: ENAR

1a. Optimal Bayesian Adaptive Trial of Personalized Medicine in Cancer

Yifan Zhang*, *Harvard University*
Lorenzo Trippa and Giovanni Parmigiani
Harvard University, Dana-Farber Cancer Institute

1b. Interactive Q-learning for Dynamic Treatment Regimes

Kristin A. Linn*, Eric B. Laber and Leonard A. Stefanski
North Carolina State University

1c. Semiparametric Proportional Rate Regression for the Composite Endpoint of Recurrent and Terminal Events

Lu Mao* and Danyu Lin
University of North Carolina, Chapel Hill

SUNDAY, MARCH 10 (continued)

1d. Detection of Outliers and Influential Points in Multivariate Longitudinal Models

Yun Ling*, Stewart J. Anderson
Richard A. Bilonick and Gadi Wollstein
University of Pittsburgh School of Medicine

1e. Tests for Equivalence of Two Survival Functions in Proportional Odds Model

Elvis Martinez*, Debajyoti Sinha and
Wenting Wang, *Florida State University*
Stuart R Lipsitz, *Harvard University*

1f. A Class of Improved Hybrid Hochberg-Hommel Type Step-Up Multiple Test Procedures

Jiangtao Gou*, *Northwestern University*
Dror Rom, *Prosoft, Inc.*
Ajit C. Tamhane and Dong Xi
Northwestern University

1g. Characterization of Two-stage Continual Reassessment Method for Dose Finding Clinical Trials

Xiaoyu Jia, *Columbia University*

2. POSTERS: BAYESIAN METHODS / CAUSAL INFERENCE

Sponsor: ENAR

2a. Bayesian Models for Censored Binomial Data: Results from an MCMC Sampler

Jessica Pruszynski*, *Medical College of Wisconsin*
John W. Seaman, Jr., *Baylor University*

2b. An Approximate Uniform Shrinkage Prior for a Multivariate Generalized Linear Mixed Model

Hsiang-chun Chen* and Thomas E. Wehrly
Texas A&M University

2c. The Bayesian Adaptive Bridge

Himel Mallick* and Nengjun Yi
University of Alabama, Birmingham

2d. Detecting Local Two Sample Differences using Divide-merge Optional Polya Trees with an Application in Genetic Association Studies

Jacopo Soriano* and Li Ma, *Duke University*

2e. Efficient Bayesian Quantitative Trait Loci (QTL) Mapping for Longitudinal Traits

Wonil Chung* and Fei Zou
University of North Carolina, Chapel Hill

2f. Hierarchical Bayesian Model for Combining Information from Multiple Biological Samples with Measurement Errors: An Application to Children Pneumonia Etiology Study

Zhenke Wu* and Scott L. Zeger
Johns Hopkins Bloomberg School of Public Health

2g. A Bayesian Missing Data Framework for Generalized Multiple Outcome Mixed Treatment Comparisons

Hwanhee Hong*, Haitao Chu, Jing Zhang, Robert L. Kane and Bradley P. Carlin
University of Minnesota

2h. Large Sample Randomization Inference of Causal Effects in the Presence of Interference

Lan Liu* and Michael G. Hudgens
University of North Carolina, Chapel Hill

2i. Efficient Sampling Methods for Multivariate Normal and Student-t Distributions Subject to Linear Constraints

Yifang Li* and Sujit K. Ghosh
North Carolina State University

SUNDAY, MARCH 10 (continued)

3. POSTERS: MICROARRAY ANALYSIS / NEXT GENERATION SEQUENCING

Sponsor: ENAR

3a. **Profiling Cancer Genomes from Mixtures of Tumor and Normal Tissue via an Integrated Statistical Framework with SNP Microarray Data**

Rui Xia*, Selina Vattathil, and Paul Scheet
University of Texas
MD Anderson Cancer Center

3b. **A Profile-test for MicroRNA Microarray Data Analysis**

Bin Wang*, *University of South Alabama*

3c. **A Multiple Testing Method for Detecting Differentially Expressed Genes**

Linlin Chen*, *Rochester Institute of Technology*
Alexander Gordon, *University of North Carolina, Charlotte*

3d. **Application of Bilinear Models to Three Genome-wide Expression Analysis Problems**

Pamela J. Lescault, Julie A. Dragon and Jeffrey P. Bond*, *University of Vermont*

3e. **Reproducibility of the Neuroblastoma Gene Target Analysis Platform**

Pamela J. Lescault, Julie A. Dragon*, Jeffrey P. Bond, *University of Vermont*
Russ Ingersoll, *Intervention Insights*
Giselle Sholler, *Van Andel Institute*

3f. **High Dimensional Equivalence Testing using Shrinkage Variance Estimators**

Jing Qiu and Yue Qi*, *University of Missouri, Columbia*
Xiangqin Cui, *University of Alabama*

3g. **Removing Batch Effects for Prediction Problems with Frozen Surrogate Variable Analysis**

Hilary S. Parker*, *Johns Hopkins Bloomberg School of Public Health*
Hector Corrada Bravo, *University of Maryland, College Park*
Jeffrey T. Leek, J*ohns Hopkins Bloomberg School of Public Health*

3h. **Feature Selection among Ordinal Classes for High-throughput Genomic Data**

Kellie J. Archer*, *Virginia Commonwealth University*
Andre A.A. Williams, *National Jewish Health*

3i. **A Rank-based Regression Framework to Assess the Covariate Effects on the Reproducibility of High-throughput Experiments**

Qunhua Li*, *The Pennsylvania State University*

3j. **Nonparametric Methods for Identifying Differential Binding Regions with ChIP-Seq Data**

Qian Wu*, Kyoung-Jae Won, and Hongzhe Li
University of Pennsylvania School of Medicine

3k. **In Silico Pooling Designs for ChIP-seq Control Experiments**

Guannan Sun* and Sunduz Keles
University of Wisconsin, Madison

3l. **Method for Cancelling Nonuniformity Bias of RNA-seq for Differential Expression Analysis**

Guoshuai Cai* and Shoudan Liang
University of Texas MD Anderson Cancer Center

3m. **Binary Trait Analysis in Sequencing Studies with Trait-Dependent Sampling**

Zhengzheng Tang*, Danyu Lin and Donglin Zeng
University of North Carolina, Chapel Hill

3n. **Quantifying Copy Number Variations using a Hidden Markov Model with Inhomogeneous Emission Distributions**

Kenneth McCallum* and Ji-Ping Wang
Northwestern University

SUNDAY, MARCH 10 (continued)

4. POSTERS: STATISTICAL GENETICS / GENOMICS

Sponsor: ENAR

4a. **Detecting Rare and Common Variant in Next Generation Sequencing Data using a Bayesian Variable Selection**

Cheongeun Oh*, *New York University*

4b. **Dominance Modeling for GWAS Hit Regions with Generalized Resample Model Averaging**

Jeremy A. Sabourin*, Andrew Nobel and William Valdar, *University of North Carolina, Chapel Hill*

4c. **Empirical Bayes Analysis of RNA-seq without Replicates for Multiple Conditions**

Xiaoxing Cheng* and Zhijin Wu
Brown University

4d. **Estimating the Nucleotide Substitution Matrix using a Full Four-State Transition Rate Matrix**

Ho-Lan Peng* and Andrew R. Aschenbrenner
University of Texas School of Public Health

4e. **A Network-based Penalized Regression Method with Application to Genomic Data**

Sunkyung Kim*, *Centers for Disease Control and Prevention (CDC)*
Wei Pan and Xiaotong Shen, *University of Minnesota*

4f. **Hierarchal Model for Detecting Differentially Methylated Loci with Next Generation Sequencing**

Hongyan Xu* and Varghese George
Georgia Health Sciences University

4g. **Mixed Modeling and Sample Size Calculations for Identifying Housekeeping Genes in RT-PCR Data**

Hongying Dai*, *Children's Mercy Hospital*
Richard Charnigo, *University of Kentucky*
Carrie Vyhlidal and Bridgette Jones
Children's Mercy Hospital
Madhusudan Bhandary, *Columbus State University*

4h. **Likelihood Based Inference on Phylogenetic Trees with Applications to Metagenomics**

Xiaojuan Hao* and Dong Wang
University of Nebraska

4i. **A High Dimensional Variable Selection Approach using Tree-Based Model Averaging with Application to SNP Data**

Sharmistha Guha* and Saonli Basu
University of Minnesota

4j. **Comparison of Statistics in Association Tests of Genetic Markers for Survival Outcomes**

Franco Mendolia* and John P. Klein
Medical College of Wisconsin
Effie W. Petersdorf and Mari Malkki
Fred Hutchinson Cancer Research Center
Tao Wang, *Medical College of Wisconsin*

4k. **Sparse Multivariate Factor Regression Models and its Application to High-throughput Array Data Analysis**

Yan Zhou*, Peter X.K. Song and Ji Zhu
University of Michigan

4l. **Bayesian Group MCMC**

Alan B. Lenarcic* and William Valdar
University of North Carolina, Chapel Hill

4m. **Combining Peptide Intensities to Estimate Protein Abundance**

Jia Kang* and Francisco Dieguez, *Merck*

4n. **Bootstrap Methods for Genetic Association Analysis on Intermediate Phenotypes in Case-Control Studies**

Naomi Brownstein, Jianwen Cai, Gary Slade,
Shad Smith, Luda Diatchenko and Eric Bair*
University of North Carolina, Chapel Hill

SUNDAY, MARCH 10 (continued)

5. POSTERS: SURVIVAL ANALYSIS

Sponsor: ENAR

5a. Censored Quantile Regression with Recursive Partitioning Based Weights

Andrew Wey*, Lan Wang and Kyle Rudser,
University of Minnesota

5b. Nonparametric Comparison of Survival Functions Based on Interval Censored Data with Unequal Censoring

Ran Duan*, *University of Missouri, Columbia*
Yanqing Feng, *Wuhan University*
Tony (Jianguo) Sun, *University of Missouri, Columbia*

5c. Small Sample Properties of Logrank Test with High Censoring Rate

Yu Deng* and Jianwen Cai
University of North Carolina, Chapel Hill

5d. Stratified and Unstratified Log-rank Test in Correlated Survival Data

Yu Han*, David Oakes and Changyong Feng
University of Rochester

5e. Analysis of Multiple Myeloma Life Expectancy using Copula

Eun-Joo Lee*, *Millikin University*

5f. Frailty Probit Model for Clustered Interval-censored Failure Time Data

Haifeng Wu* and Lianming Wang
University of South Carolina, Columbia

5g. Semiparametric Accelerated Failure Time Modeling for Clustered Failure Times from Stratified Sampling

Sy Han Chiou*, Sangwook Kang and Jun Yan
University of Connecticut

5h. A Cumulative Incidence Joint Model of Time to Dialysis Independence and Inflammatory Marker Profiles in Acute Kidney Injury

Francis Pike*, Jonathan Yabes and
John Kellum, *University of Pittsburgh*

5i. Age-specific Risk Prediction with Longitudinal and Survival Data

Wei Dai* and Tianxi Cai, *Harvard School of Public Health*
Michelle Zhou, *Simon Fraser University*

5j. A Frailty-based Progressive Multistate Model for Progression and Death in Cancer Studies

Chen Hu*, *Radiation Therapy Oncology Group/ American College of Radiology*
Alex Tsodikov, *University of Michigan*

5k. Time-Dependent ROC Analysis using Data with Outcome-Dependent Sampling Bias

Shanshan Li* and Mei-Cheng Wang
Johns Hopkins School of Public Health

5l. Imputation Goodness-of-Fit Tests for Length-Biased and Right-Censored Data

Na Hu*, *University of Missouri, Columbia*
Jing Qin, *National Institute of Allergy and Infectious Diseases, National Institutes of Health*
Jianguo Sun, *University of Missouri, Columbia*

5m. A Weighted Approach to Estimation in AFT model for Right-Censored Length-Biased Data

Chetachi A. Emeremni* and Abdus S. Wahed
University of Pittsburgh

5n. Semiparametric Approach for Regression with Covariate Subject to Limit of Detection

Shengchun Kong* and Bin Nan
University of Michigan

5o. A Weighted Estimator of Accelerated Failure Time Model under Presence of Dependent Censoring

Youngjoo Cho* and Debashis Ghosh
The Pennsylvania State University

5p. Non-parametric Confidence Bands for Survival Function Using Martingale Method

Seung-Hwan Lee*, *Illinois Wesleyan University*

SUNDAY, MARCH 10 (continued)

6. POSTERS: LONGITUDINAL AND MISSING DATA

Sponsor: ENAR

6a. **Pooled Correlation Coefficients for Longitudinally Measured Biomarkers**

Su Chen* and Thomas M. Braun
University of Michigan

6b. **Longitudinal Analysis of the Effect of Health Traits on Relationships in a Social Network**

A. James O'Malley*, *Harvard Medical School*
Sudeshna Paul, *Emory University*

6c. **A Markov Transition Model for Longitudinal Ordinal Data with Applications to Knee Osteoarthritis and Physical Function Data**

Huiyong Zheng*, Carrie Karvonen-Gutierrez and Siobàn D. Harlow, *University of Michigan*

6d. **Zero-Inflation in Clustered Binary Response Data: Mixed Model and Estimating Equation Approaches**

Kara A. Fulton*, Danping Liu and Paul S. Albert, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*

6e. **The Use of Tight Clustering Technique in Determining Latent Longitudinal Trajectory Groups**

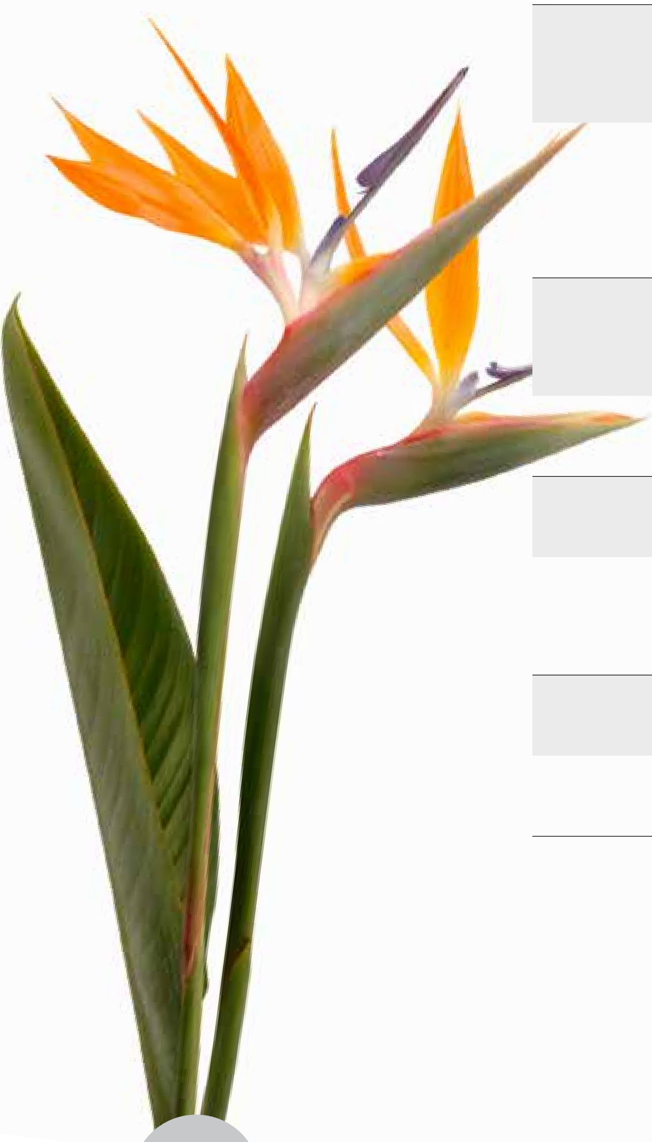
Ching-Wen Lee* and Lisa A. Weissfeld
University of Pittsburgh

6f. **A Novel Semi-Parametric Approach for Imputing Mixed Data**

Irene B. Helenowski*, *Northwestern University*
Hakan Demirtas, *University of Illinois at Chicago*

6g. **Hot Deck Imputation of Nonignorable Missing Data with Sensitivity Analysis**

Danielle M. Sullivan* and Rebecca Andridge
The Ohio State University



6h. **Imputing Missing Child Weights in Growth Curve Analyses**

Paul Kolm* and Deborah Ehrenthal
Christiana Care Health System
Matthew Goldshore, *John Hopkins University*

6i. **Study of Sexual Partner Accrual Patterns among Adolescent Women via Generalized Additive Mixed Models**

Fei He*, *Indiana University School of Medicine*
Jaroslaw Harezlak, *Indiana University Schools of Public Health and Medicine*
Dennis J. Fortenberry, *Indiana University School of Medicine*

6j. **Statistical Analysis with Missing Exposure Data Measured by Proxy Respondents: A Misclassification Problem Embedded in a Missing-data Problem**

Michelle Shardell*, *University of Maryland School of Medicine*

7. POSTERS: IMAGING / HIGH DIMENSIONAL DATA

Sponsor: ENAR

7a. **Homotopic group ICA**

Juemin Yang* and Ani Eloyan, *Johns Hopkins University*
Anita Barber, Mary Beth Nebel,
Stewart Mostofsky and James Pekar
Kennedy Krieger Institute
Brian Caffo, *Johns Hopkins University*

7b. **The 'General Linear Model' in fMRI Analysis**

Wenzhu Mowrey*, *Albert Einstein College of Medicine*

SUNDAY, MARCH 10 (continued)

7c. **OASIS is Automated Statistical Inference for Segmentation with Applications to Multiple Sclerosis Lesion Segmentation in MRI**

Elizabeth M. Sweeney*, *Johns Hopkins University*
Russell T. Shinohara, *University of Pennsylvania*
Navid Shiee, *Henry M. Jackson Foundation*
Farrah J. Mateen, *Johns Hopkins University*
Avni A. Chudgar, *Brigham and Women's Hospital and Harvard Medical School*
Jennifer L. Cuzzocreo and Peter A. Calabresi *Johns Hopkins University*
Dzung L. Pham, *Henry M. Jackson Foundation*
Daniel S. Reich, *National Institute of Neurological Disease and Stroke, National Institutes of Health*
Ciprian M. Crainiceanu, *Johns Hopkins University*

7d. **Nonlinear Mixed Effects Modeling with Diffusion Tensor Imaging Data**

Namhee Kim*, Craig A. Branch and Michael L. Lipton, *Albert Einstein College of Medicine of Yeshiva University*

7e. **Clustering of High-dimensional Longitudinal Data**

Seonjoo Lee*, *Henry Jackson Foundation*
Vadim Zipunnikov, Brian S. Caffo and Ciprian Crainiceanu, *Johns Hopkins University*
Dzung L. Pham, *Henry Jackson Foundation*

7f. **Multiple Comparison Procedures for Neuroimaging Genomewide Association Studies**

Wen-Yu Hua*, *The Pennsylvania State University*
Thomas E. Nichols, *University of Warwick, U.K.*
Debashis Ghosh, *The Pennsylvania State University*

7g. **Tests of the Monotonicity and Convexity in the Presence of Correlation and their Application on Describing Molecule Structure**

Huan Wang*, Mary C. Meyer, Jean D. Opsomer and F. J. Breidt, *Colorado State University*

7h. **Structured Functional Principal Component Analysis**

Haochang Shou*, Vadim Zipunnikov and Ciprian M. Crainiceanu, *Johns Hopkins Bloomberg School of Public Health*
Sonja Greven, *Ludwig-Maximilians-Universitat, Germany*

7i. **Functional Data Analysis of Tree Data Objects**

Dan Shen*, Haipeng Shen and Shankar Bhamidi, *University of North Carolina, Chapel Hill*
Yolanda Mu~noz Maldonado, *Research Institute, Beaumont Health System*
Yongdai Kim, *Seoul National University*
Steve Marron, *University of North Carolina, Chapel Hill*

7j. **Multicategory Large-margin Unified Machines**

Chong Zhang*, Derek Y. Chiang and Yufeng Liu, *University of North Carolina, Chapel Hill*

8. POSTERS: MODEL, PREDICTION, VARIABLE SELECTION AND DIAGNOSTIC TESTING

Sponsor: ENAR

8a. **Penalized Cox Model for Identification of Variables' Heterogeneity Structure in Pooled Studies**

Xin Cheng*, *New York University School of Medicine*
Wenbin Lu, *North Carolina State University*
Mengling Liu, *New York University School of Medicine*

8b. **Bayesian Predictive Divergence Based Model Selection Criteria for Censored and Missing Data**

Liwei Wang* and Sujit K. Ghosh
North Carolina State University

8c. **A Tutorial on Least Angel Regression**

Wei Xiao*, Yichao Wu, and Hua Zhou
North Carolina State University

SUNDAY, MARCH 10 (continued)

8d. Variable Selection in Measurement Error Models via Least Squares Approximation

Guangning Xu* and Leonard A. Stefanski
North Carolina State University

8e. Smoothed Stability Selection for Analysis of Sequencing Data

Eugene Urrutia*, Yun Li and Michael C. Wu
University of North Carolina, Chapel Hill

8f. Joint Modeling of Time-to-event Data and Multiple Ratings of a Discrete Diagnostic Test without Gold Standard

Seung Hyun Won*, Gong Tang and Ruosha Li,
University of Pittsburgh

8g. Logic Regression Modeling with Repeated Measurement Data and its Applications on Syndromic Diagnosis of Vaginal Infections in India

Tan Li* and Wensong Wu, *Florida International University*

8h. Sequential Change Point Detection in Linear Quantile Regression Models

Mi Zhou* and Huixia (Judy) Wang
North Carolina State University

8i. Assessment of the Clinical Utility of a Predictive Model for Colorectal Adenoma Recurrence

Mallorie Fiero*, Dean Billheimer,
Joshua Mallet and Bonnie LaFleur
University of Arizona

8j. Assessing Accuracy of Population Screening using Longitudinal Marker

Paramita Saha-Chaudhuri*, *Duke University*
Patrick Heagerty, *University of Washington*

8k. Assessing Calibration of Risk Prediction Models for Polytomous Outcomes

Kirsten Van Hoorde*, Sabine Van Huffel,
Dirk Timmerman and Ben Van Calster
Katholieke Universiteit, Leuven, Belgium

8l. Testing Multiple Biological Mediators Simultaneously

Simina M. Boca*, Rashmi Sinha,
Amanda J. Cross, Steven C. Moore and
Joshua N. Sampson, *National Cancer Institute, National Institutes of Health*

8m. Marginal Analysis of Measurement Agreement among Multiple Raters with Non-ignorable Missing Ratings

Yunlong Xie* and Zhen Chen, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*

8n. Improving Classification Accuracy by Combining Longitudinal Measurements when Analyzing Censored Biomarker Data due to a Limit of Detection

Yeonhee Kim*, *Gilead Sciences*
Lan Kong, *Penn State Hershey College of Medicine*

8o. A Hybrid Bayesian Hierarchical Model Combining Cohort and Case-control Studies for Meta-analysis of Diagnostic Tests: Accounting for Disease Prevalence and Partial Verification Bias

Xiaoye Ma* and Haitao Chu, *University of Minnesota*
Yong Chen, *University of Texas*
Stephen R. Cole, *University of North Carolina, Chapel Hill*

SUNDAY, MARCH 10 (continued)

9. POSTERS: ENVIRONMENTAL, EPIDEMIOLOGICAL AND HEALTH SERVICES STUDIES

Sponsor: ENAR

9a. Estimating Source-Specific Effects of Fine Particulate Matter Emissions on Cardiovascular and Respiratory Hospitalizations using SPECIATE and NEI Data

Amber J. Hackstadt* and Roger D. Peng
Johns Hopkins University

9b. The Impact of Values Below the Minimum Detection Limit on Source Apportionment Results

Jenna R. Krall* and Roger D. Peng
Johns Hopkins University

9c. Modeling the Dynamic Relationships Among Air Pollutants Over Time and Space Through Penalized Splines

Zhenzhen Zhang* and Brisa N. Sanchez
University of Michigan

9d. Bayesian Comparative Calibration of Self-Reports and Peer-Reports of Alcohol Use on a Social Network

Miles Q. Ott* and Joseph W. Hogan
Brown University
Krista J. Gile, *University of Massachusetts*
Crystal D. Linkletter and Nancy P. Barnett
Brown University

9e. Differential Impact of Junk Food Policies on Population Childhood Overweight Trends by Socio-economic Status

Sarah Abraham*, *University of Michigan*
Brisa N. Sanchez, *University of Michigan*
Emma V. Sanchez-Vaznaugh, *San Francisco State University*
Jonggyu Baek, *University of Michigan*

9f. Association of Selected Heavy Metals and Fatty Acids with Obesity

Stephanie Schilz*, *Concordia College*
Budhinath Padhy, Douglas Armstrong and Gemechis Djira, *South Dakota State University*

9g. A Semi-Nonparametric Propensity Score Model for Treatment Assignment Heterogeneity with Application to Electronic Medical Record Data

Baiming Zou*, Fei Zou, Jianwen Cai and Haibo Zhou, *University of North Carolina, Chapel Hill*

9h. Estimating Incremental Cost-Effectiveness Ratios and their Confidence Intervals with Different Terminating Events for Survival Time and Costs

Shuai Chen* and Hongwei Zhao
Texas A&M University

9i. A General Framework for Sensitivity Analysis of Cost Data with Unmeasured Confounding

Elizabeth A. Handorf*, *Fox Chase Cancer Center*
Justin E. Bekelman, Daniel F. Heitjan and Nandita Mitra, *University of Pennsylvania*

9j. The Appropriateness of Comorbidity Scores to Account for Clinical Prognosis and Confounding in Observational Studies

Brian L. Egleston*, *Fox Chase Cancer Center*
Steven R. Austin, *Johns Hopkins University*
Yu-Ning Wong, Robert G. Uzzo and J. R. Beck
Fox Chase Cancer Center

9k. Assessment of Health Care Quality with Multilevel Models

Christopher Friese*, Rong Xia and Mousumi Banerjee, *University of Michigan*

9l. Testing for Biased Inference in Case-Control Studies

David Swanson* and Rebecca Betensky
Harvard University

SUNDAY, MARCH 10 (continued)

10. POSTERS: NON-PARAMETRIC AND SPATIAL MODELS

Sponsor: ENAR

10a. Nonparametric MANOVA Approaches for Multivariate Outcomes in Small Clinical Studies

Fanyin He* and Sati Mazumdar, *University of Pittsburgh*

10b. Nonparametric Regression for Event Times in Multistate Models with Clustered Current Status Data with Informative Cluster Size

Ling Lan*, *Georgia Health Sciences University*
Dipankar Bandyopadhyay, *University of Minnesota*
Somnath Datta, *University of Louisville*

10c. Population Spatial Clustering to Determine Optimal Placement of Care Centers

John R. Zeiner* and Jennie Wheeler
University of Pittsburgh Medical Center

10d. Process-based Bayesian Melding of Occupational Exposure Models and Industrial Workplace Data

Joao Monteiro*, *Duke University*
Sudipto Banerjee and
Gurumurthy Ramachandran, *University of Minnesota*

10e. A Generalized Weighted Regression Approach for Assessing Local Determinants in the Prediction of Reliable Cost Estimates

Giovanni Migliaccio, *University of Washington*
Michele Guindani, *University of Texas MD Anderson Cancer Center*
Maria Incognito, *Department of Civil, Environmental, Building and Chemical Engineering, Bari, Italy*
Linlin Zhang*, *Rice University*

10f. Evaluation of Non-parametric Pair Correlation Function Estimate for Log-Gaussian Cox Processes under Infill Asymptotics

Ming Wang*, Jian Kang, and Lance A. Waller
Emory University

MONDAY, MARCH 11

8:30 – 10:15 a.m.	**11.**	**SPATIAL STATISTICS FOR ENVIRONMENTAL HEALTH STUDIES** Miami Room Sponsors: ASA Section on Statistics in Epidemiology, ASA Section on Statistics and the Environment Organizer: Sudipto Banerjee, *University of Minnesota* Chair: Amy Herring, *University of North Carolina, Chapel Hill*
8:30 a.m.		**A Bayesian Spatially-varying Coefficients Model for Estimating Mortality Risks Associated with the Chemical Composition of Fine Particulate Matter** Francesca Dominici*, *Harvard School of Public Health*
8:55 a.m.		**Spatial Surveillance for Neglected Tropical Diseases** Lance A. Waller*, Shannon McClintock and Ellen Whitney, *Emory University*
9:20 a.m.		**Multivariate Spatial-temporal Model for Birth Defects and Ambient Air Pollution Risk Assessment** Montse Fuentes*, *North Carolina State University* Josh Warren and Amy Herring, *University of North Carolina, Chapel Hill* Peter Langois, *Texas State Health Department*
9:45 a.m.		**On Dynamic Areal Models for Air Quality Assessment** Sudipto Banerjee*, Harrison Quick and Bradley P. Carlin, *University of Minnesota*
10:10 a.m.		**Floor Discussion**

MONDAY, MARCH 11 (continued)

12. BAYESIAN APPROACHES TO GENOMIC DATA INTEGRATION

Grand Ballroom 7A

Sponsor: ISBA

Organizer: Michele Guindani, *University of Texas MD Anderson Cancer Center*

Chair: Debashis Ghosh, *The Pennsylvania State University*

8:30 a.m. **Decoding Functional Signals with the Role Model**

Michael A. Newton*, Qiuling He and Zhishi Wang
University of Wisconsin, Madison

8:55 a.m. **An Integrative Bayesian Modeling Approach to Imaging Genetics**

Marrina Vannucci*, *Rice University*
Francesco C. Stingo and Michele Guindani, *University of Texas MD Anderson Cancer Center*

9:20 a.m. **Bayesian Graphical Models for Differential Pathways**

Peter Mueller* and Riten Mitra, *University of Texas*, *Austin*
Yuan Ji, *NorthShore University Health System*

9:45 a.m. **Applications of Sparse Bayesian Regression in Genomics**

Sylvia Richardson*, *MRC Biostatistics Unit*
Leonardo Bottolo, *Imperial College, London*
Benoit Liquet and Paul Newcombe
MRC Biostatistics Unit

10:10 a.m. **Floor Discussion**

13. NEW DEVELOPMENTS IN FUNCTIONAL DATA ANALYSIS

Grand Ballroom 7B

Sponsor: IMS

Organizer: Yehua Li, *Iowa State University*

Chair: Yehua Li, *Iowa State University*

8:30 a.m. **Index Models for Sparsely Sampled Functional Data**

Gareth James*, Xinghao Qiao and Peter Radchenko
University of Southern California

8:55 a.m.	**Functional Data Analysis of Generalized Quantile Regressions** Mengmeng Guo, *Southwestern University of Finance and Economics, China* Lan Zhou* and Jianhua Huang, *Texas A&M University* Wolfgang Haerdle, *Humboldt University, Berlin*
9:20 a.m.	**A General Asymptoic Framework for PCA Consistency** Haipeng Shen*, Dan Shen and J. S. Marron, *University of North Carolina, Chapel Hill*
9:45 a.m.	**Dimension Reduction for Sparse Functional Data** Fang Yao* and Edwin Lei, *University of Toronto*
10:10 a.m.	**Floor Discussion**

14. TOOLS FOR IMPLEMENTING REPRODUCIBLE RESEARCH

Grand Ballroom 8A

Sponsor: ENAR

Organizer: Benjamin French, *University of Pennsylvania*

Chair: Benjamin French, *University of Pennsylvania*

8:30 a.m.	**Reproducible Research: Selecting Data Operations Tools** Brad H. Pollock*, *University of Texas Health Science Center at San Antonio*
9:00 a.m.	**Reproducible Research Tools for Creating Books** Max Kuhn*, *Pfizer Global R&D*
9:30 a.m.	**Knitr: A General-purpose Tool for Dynamic Report Generation in R** Yihui Xie*, *Iowa State University*
10:00 a.m.	**Discussant:** Brian Bot, *Sage Bionetworks*

MONDAY, MARCH 11 (continued)

15. ADAPTIVE DESIGNS FOR CLINICAL TRIALS: ACADEMIA, INDUSTRY AND GOVERNMENT

Grand Ballroom 8B

Sponsor: ASA Biopharmaceutical Section

Organizer: Ying Yuan, *University of Texas MD Anderson Cancer Center*

Chair: Ying Yuan, *University of Texas MD Anderson Cancer Center*

8:30 a.m. **Bayesian Adaptive Design and Commensurate Priors for Device Surveillance**

Bradley P. Carlin* and Thomas A. Murray, *University of Minnesota*
Theodore C. Lystig, *Medtronic Inc.*
Brian P. Hobbs, *University of Texas MD Anderson Cancer Center*

9:00 a.m. **Adaptive Designs and Decision Making in Phase 2: It is not about the Type I Error Rate**

Brenda L. Gaydos*, *Eli Lilly and Company*

9:30 a.m. **Adaptive Designs: A CBER Statistical Perspective**

Estelle Russek-Cohen*, Min A. Lin and John A. Scott, *U.S. Food and Drug Administration Center for Biologics*

10:00 a.m. **Floor Discussion**

16. COPULAS: THEORY AND APPLICATIONS

Grand Ballroom 6

Sponsors: ASA Biometrics Section and ASA Section on Statistics and the Environment

Organizer: Radu V Craiu, *University of Toronto*

Chair: Elif Acar, *McGill University*

8:30 a.m. **Bayesian Inference for Conditional Copula Models with Continuous and Discrete Random Variables**

Radu V. Craiu* and Avideh Sabeti, *University of Toronto*

9:00 a.m. **Testing Hypotheses for the Copula of Dynamic Models**

Bruno Remillard*, *HEC Montreal*

9:30 a.m. **GeoCopula Models for Spatial-clustered Data Analysis**

Peter X.K. Song*, *University of Michigan*
Yun Bai, *Fifth Third Bank*

10:00 a.m. **Discussant:**

Elif Acar, *McGill University*

17. STOCHASTIC MODELING AND INFERENCE FOR DISEASE DYNAMICS

Grand Ballrooms 4 & 5

Sponsor: ENAR

Organizer: Bret Hanlon, *University of Wisconsin*

Chair: Bret Hanlon, *University of Wisconsin*

8:30 a.m.	**Graphical Models of the Effect Highly Infectious Disease** Clyde F. Martin*, *Texas Tech University*
9:00 a.m.	**New Methods for Estimating and Projecting the National HIV/AIDS Prevalence** Le Bao*, *The Pennsylvania State University*
9:30 a.m.	**Spatial Point Processes and Infectious Dynamics in Cell Cultures** John Fricks*, *The Pennsylvania State University*
10:00 a.m.	**Floor Discussion**

18. CONTRIBUTED PAPERS:

MODEL SELECTION FOR HIGH-DIMENSIONAL GENETICS DATA

Los Angeles Room

Sponsor: ENAR

Chair: Wensong Wu, *Florida International University*

8:30 a.m.	**Regularized Integrative Analysis of Cancer Prognosis Studies** Jin Liu*, *Yale University* Jian Huang, *University of Iowa* Shuangge Ma, *Yale University*
8:45 a.m.	**A Bayesian Dimension Reduction Approach for Detection of Multi-locus Interaction in Case-control Studies** Debashree Ray*, Xiang Li, Wei Pan and Saonli Basu *University of Minnesota*
9:00 a.m.	**Gene-gene and Gene-environment Interactions: Beyond the Traditional Linear Models** Yuehua Cui*, *Michigan State University*

MONDAY, MARCH 11 (continued)

9:15 a.m.	**A Variable-Selection-Based Novel Statistical Approach to Identify Susceptible Rare Variants Associated with Complex Diseases with Deep Sequencing Data** Hokeun Sun* and Shuang Wang, *Columbia University*
9:30 a.m.	**A Novel Method to Correct Partially Sequenced Data for Rare Variant Association Test** Song Yan*, *University of North Carolina, Chapel Hill*
9:45 a.m.	**ChIP-Seq out, ChIP-exo in?** Dongjun Chung*, *Yale University* Irene Ong, Jeffrey Grass, Robert Landick and Sunduz Keles, *University of Wisconsin, Madison*
10:00 a.m.	**Functional Mixed Effects Models for Imaging Genetic Data** ● Ja-An Lin*, Hongtu Zhu, Wei Sun, Jiaping Wang and Joseph G. Ibrahim, *University of North Carolina, Chapel Hill*

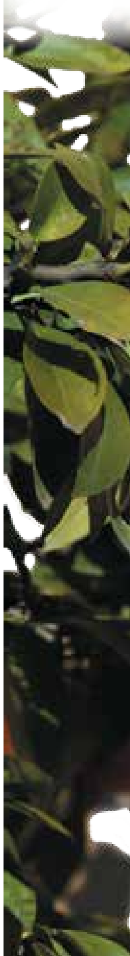
19. CONTRIBUTED PAPERS: CAUSAL INFERENCE

Grand Ballroom 3

Sponsors: ENAR and ASA Section on Statistics in Epidemiology

Chair: Alisa Stephens, *University of Pennsylvania*

8:30 a.m.	**Causal Inference for the Nonparametric Mann-Whitney-Wilcoxon Rank Sum Test** Pan Wu*, *University of Rochester*
8:45 a.m.	**Sharpening Bounds on Principal Effects with Covariates** ● Dustin M. Long*, *West Virginia University* Michael G. Hudgens, *University of North Carolina, Chapel Hill*
9:00 a.m.	**Model Averaged Double Robust Estimation** ● Matthew Cefalu* and Francesca Dominici, *Harvard School of Public Health* Giovanni Parmigiani, *Dana-Farber Cancer Institute* and *Harvard School of Public Health*



9:15 a.m.	**New Approaches for Estimating Parameters of Structural Nested Models** Edward H. Kennedy* and Marshall M. Joffe, *University of Pennsylvania School of Medicine*
9:30 a.m.	**Marginal Structural Cox Models with Case-cohort Sampling** Hana Lee*, Michael G. Hudgens and Jianwen Cai *University of North Carolina, Chapel Hill*
9:45 a.m.	**Targeted Minimum Loss-based Estimation of a Causal Effect on an Outcome with Known Conditional Bounds** Susan Gruber*, Harvard School of Public Health Mark J. van der Laan, *University of California, Berkeley*
10:00 a.m.	**Surrogacy Assessment Using Principal Stratification When Surrogate and Outcome Measures are Multivariate Normal** Anna SC Conlon*, Jeremy MG Taylor and Michael R. Elliott, *University of Michigan*

20. CONTRIBUTED PAPERS:

HEALTH SERVICES AND HEALTH POLICY RESEARCH

St. Louis Room

Sponsor: ENAR

Chair: HaiYing Wang, *University of Missouri*

8:30 a.m.	**Risk-Adjusted Indices of Community Need Using Spatial GLMMs** Glen D. Johnson*, *Lehman College, CUNY School of Public Health*
8:45 a.m.	**Data Enhancements and Modeling Efforts to Inform Recent Health Policy Initiatives** Steven B. Cohen*, *Agency for Healthcare Research and Quality*
9:00 a.m.	**Estimate the Transition Probability of Disease Stages using Large Healthcare Databases with a Hidden Markov Model** Lola Luo*, Dylan Small and Jason A. Roy, *University of Pennsylvania*

MONDAY, MARCH 11 (continued)

9:15 a.m.	**Median Cost Associated with Repeated Hospitalizations in Presence of Terminal Event** Rajeshwari Sundaram*, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health* Subhshis Ghoshal, *North Carolina State University* Alexander C. McLain, *University of South Carolina*
9:30 a.m.	**Doubly Robust Estimation of the Cost-Effectiveness of Revascularization Strategies** Zugui Zhang*, Paul Kolm and William S. Weintraub *Christiana Care Health System*
9:45 a.m.	**Computing Standardized Readmission Ratios Based on a Large Scale Data Set for Kidney Dialysis Facilities with or without Adjustment of Hospital Effects** Jack D. Kalbfleisch, Yi Li and Kevin He*, *University of Michigan* Yijiang Li, *Google*
10:00 a.m.	**Multiple Mediation in Cluster-randomised Trials** Sharon Wolf, *New York University* Elizabeth L. Turner*, *Duke University* Margaret Dubeck, *College of Charleston* Simon Brooker, *London School of Hygiene and Tropical Medicine and Kenyan Medical Research Institute* Matthew Jukes, *Harvard University*

	21.	**CONTRIBUTED PAPERS:** **PREDICTION / PROGNOSTIC MODELING** Tampa Room Sponsors: ENAR and ASA Biopharmaceutical Section Chair: Natalie M. Exner, *Harvard University*
8:30 a.m.		**Predicting Treatment Response for Rheumatoid Arthritis Patients with Electronic Medical Records** Yuanyuan Shen*, *Harvard School of Public Health*
8:45 a.m.		**A Simple Plus/Minus Method for Discrimination in Genomic Data Analysis** Sihai Zhao*, *University of Pennsylvania* Levi Waldron, *Harvard School of Public Health* and *Dana Farber Cancer Institute* Curtis Huttenhower, *Harvard School of Public Health* Giovanni Parmigiani, *Harvard School of Public Health* and *Dana Farber Cancer Institute*
9:00 a.m.		**Evaluation of Gene Signature for Clinical Association by Principal Component Analysis** Dung-Tsa Chen*, *Moffitt Cancer Center* Ying-Lin Hsu, *National Chung Hsing University, Taiwan*
9:15 a.m.		**A Model-free Machine Learning Method for Survival Probability Prediction** Yuan Geng*, Wenbin Lu and Hao H. Zhang, *North Carolina State University*
9:30 a.m.		**Survival Analysis of Cancer Data Using the Random Forests, an Ensemble of Trees** Bong-Jin Choi* and Chris P. Tsokos, *University of South Florida*
9:45 a.m.		**Landmark Estimation of Survival and Treatment Effect in a Randomized Clinical Trial** Layla Parast*, *RAND Corporation* Lu Tian, *Stanford University* Tianxi Cai, *Harvard University*
10:00 a.m.		**A Bayesian Approach to Adaptively Determining the Sample Size Required to Assure Acceptably Low Risk of Undesirable Adverse Events** A. Lawrence Gould* and Xiaohua Douglas Zhang *Merck Research Laboratories*

MONDAY, MARCH 11 (continued)

22. CONTRIBUTED PAPERS: CLUSTERING ALGORITHMS FOR BIG DATA

San Francisco Room

Sponsor: ENAR

Chair: Partha Sarathi Mukherjee, *Boise State University*

8:30 a.m.	**Identification of Biologically Relevant Subtypes via Preweighted Sparse Clustering** Sheila Gaynor* and Eric Bair, *University of North Carolina, Chapel Hill*
8:45 a.m.	**Biclustering Via Sparse Clustering** Qian Liu* and Eric Bair, *University of North Carolina, Chapel Hill*
9:00 a.m.	**Biclustering with Heterogeneous Variance** Guanhua Chen*, Patrick F. Sullivan and Michael R. Kosorok, *University of North Carolina, Chapel Hill*
9:15 a.m.	**Biclustering with the EM Algorithm** Prabhani Kuruppumullage Don*, Bruce G. Lindsay and Francesca Chiaromonte, *The Pennsylvania State University*
9:30 a.m.	**A Statistical Framework for Integrative Clustering Analysis of Multi-type Genomic Data** Qianxing Mo*, *Baylor College of Medicine* Ronglai Shen, *Memorial Sloan-Kettering Cancer Center* Sijian Wang, *University of Wisconsin, Madison* Venkatraman Seshan, *Memorial Sloan-Kettering Cancer Center* Adam Olshen, *University of California, San Francisco*

9:45 a.m.	**High Dimensional SDEs Coupled with Mixed-Effects Modeling Techniques for Dynamic Gene Regulatory Network Identification**
	Iris Chen*, Xing Qiu and Hulin Wu, *University of Rochester*
10:00 a.m.	**Modeling and Characterization of Differential Patterns of Gene Expression Underlying Phenotypic Plasticity using RNA-Seq**
	Ningtao Wang*, Yaqun Wang and Zhong Wang *The Pennsylvania State University* Zuoheng Wang, *Yale University* Kathryn J. Huber, Jin-Ming Yang and Rongling Wu *The Pennsylvania State University*
10:15 – 10:30 p.m.	**Refreshment Break and Visit Our Exhibitors** Grand Ballroom Foyer
10:30 a.m. – 12:15 p.m.	**23. BIOSTATISTICAL METHODS IN FORENSICS, LAW AND POLICY** Grand Ballrooms 4 & 5
	Sponsors: ENAR and ASA Biometrics Section
	Organizer: Qing Pan, *George Washington University*
	Chair: Sarah Ratcliffe, *University of Pennsylvania*
10:30 a.m.	**Statistical Methods for Signal Detection in Longitudinal Observational Drug Safety Data**
	Ram C. Tiwari*, Lan Huang and Jyoti N. Zalkikar *U.S. Food and Drug Administration*
10:55 a.m.	**The Matrixx Initiatives v. Siracusano Case and the Statistical Analysis of Adverse Event Data**
	Joseph L. Gastwirth*, *George Washington University*
11:20 a.m.	**Statistical Evaluation of the Weight of Fingerprint Evidence: Legal Perspective of the Benefits and Limitations of Fingerprint Statistical Models**
	Cedric Neumann*, *The Pennsylvania State University* and *Two's Forensics LLC*
11:45 a.m.	**Case Comments on Adams v. Perrigo: Adopting a Weaker Criterion for Bioequivalence in Patent Infringement Cases than the One in Approving New Drugs by FDA**
	Qing Pan*, *George Washington University*
12:10 p.m.	**Floor Discussion**

MONDAY, MARCH 11 (continued)

24. BRIDGING TO STATISTICS OUTSIDE THE PHARMACEUTICAL INDUSTRY: CAN WE BE MORE EFFICIENT IN DESIGNING AND SUPPORTING CLINICAL TRIALS?

Los Angeles Room

Sponsor: ASA Biopharmaceutical Section

Organizer: Olga Marchenko, *Quintiles*

Chair: Olga Marchenko, *Quintiles*

10:30 a.m.	**Cross-fertilization of Statistical Designs and Methods Between Biopharma and other Industries** Jose C. Pinheiro* and Chyi-Hung Hsu, *Janssen Research & Development*
11:00 a.m.	**Clinical Trials: Predictive Enrollment Modeling and Monitoring** Valerii Fedorov*, *Quintiles*
11:30 a.m.	**Multi-arm Adaptive Designs for Phase II Trials in Recurrent Glioblastoma** Lorenzo Trippa*, *Dana-Farber Cancer Institute*
12:00 p.m.	**Discussant:** Lisa Lavange, *U.S. Food and Drug Administration*

25. NEW ADVANCES IN FUNCTIONAL DATA ANALYSIS WITH APPLICATION TO MENTAL HEALTH RESEARCH

Grand Ballroom 7A

Sponsor: ENAR

Organizer: Huaihou Chen, *Columbia University*

Chair: Huaihou Chen, *Columbia University*

10:30 a.m.	**Functional Principal Component Analysis for Multivariate Functional Data** Chongzhi Di*, *Fred Hutchinson Cancer Research Center*
10:55 a.m.	**Spline Confidence Envelopes for Covariance Function in Dense Functional/Longitudinal Data** Guanqun Cao*, *Auburn University* Li Wang, *University of Georgia* Yehua Li, *Iowa State University* Lijian Yang, *Soochow University* and *Michigan State University*

11:20 a.m.	**Pointwise Degrees of Freedom and Mapping of Neurodevelopmental Trajectories** Philip T. Reiss*, *New York University* and *Nathan Kline Institute* Lei Huang, *Johns Hopkins University* Huaihou Chen, *New York University*
11:45 a.m.	**Variable Selection in Functional Linear Models** Yihong Zhao*, *New York University Medical Center*
12:10 p.m.	**Floor Discussion**

26. SELECTION IN HIGH-DIMENSIONAL ANALYSIS

Grand Ballroom 8A

Sponsor: ENAR

Organizer: Yichuan Zhao, *Georgia State University*

Chair: Yang Feng, *Columbia University*

10:30 a.m.	**Classification Rule of Feature Augmentation and Nonparametric Selection in High Dimensional Space** Jianqing Fan*, *Princeton University* Yang Feng, *Columbia University* Xin Tong, *Massachusetts Institute of Technology*
10:55 a.m.	**High-Dimensional Sparse Additive Hazards Regression** Runze Li, *The Pennsylvania State University* Jinchi Lv*, *University of Southern California*
11:20 a.m.	**Ultrahigh Dimensional Time Course Feature Selection** Peirong Xu, *China East Normal University* Lixing Zhu, *Hong Kong Baptist University* Yi Li*, *University of Michigan*
11:45 a.m.	**Automatic Structure Recovery for Additive Models** Yichao Wu* and Len Stefanski, *North Carolina State University*
12:10 p.m.	**Floor Discussion**

MONDAY, MARCH 11 (continued)

27. STATISTICS OF ENVIRONMENTAL HEALTH: CONSIDERING SPATIAL EFFECTS AND VARIOUS SOURCES OF POLLUTANT EXPOSURE ON HUMAN HEALTH OUTCOMES

Grand Ballroom 8B

Sponsors: ASA Section on Statistics in Epidemiology and ASA Section on Statistics and the Environment

Organizer: Elizabeth Mannshardt, *North Carolina State University*

Chair: Md Monir Hossain, *Cincinnati Children's Hospital Medical Center*

10:30 a.m. **Bayesian Models for Cumulative Spatial-Temporal Risk Assessment**

Catherine Calder*, *The Ohio State University*
David Wheeler, *Virginia Commonwealth University*

10:55 a.m. **On the Use of a p.m._2.5 Exposure Simulator to Explain Birthweight**

Veronica J. Berrocal*, *University of Michigan*
Alan E. Gelfand, *Duke University*
David M. Holland, *U.S. Environmental Protection Agency*
Marie Lynn Miranda, *University of Michigan*

11:20 a.m. **Time Series Analysis of Air Pollution and Health Accounting for Spatial Exposure Uncertainty**

Howard Chang*, Yang Liu and Stefanie Sarnat
Emory University
Brian Reich, *North Carolina State University*

11:45 a.m. **Climate Change and Human Mortality**

Richard L. Smith*, *University of North Carolina, Chapel Hill* and *SAMSI*
Ben Armstrong, *London School of Hygiene and Tropical Medicine*
Tamara Greasby, *National Center for Atmospheric Research*
Paul Kushner, *University of Toronto*
Joel Schwartz, *Harvard School of Public Health*
Claudia Tebaldi, *Climate Central*

12:10 p.m. **Floor Discussion**

28. STATISTICAL ANALYSIS OF DYNAMIC MODELS: THEORY AND APPLICATION

Grand Ballroom 7B

Sponsor: IMS

Organizer: Samuel Kou, *Harvard University*

Chair: Li Ma, *Duke University*

10:30 a.m.	**Multistability and Statistical Inference of Dynamical System** Wing H. Wong*, Arwen Meister, Henry Y. Li, Bokyung Choi and Chao Du, *Stanford University*
10:55 a.m.	**Dynamic Network Modelling: Latent Threshold Approach** Mike West*, *Duke University* Jouchi Nakajima, *Duke University and Bank of Japan*
11:20 a.m.	**Data-Driven Automatic Differential Equation Constructor with Applications to Dynamic Biological Networks** Hulin Wu*, *University of Rochester School of Medicine and Dentistry*
11:45 a.m.	**Fast Analysis of Dynamic Systems Via Gaussian Emulator** Samuel Kou*, *Harvard University*
12:10 p.m.	**Floor Discussion**

29. COMPLEX SURVEY METHODOLOGY AND APPLICATION

Miami Room

Sponsors: ASA Section on Statistics in Epidemiology and ASA Survey Research and Methodology Section

Organizers: Babette A. Brumback, *University of Florida*
Yi Pan, *Centers for Disease Control and Prevention*

Chair: Yan Li, *University of Maryland*

10:30 a.m.	**Two-Stage Benchmarking in Small Area Estimation** Malay Ghosh* and Rebecca Steorts, *University of Florida*
10:55 a.m.	**Inference for Finite Population Quantiles of Non-normal Survey Data Using Bayesian Mixture of Splines** Qixuan Chen* and Xuezhou Mao, *Columbia University* Michael R. Elliott and Roderick JA Little, *University of Michigan*

MONDAY, MARCH 11 (continued)

11:20 a.m.	**What Survey and Mainstream Statisticians Are Learning from Each Other** Phillip S. Kott*, *RTI International*
11:45 a.m.	**Evaluations of Model-based Methods in Analyzing Complex Survey Data: A Simulation Study using Multistage Complex Sampling on a Finite Population** Rong Wei*, Van L. Parsons and Jennifer D. Parker, *National Center for Health Statistics, Centers for Disease Control and Prevention*
12:10 p.m.	**Floor Discussion**

30. CONTRIBUTED PAPERS: DOSE-RESPONSE AND NONLINEAR MODELS

St. Louis Room

Sponsor: ENAR

Chair: Joshua M. Tebbs, *University of South Carolina*

10:30 a.m.	**Hierarchical Dose-Response Modeling for High-Throughput Toxicity Screening of Environmental Chemicals** Ander Wilson*, David Reif and Brian Reich, *North Carolina State University*
10:45 a.m.	**Estimating Brood-specific Reproductive Inhibition Potency in Aquatic Toxicity Testing** Jing Zhang*, A. John Bailer and James T. Oris *Miami University*
11:00 a.m.	**A Diversity Index for Model Selection in the Estimation of Benchmark and Infectious Doses via Frequentist Model Averaging** Steven B. Kim*, *University of California Irvine* Ralph L. Kodell, *University of Arkansas for Medical Sciences* Hojin Moon, *California State University, Long Beach*
11:15 a.m.	**Testing for Change Points Due to a Covariate Threshold in Regression Quantiles** Liwen Zhang*, *Fudan University* Huixia Judy Wang, *North Carolina State University* Zhongyi Zhu, *Fudan University*

11:30 a.m.

Semiparametric Bayesian Joint Modeling of a Binary and Continuous Outcome with Applications in Toxicological Risk Assessment

Beom Seuk Hwang* and Michael L. Pennell
The Ohio State University

11:45 a.m.

A Sigmoid Shaped Regression Model with Bounded Responses for Bioassays

HaiYing Wang and Nancy Flournoy*, *University of Missouri*

12:00 p.m.

Model Selection and BMD Estimation with Quantal-Response Data

Edsel A. Pena*, *University of South Carolina*
Wensong Wu, *Florida International University*
Walter W. Piegorsch, *University of Arizona*
Webster R. West, *North Carolina State University*
Lingling An, *University of Arizona*

31. CONTRIBUTED PAPERS: METHODS AND APPLICATIONS IN COMPARATIVE EFFECTIVENESS RESEARCH

Grand Ballroom 6

Sponsor: ENAR

Chair: Steven B. Cohen, *Agency for Healthcare Research and Quality*

10:30 a.m.

Cost-Effectiveness Inference with Skewed Data

Ionut Bebu*, *Infectious Disease Clinical Research Program, Uniformed Services University of the Health Sciences*
George Luta, *Georgetown University*
Thomas Mathew, *University of Maryland, Baltimore County*
Paul A. Kennedy and Brian Agan, *Infectious Disease Clinical Research Program, Uniformed Services University of the Health Sciences*

10:45 a.m.

Considering Bayesian Adaptive Designs for Comparative Effectiveness Research: Redesign of the ALLHAT Trial

Kristine R. Broglio*, *Berry Consultants, LLC*
Jason T. Connor, *Berry Consultants, LLC* and *University of Central Florida College of Medicine*

MONDAY, MARCH 11 (continued)

11:00 a.m.

Testing Bayesian Adaptive Trial Strategies in CER: Re-execution of ALLHAT

Jason T. Connor*, *Berry Consultants, LLC* and *University of Central Florida College of Medicine*
Kristin R. Broglio, *Berry Consultants, LLC*

11:15 a.m.

Effect Modification by Post-treatment Variables in Mental Health Research

Alisa J. Stephens* and Marshall M. Joffe, *University of Pennsylvania*

11:30 a.m.

Sensitivity Analysis for Instrumental Variables Regression of the Comparative Effectiveness of Reformulated Antidepressants

Jaeun Choi*, Mary Beth Landrum and
A. James O'Malley, *Harvard Medical School*

11:45 a.m.

Assessing the Causal Effect of Treatment in the Presence of Partial Compliance

Xin Gao* and Michael R. Elliott, *University of Michigan*

12:00 p.m.

Too Many Covariates and Too Few Cases? — A Comparative Study

Qingxia Chen*, Yuwei Zhu, Marie R. Griffin,
Keipp H. Talbot and Frank E. Harrell
Vanderbilt University

32. CONTRIBUTED PAPERS: BAYESIAN METHODS

Grand Ballroom 3

Sponsor: ENAR

Chair: Sandra D. Griffith, *Cleveland Clinic*

10:30 a.m.

Bayesian Generalized Low Rank Regression Models for Neuroimaging Phenotypes and Genetic Markers

● Zakaria Khondker*, *University of North Carolina, Chapel Hill* and *PAREXEL International*
Hongtu Zhu and Joseph Ibrahim, *University of North Carolina, Chapel Hill*

10:45 a.m.

Bayesian Analysis of Continuous Curve Functions

Wen Cheng*, *University of South Carolina, Columbia*
Ian Dryden, *University of Nottingham, U.K.*
Xianzheng Huang, *University of South Carolina, Columbia*

11:00 a.m.

A Bayesian Model for Identifiable Subjects

Edward J. Stanek III*, *University of Massachusetts, Amherst*
Julio M. Singer, *University of Sao Paulo, Brazil*

ENAR 2013

Spring Meeting

March 10 – 13

11:15 a.m. **A Latent Variable Poisson Model for Assessing Regularity of Circadian Patterns over Time**

Sungduk Kim* and Paul S. Albert, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*

11:30 a.m. **Overlap in Two-component Mixture Models: Influence on Individual Classification**

José Cortiñas Abrahantes*, *European Food Safety Authority*
Geert Molenberghs, *I-BioStat, Hasselt Universiteit & Katholieke Universiteit Leuven, Belgium*

11:45 a.m. **Empirical and Smoothed Bayes Factor Type Inferences Based on Empirical Likelihoods for Quantiles**

Ge Tao*, Albert Vexler and Jihnhee Yu, *State University of New York at Buffalo*
Nicole A. Lazar, *University of Georgia*
Alan Hutson, *State University of New York at Buffalo*

12:00 p.m. **Modeling Uncertainty in Bayesian Constraint Analysis**

Zhen Chen* and Michelle Danaher, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*
Anindya Roy, *University of Maryland Baltimore County*

33. CONTRIBUTED PAPERS:
VARIABLE SELECTION PROCEDURES

Tampa Room

Sponsor: ENAR

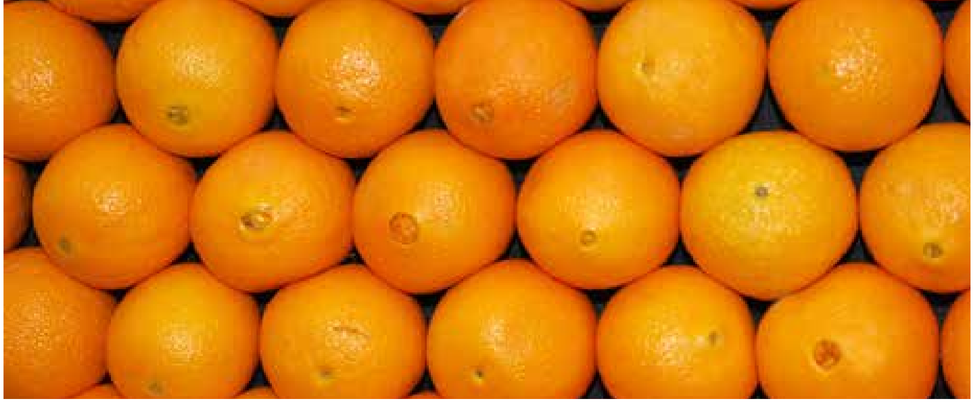
Chair: Hui Yang, *University of Rochester Medical Center*

10:30 a.m. **Adaptive Composite M-estimation for Partially Overlapping Models**

Sunyoung Shin*, Jason P. Fine and Yufeng Liu
University of North Carolina, Chapel Hill

10:45 a.m. **Frequentist Confidence Intervals for the Selected Treatment Means**

Claudio Fuentes*, *Oregon State University*
George Casella, *University of Florida*



11:00 a.m.	**Bayesian Semiparametric Random Effect Selection in Generalized Linear Mixed Models** Yong Shan*, Xiaoyan Lin and Bo Cai, *University of South Carolina*
11:15 a.m.	**Random Effects Selection in Bayesian Accelerated Failure Time Model with Correlated Interval Censored Data** Nusrat Harun* and Bo Cai, *University of South Carolina*
11:30 a.m.	**Bayesian Semiparametric Variable Selection with Application to Dental Data** Bo Cai*, *University of South Carolina* Dipankar Bandyopadhyay, *University of Minnesota*
11:45 a.m.	**Structured Variable Selection with q-Values** Tanya P. Garcia*, *Texas A&M University* Samuel Mueller, *University of Sydney* Raymond J. Carroll, *Texas A&M University* Tamara N. Dunn and Anthony P. Thomas, *University of California, Davis* Sean H. Adams, *U.S. Department of Agriculture, Agricultural Research Service Western Human Nutrition Research Center* Suresh D. Pillai and Rosemary L. Walzem, *Texas A&M University*
12:00 p.m.	**Variable Selection in Semiparametric Transformation Models for Right Censored Data** Xiaoxi Liu* and Donglin Zeng, *University of North Carolina, Chapel Hill*

MONDAY, MARCH 11 (continued)

34. CONTRIBUTED PAPERS: CLUSTERED DATA METHODS

San Francisco Room

Sponsor: ENAR

Chair: Kaushik Gosh, *University of Nevada, Las Vegas*

10:30 a.m.	**Viral Genetic Linkage Analyses in the Presence of Missing Data** Shelley H. Liu* and Victor DeGruttola, *Harvard School of Public Health*
10:45 a.m.	**Bayesian Inference for Correlated Binary Data via Latent Modeling** Deukwoo Kwon*, *University of Miami* Jeesun Jung, *National Institute on Alcohol Abuse and Alcoholism, National Institutes of Health* Jun-Mo Nam, *National Cancer Institute, National Institutes of Health* Yi Qian, *Amgen Inc.*
11:00 a.m.	**The Validation of a Beta-Binomial Model for Intra-Correlated Binary Data** Jongphil Kim* and Ji-Hyun Lee, *Moffitt Cancer Center, University of South Florida*
11:15 a.m.	**Testing for Homogeneous Stratum Effects in Stratified Paired Binary Data** Dewi Rahardja*, *U.S. Food and Drug Administration* Yan D. Zhao, *University of Oklahoma Health Sciences Center at Tulsa*
11:30 a.m.	**Marginalizable Conditional Model for Clustered Binary Data** Rui Zhang* and Kwun Chuen Gary Chan, *University of Washington*
11:45 a.m.	**A Random Effects Approach for Joint Modeling of Multivariate Longitudinal Hearing Loss Data Ascertained at Multiple Frequencies** Mulugeta Gebregziabher*, Lois J. Matthews, Mark A. Eckert, Andrew B. Lawson and Judy R. Dubno *Medical University of South Carolina*
12:00 p.m.	**Robust Estimation of Distributional Mixed Effects Model with Application to Tendon Fibrilogenesis Data** ● Tingting Zhan*, Inna Chervoneva and Boris Iglewicz, *Thomas Jefferson University*

12:15 – 1:30 p.m.	**Roundtable Luncheons** Sago Ballroom
1:45 – 3:30 p.m.	**35. OPTIMAL TREATMENT REGIMES AND PERSONALIZED MEDICINE** Grand Ballroom 8B Sponsor: ASA Biometrics Section Organizer: Min Zhang, *University of Michigan* Chair: Min Zhang, *University of Michigan*
1:45 p.m.	**Personalized Medicine and Artificial Intelligence** Michael R. Kosorok*, *University of North Carolina, Chapel Hill*
2:10 p.m.	**Estimating Optimal Individualized Dosing Strategies** Erica EM Moodie*, Ben Rich and David A. Stephens *McGill University*
2:35 p.m.	**Interactive Q-Learning** Eric B. Laber*, Kristin A. Linn and Leonard A. Stefanski, *North Carolina State University*
3:00 p.m.	**Estimating Optimal Treatment Regimes from a Classification Perspective** Baqun Zhang*, *Northwestern University* Anastasios A. Tsiatis and Marie Davidian, *North Carolina State University* Min Zhang, *University of Michigan* Eric Laber, *North Carolina State University*
3:25 p.m.	**Floor Discussion**

MONDAY, MARCH 11 (continued)

36. STATISTICAL METHODS FOR NEXT GENERATION SEQUENCE DATA ANALYSIS: A SPECIAL SESSION FOR THE ICSA JOURNAL 'STATISTICS IN BIOSCIENCES'

Grand Ballroom 7B

Sponsor: ICSA

Organizer: Hongyu Zhao, *Yale School of Public Health*

Chair: Hongyu Zhao, *Yale School of Public Health*

1:45 p.m.	**Statistical Methods for Testing for Rare Variant Effects in Next Generation Sequencing Association Studies** Xihong Lin*, *Harvard School of Public Health*
2:10 p.m.	**A Model for Combining De Novo Mutations and Inherited Variations to Identify Risk Genes of Complex Diseases** Xin He and Kathryn Roeder*, *Carnegie Mellon University*
2:35 p.m.	**Integrative Analysis of *-seq Datasets for a Comprehensive Understanding of Regulatory Roles of Repetitive Regions** Sunduz Keles* and Xin Zeng, *University of Wisconsin, Madison*
3:00 p.m.	**Association Mapping with Heterogeneous Effects: Identifying eQTLs in Multiple Tissues** Matthew Stephens* and Timothee Flutre, *University of Chicago* William Wen, *University of Michigan* Jonathan Pritchard, *University of Chicago*
3:25 p.m.	**Floor Discussion**

37. HYPOTHESIS TESTING PROBLEMS IN FUNCTIONAL DATA ANALYSIS

Grand Ballroom 7A

Sponsor: ENAR

Organizer: Ana-Maria Staicu, *North Carolina State University*

Chair: Ana-Maria Staicu, *North Carolina State University*

1:45 p.m. **Empirical Dynamics for Functional Data**

Hans-Georg Müller*, *University of California, Davis*

2:10 p.m. **Simultaneous Confidence Band for Sparse Longitudinal Regression**

Shujie Ma*, *University of California, Riverside*
Lijian Yang, *Michigan State University*
Raymond Carroll, *Texas A&M University*

2:35 p.m. **Testing for Functional Effects**

Bruce J. Swihart*, *Johns Hopkins Bloomberg School of Public Health*
Jeff Goldsmith, *Columbia University Mailman School of Public Health*
Ciprian M. Crainiceanu, *Johns Hopkins Bloomberg School of Public Health*

3:00 p.m. **Functional Mixed Effects Spectral Analysis**

Robert T. Krafty* and Martica Hall, *University of Pittsburgh*
Wensheng Guo, *University of Pennsylvania*

3:25 p.m. **Floor Discussion**

38. PHARMACOGENOMICS AND DRUG INTERACTIONS: STATISTICAL CHALLENGES AND OPPORTUNITIES ON THE JOURNEY TO PERSONALIZED MEDICINE

Grand Ballroom 3

Sponsor: ASA Biopharmaceutical Section

Organizers: Gary L. Rosner, *Johns Hopkins University* and Cheng Cheng, *St. Jude Children's Research Hospital*

Chair: Gary L. Rosner, *Johns Hopkins University*

1:45 p.m. **Overview of Pharmacogenomics, Gene-gene Interaction, System Genomics**

Marylyn D. Ritchie*, *The Pennsylvania State University*

2:10 p.m. **Integrative Analysis Approaches for Cancer Pharmacogenomics**

Brooke L. Fridley*, *University of Kansas Medical Center*

MONDAY, MARCH 11 (continued)

2:35 p.m.	**Statistical Challenges in Translational Bioinformatics Drug-Interaction Research** Lang Li*, *Indiana University, Indianapolis*
3:00 p.m.	**Study Design and Analysis of Biomarker and Genomic Classifier Validation** Cheng Cheng*, *St. Jude Children's Research Hospital*
3:25 p.m.	**Floor Discussion**
	39. TRANSLATIONAL METHODS FOR STRUCTURAL IMAGING Grand Ballrooms 4 & 5 Sponsor: ENAR Organizer: Russell Shinohara, *University of Pennsylvania Perelman School of Medicine* Chair: Sihai Zhao, *University of Pennsylvania*
1:45 p.m.	**Statistical Techniques for the Normalization and Segmentation of Structural MRI** Russell T. Shinohara*, *University of Pennsylvania Perelman School of Medicine* Elizabeth M. Sweeney, *Johns Hopkins Bloomberg School of Public Health* Jeff Goldsmith, *Columbia University Mailman School of Public Health* Ciprian M. Crainiceanu, *Johns Hopkins Bloomberg School of Public Health*
2:10 p.m.	**Statistical Methods for Label Fusion: Robust Multi-Atlas Segmentation** Bennett A. Landman*, *Vanderbilt University*
2:35 p.m.	**Imaging Pattern Analysis using Machine Learning Methods** Christos Davatzikos*, *University of Pennsylvania*
3:00 p.m.	**A Spatially Varying Coefficients Model for the Analysis of Multiple Sclerosis MRI Data** Timothy D. Johnson*, *University of Michigan* Thomas E. Nichols and Tian Ge, *University of Warwick*
3:25 p.m.	**Floor Discussion**

40. FLEXIBLE BAYESIAN MODELING

Grand Ballroom 8A

Sponsor: IMS

Organizer: James Berger, *Duke University*

Chair: James Berger, *Duke University*

1:45 p.m.	**Flexible Regression Models for ROC and Risk Analysis, with or without a Gold Standard** Wesley O. Johnson*, *University of California, Irvine;* Fernando Quintana, *Pontificia Universidad Catolica de Chile*
2:10 p.m.	**A Nonparametric Bayesian Model for Local Clustering** Juhee Lee*, *The Ohio State University* Peter Mueller, *University of Texas, Austin* Yuan Ji, *NorthShore University HealthSystem*
2:35 p.m.	**Nonparametric Testing of Genetic Association and Gene-environment Interaction through Bayesian Recursive Partitioning** Li Ma*, *Duke University*
3:00 p.m.	**Bayesian Analysis of Dynamic Item Response Models in Adaptive Measurement Testing** Xiaojing Wang*, *University of Connecticut* James O. Berger, *Duke University* Donald S. Burdick, *MetaMetrics Inc.*
3:25 p.m.	**Floor Discussion**

41. STATISTICAL CHALLENGES IN ALZHEIMER'S DISEASE RESEARCH

St. Louis Room

Sponsors: ENAR and ASA Survey Research and Methodology Section

Organizer: Sharon X. Xie, *University of Pennsylvania Perelman School of Medicine*

Chair: Matthew White, *Boston Children's Hospital*

1:45 p.m.	**Statistical Challenges in Combining Data from Disparate Sources to Predict the Probability of Developing Cognitive Deficits** Shane Pankratz*, *Mayo Clinic*
2:10 p.m.	**Statistical Challenges in Alzheimer's Disease Biomarker and Neuropathology Research** Sharon X. Xie*, *University of Pennsylvania Perelman School of Medicine* Matthew T. White, *Harvard Medical School*

MONDAY, MARCH 11 (continued)

2:35 p.m.	**Functional Regression for Brain Imaging** Xuejing Wang, Bin Nan*, Ji Zhu and Robert Koeppe *University of Michigan*
3:00 p.m.	**Statistical Challenges in Alzheimer's Disease Clinical Trial and Epidemiologic Research** Steven D. Edland*, *University of California, San Diego*
3:25 p.m.	**Floor Discussion**
	42. CONTRIBUTED PAPERS: DIAGNOSTIC AND SCREENING TESTS Tampa Room Sponsors: ENAR and ASA Biopharmaceutical Section Chair: Ge Tao, *State University of New York at Buffalo*
1:45 p.m.	**Missing Data Evaluation in Diagnostic Medical Imaging Studies** Jingjing Ye*, Norberto Pantoja-Galicia and Gene Pennello, *U.S. Food and Drug Administration*
2:00 p.m.	**Estimating Weighted Kappa Under Two Study Designs** Nicole Blackman*, *CSL Behring*
2:15 p.m.	**Efficient Pooling Methods for Skewed Biomarker Data Subject to Regression Analysis** Emily M. Mitchell* and Robert H. Lyles *Emory University Rollins School of Public Health* Michelle Danaher, Neil J. Perkins and Enrique F. Schisterman, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*
2:30 p.m.	**Adapting Shannon's Entropy to Strengthen Relationship between Time since HIV-1 Infection and Within-Host Viral Diversity** Natalie M. Exner* and Marcello Pagano *Harvard University*
2:45 p.m.	**On Use of Partial Area under the ROC Curve for Evaluation of Diagnostic Performance** Hua Ma*, Andriy I. Bandos, Howard E. Rockette and David Gur, *University of Pittsburgh*

3:00 p.m.	**Multireader Analysis of FROC Curves** Andriy Bandos*, *University of Pittsburgh*
3:15 p.m.	**Comparing Two Correlated C Indices with Right-censored Survival Outcome: A Nonparametric Approach** Le Kang*, Weijie Chen and Nicholas Petrick *U.S. Food and Drug Administration*

43. CONTRIBUTED PAPERS:

CAUSAL INFERENCE AND COMPETING RISKS

Miami Room

Sponsors: ASA Biometric Section and ASA Section on Statistics in Epidemiology

Chair: Susan Gruber, *Harvard School of Public Health*

1:45 p.m.	**Estimation of Vaccine Effects using Social Network Data** Elizabeth L. Ogburn* and Tyler J. VanderWeele *Harvard University*
2:00 p.m.	**Estimating Covariate Effects by Treating Competing Risks** Bo Fu* and Chung-Chou H. Chang, *University of Pittsburgh*
2:15 p.m.	**Identifiability of Masking Probabilities in the Competing Risks Model** Ye Liang*, *Oklahoma State University* Dongchu Sun, *University of Missouri*
2:30 p.m.	**Adjusting for Observational Secondary Treatments in Estimating the Effects of Randomized Treatments** Min Zhang*, *University of Michigan* Yanping Wang, *Eli Lilly and Company*
2:45 p.m.	**Comparing Cumulative Incidence Functions Between Non-randomized Groups through Direct Standardization** Ludi Fan* and Douglas E. Schaubel, *University of Michigan*
3:00 p.m.	**Improving Mediation Analysis Based on Propensity Scores** Yeying Zhu*, Debashis Ghosh and Donna L. Coffman, *The Pennsylvania State University*
3:15 p.m.	**On the Nonidentifiability Property of Archimedean Copula Models** Antai Wang*, *Columbia University*

MONDAY, MARCH 11 (continued)

44. CONTRIBUTED PAPERS: EPIDEMIOLOGIC METHODS AND STUDY DESIGN

Los Angeles Room

Sponsors: ENAR and ASA Section on Statistics in Epidemiology

Chair: Shi Li, *University of Michigan*

1:45 p.m.	**Calibrating Sensitivity Analysis to Observed Covariates in Observational Studies** Jesse Y. Hsu* and Dylan S. Small, *University of Pennsylvania*
2:00 p.m.	**Optimal Frequency of Data Collections for Estimating Transition Rates in a Continuous Time Markov Chain** Chih-Hsien Wu*, *University of Texas School of Public Health*
2:15 p.m.	**Source-sink Reconstruction through Regularized Multi-component Regression Analysis** Kun Chen*, Kansas State University Kung-Sik Chan, *University of Iowa*
2:30 p.m.	**Regression Models for Group Testing Data with Pool Dilution Effects** Christopher S. McMahan, *Clemson University* Joshua M. Tebbs*, *University of South Carolina, Columbia* Christopher R. Bilder, *University of Nebraska, Lincoln*
2:45 p.m.	**Bayesian Adjustment for Confounding in the Presence of Multiple Exposures** Krista Watts* and Corwin M. Zigler, *Harvard School of Public Health* Chi Wang, *University of Kentucky* Francesca Dominici, *Harvard School of Public Health*
3:00 p.m.	**Exploring the Added Value of Imposing an Ozone Effect Monotonicity Constraint and of Jointly Modeling Ozone and Temperature Effects in an Epidemiologic Study of Air Pollution and Mortality** James L. Crooks*, Lucas Neas and Ana G. Rappold *U.S. Environmental Protection Agency*
3:15 p.m.	**Stable Model Construction using Fractional Polynomials of Continuous Covariates for Poisson Regression with Application to Linked Public Health Data** Michael Regier* and Ruoxin Zhang *West Virginia University*

45. CONTRIBUTED PAPERS:

LONGITUDINAL DATA: METHODS AND MODEL SELECTION

San Francisco Room

Sponsor: ENAR

Chair: Babette Brumback, *University of Florida*

1:45 p.m. **AIC-Type Model Selection Criterion for Longitudinal Data Incorporating GEE Approach**

Hui Yang*, *University of Rochester Medical Center*
Guohua Zou, *Chinese Academy of Sciences*
Hua Liang, *University of Rochester Medical Center*

2:00 p.m. **Variable Selection for Failure Time Data from Stratified Case-cohort Studies: An Application to a Retrospective Dental Study**

Sangwook Kang*, *University of Connecticut*
Cheolwoo Park, *University of Georgia*
Daniel J. Caplan, *University of Iowa*
Young joo Yoon, *Daejeon University*

2:15 p.m. **Correcting the Effects of Model Selection in Linear-Mixed Effect Models**

Adam P. Sima*, *Virginia Commonwealth University*

2:30 p.m. **A Random-Effects Model for Longitudinal Data with a Random Change-point and No Time Zero: An Application to Modeling and Prediction of Individualized Labor Curves**

Paul Albert, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*
Alexander C. McLain*, *University of South Carolina*

2:45 p.m. **Parameter Estimation for HIV Dynamic Models Incorporating Longitudinal Structure**

Yao Yu* and Hua Liang, *University of Rochester*

3:00 p.m. **Two-Step Smoothing Estimation of Conditional Distribution Functions by Time-varying Parametric Models for Longitudinal Data**

Mohammed R. Chowdhury*, *The George Washington University*
Colin O. Wu, *National Heart, Lung and Blood Institute, National Institutes of Health*
Reza Modarres, *The George Washington University*

3:15 p.m. **Fiducial Generalized p-Values for Testing Zero-Variance Components in Linear Mixed-effects Models**

Haiyan Su*, *Montclair State University*
Xinmin Li, *Shandong University of Technology*
Hua Liang and Hulin Wu, *University of Rochester*

MONDAY, MARCH 11 (continued)

46. CONTRIBUTED PAPERS: SPATIAL/TEMPORAL MODELING

Grand Ballroom 6

Sponsors: ENAR and ASA Section on Statistics and the Environment

Chair: Donna Pauler Ankerst
Center for Mathematics

1:45 p.m.	**A Combined Estimating Function Approach for Fitting Stationary Point Process Models** ● Chong Deng*, *Yale University* Rasmus P. Waagepetersen, *Aalborg University, Denmark* Yongtao Guan, *University of Miami*
2:00 p.m.	**Childhood Cancer Rates, Risk Factors, & Clusters: Spatial Point Process Approach** Md M. Hossain*, *Cincinnati Children's Hospital Medical Center*
2:15 p.m.	**Bridging Conditional and Marginal Inference for Spatially-referenced Binary Data** ● Laura F. Boehm* and Brian J. Reich, *North Carolina State University* Dipankar Bandyopadhyay, *University of Minnesota*
2:30 p.m.	**Spatial-Temporal Modeling of the Critical Windows of Air Pollution Exposure for Preterm Birth** Joshua Warren*, *University of North Carolina, Chapel Hill* Montserrat Fuentes, *North Carolina State University* Amy Herring, *University of North Carolina, Chapel Hill* Peter Langlois, *Texas Department of State Health Services*
2:45 p.m.	**Heteroscedastic Variances in Areally Referenced Temporal Processes with an Application to California Asthma Hospitalization Data** Harrison S. Quick*, Sudipto Banerjee and Bradley P. Carlin, *University of Minnesota*

3:00 p.m.	**Bayesian Semiparametric Model for Spatial Interval-Censored Data** Chun Pan*, Bo Cai, Lianming Wang and Xiaoyan Lin *University of South Carolina*
3:15 p.m.	**Spatio-temporal Weighted Adaptive Deconvolution Model to Estimate the Cerebral Blood Flow Function in Dynamic Susceptibility Contrast MRI** Jiaping Wang*, *University of North Texas, Denton* Hongtu Zhu and Hongyu An, *University of North Carolina, Chapel Hill*
3:30 – 3:45 p.m.	**Refreshment Break and Visit Our Exhibitors** Grand Ballroom Foyer
3:45 – 5:30 p.m.	**47. INNOVATIVE DESIGN AND ANALYSIS ISSUES IN FETAL GROWTH STUDIES** Grand Ballrooms 4 & 5 Sponsor: ASA Section on Statistics in Epidemiology Organizer: Paul S. Albert, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health* Chair: Sung Duk Kim, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*
3:45 p.m.	**Clinical Implications of the National Standard for Normal Fetal Growth** S. Katherine Laughon*, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*
4:10 p.m.	**Statistical Models for Fetal Growth** Robert W. Platt*, *McGill University*
4:35 p.m.	**Some Analytical Challenges of the INTERGROWTH-21st Project in the Development of Fetal Growth Reference Standards** Eric O. Ohuma*, Jose Villar and Doug G. Altman *University of Oxford*
5:00 p.m.	**Linear Mixed Models for Reference Curve Estimation and Prediction of Poor Pregnancy Outcomes from Longitudinal Ultrasound Data** Paul S. Albert* and SungDuk Kim, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*
5:25 p.m.	**Floor Discussion**

MONDAY, MARCH 11 (continued)

48. BAYESIAN METHODS FOR MODELING MARK-RECAPTURE DATA WITH NON-INVASIVE MARKS

Los Angeles Room

Sponsors: ENAR and ASA Section on Statistics and the Environment

Organizers: Simon Bonner and Matt Schofield, *University of Kentucky*

Chair: Simon Bonner, *University of Kentucky*

3:45 p.m. **Non-invasive Genetic Mark-Recapture with Heterogeneity and Multiple Sampling Occasions**

Janine A. Wright* and Richard J. Barker, *University of Otago, New Zealand*
Matthew R. Schofield, *University of Kentucky*

4:15 p.m. **Latent Multinomial Models**

William A. Link*, *U.S.Geological Survey Patuxent Wildlife Research Center*

4:45 p.m. **Application of the Latent Multinomial Model to Data from Multiple Non-invasive Marks**

Simon J. Bonner*, *University of Kentucky*
Jason A. Holmberg, *ECOCEAN USA*

5:00 p.m. **Discussant:**

Matthew Schofield, *University of Kentucky*

49. HUNTING FOR SIGNIFICANCE IN HIGH-DIMENSIONAL DATA

Grand Ballroom 8B

Sponsor: IMS

Organizer: Xu Han, *Temple University*

Chair: Hui Zhou, *University of Minnesota*

3:45 p.m. **Discovering Signals through Nonparametric Bayes**

Linda Zhao*, *University of Pennsylvania*

4:10 p.m. **Optimal Multiple Testing Procedure for Linear Regression Model**

Jichun Xie and Zhigen Zhao*, *Temple University*

4:35 p.m. **An FDR Approach for Multiple Change-Point Detection**

Ning Hao, *University of Arizona*

5:00 p.m. **Estimation of FDP with Unknown Covariance Dependence**

Jianqing Fan, *Princeton University*
Xu Han*, *Temple University*

5:25 p.m. **Floor Discussion**

50. NEW DEVELOPMENTS IN THE CONSTRUCTION AND OPTIMIZATION OF DYNAMIC TREATMENT REGIMES

Grand Ballroom 7B

Sponsor: ENAR

Organizer: Abdus S. Wahed, *University of Pittsburgh*

Chair: Jesse Yenchih Hsu, *University of Pennsylvania*

3:45 p.m.	**Covariate-Adjusted Comparison of Dynamic Treatment Regimes in Sequentially Randomized Clinical Trials**
	Xinyu Tang, *University of Arkansas for Medical Sciences* Abdus S. Wahed*, *University of Pittsburgh*
4:10 p.m.	**Adaptive Treatment Policies for Infusion Studies**
	Brent A. Johnson*, *Emory University*
4:35 p.m.	**Near Optimal Random Regimes**
	James M. Robins*, *Harvard School of Public Health*
5:00 p.m.	**Targeted Learning of Optimal Dynamic Rules**
	Mark J. van der Laan*, *University of California, Berkeley*
5:25 p.m.	**Floor Discussion**

51. NOVEL BIOSTATISTICAL TOOLS FOR CURRENT PROBLEMS IN NEUROIMAGING

Miami Room

Sponsor: ENAR

Organizer: Hernando Ombao, *University of California, Irvine*

Chair: Hakmook Kang, *Vanderbilt University*

3:45 p.m.	**Bayesian Spatial Variable Selection and Clustering for Functional Magnetic Resonance Imaging Data Analysis**
	Fan Li, *Duke University* Tingting Zhang*, *University of Virginia*
4:10 p.m.	**Modeling the Evolution of Brain Response**
	Mark Fiecas*, *University of California, San Diego* Hernando Ombao, *University of California, Irvine*
4:35 p.m.	**Sparse and Functional PCA with Applications to Neuroimaging**
	Genevera I. Allen*, *Rice University* and *Baylor College of Medicine*
5:00 p.m.	**Functional Data Analysis for fMRI**
	Martin A. Lindquist*, *Johns Hopkins University*
5:25 p.m.	**Floor Discussion**

MONDAY, MARCH 11 (continued)

	52. DESIGNS AND INFERENCES FOR CAUSAL STUDIES Grand Ballroom 7A Sponsors: ASA Biometric Section and ASA Section on Statistics in Epidemiology Organizer: Fan Li, *Duke University* Chair: Nancy R. Zhang, *University of Pennsylvania*
3:45 p.m.	**Essential Concepts for Causal Inference in Randomized Experiments and Observational Studies in Biostatistics** Donald B. Rubin*, *Harvard University*
4:10 p.m.	**Assessing the Effect of Training Programs Using Nonparametric Estimators of Dose-Response Functions: Evidence from Job Corps Data** Michela Bia*, *CEPS/INSTEAD, Luxembourg* Alessandra Mattei, *University of Florence, Italy* Carlos Flores, *University of Miami* Alfonso Flores-Lagunes, *Binghamton University, State University of New York*
4:35 p.m.	**Case Definition and Design Sensitivity** Dylan Small*, *University of Pennsylvania* Jing Cheng, U*niversity of California, San Francisco* Betz Halloran, *University of Washington* and *Fred Hutchinson Cancer Research Center* Paul Rosenbaum, *University of Pennsylvania*
5:00 p.m.	**Bayesian Inference for a Non-standard Regression Discontinuity Design with Application to Italian University Grants** Fan Li*, *Duke University* Alessandra Mattei and Fabrizia Mealli, *University of Florence, Italy*
5:25 p.m.	**Floor Discussion**

53. RECENT ADVANCES IN THE ANALYSIS OF MEDICAL COST DATA

Grand Ballroom 8A

Sponsor: ASA Biometric Section

Organizer: Joseph Gardiner, *Michigan State University*

Chair: Lei Liu, *Northwestern University*

3:45 p.m.	**Estimates and Projections of the Cost of Cancer Care in the United States** Angela Mariotto* and Robin Yabroff, *National Cancer Institute, National Institutes of Health*
4:10 p.m.	**Generalized Redistribute-to-the-right Algorithm: Application to the Analysis of Censored Cost Data** Shuai Chen, *Texas A&M University* Hongwei Zhao*, *Texas A&M Health Science Center*
4:35 p.m.	**Censored Cost Regression Models with Empirical Likelihood** Gengsheng Qin*, *Georgia State University* Xiao-hua Zhou, *University of Washington* Huazhen Lin, *Sichuan University* Gang Li, *University of California, Los Angeles*
5:00 p.m.	**Semiparametric Regression for Estimating Medical Cost Trajectory with Informative Hospitalization and Death** Na Cai, *Eli Lilly and Company* Wenbin Lu*, *North Carolina State University* Hao Helen Zhang, *University of Arizona* Jianwen Cai, *University of North Carolina, Chapel Hill*
5:25 p.m.	**Floor Discussion**

MONDAY, MARCH 11 (continued)

54. CONTRIBUTED PAPERS: RISK PREDICTION AND CLUSTERING OF GENETICS DATA

Grand Ballroom 6

Sponsor: ENAR

Chair: Guanhua Chen, *University of North Carolina, Chapel Hill*

3:45 p.m. **Ensemble Clustering with Logic Rules**

Deniz Akdemir*, *Cornell University*

4:00 p.m. **How to Cluster Gene Expression Dynamics in Response to Environmental Signals**

Yaqun Wang*, *The Pennsylvania State University*
Meng Xu, *Nanjing Forestry University*
Zhong Wang, *The Pennsylvania State University*
Ming Tao, *Brigham and Women's Hospital/Harvard Medical School*
Junjia Zhu, Li Wang and Runze Li, *The Pennsylvania State University*
Scott A. Berceli, *University of Florida*
Rongling Wu, *The Pennsylvania State University*

4:15 p.m. **Statistical Methods for Functional Metagenomic Analysis Based on Next Generation Sequencing Data**

Lingling An* and Naruekamol Pookhao, *University of Arizona*
Hongmei Jiang, *Northwestern University*
Jiannong Xu, *New Mexico State University*

4:30 p.m. **Detection for Non-additive Effects of SNPs at Extremes of Disease-risks**

Minsun Song* and Nilanjan Chatterjee, *National Cancer Institute, National Institutes of Health*

4:45 p.m. **Pathway Selection and Aggregation Using Multiple Kernel Learning for Risk Prediction**

● Jennifer A. Sinnott* and Tianxi Cai, *Harvard University*

5:00 p.m.

Association Analysis of Complex Diseases Using Triads, Parent-child Pairs and Singleton Cases

Ruzong Fan*, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*

5:15 p.m.

Genotype Calling and Haplotyping for Family-based Sequence Data

Wei Chen*, *University of Pittsburgh School of Medicine*
Bingshan Li, *Vanderbilt University Medical Center*
Zhen Zeng, *University of Pittsburgh School of Public Health*
Serena Sanna, Carlo Sidore and Fabio Busonero
Centro Nazionale di Ricerca (CNR), Italy
Hyun Min Kang, *University of Michigan*
Yun Li, *University of North Carolina, Chapel Hill*
Gonçalo R. Abecasis, *University of Michigan*

55. CONTRIBUTED PAPERS:

AGREEMENT MEASURES FOR LONGITUDINAL/SURVIVAL DATA

St. Louis Room

Sponsors: ENAR and ASA Section on Statistics in Epidemiology

Chair: Wenqing He, *University of Western Ontario*

3:45 p.m.

Mutual Information Kernel Logistic Models with Application in HIV Vaccine Studies

Saheli Datta and Youyi Fong*, *Fred Hutchinson Cancer Research Center*
Georgia Tomaras, *Duke University*

4:00 p.m.

Estimation and Inference of the Three-Level Intraclass Correlation Coefficient

Mat D. Davis*, *University of Pennsylvania* and *Theorem Clinical Research*
J. Richard Landis and Warren Bilker, *University of Pennsylvania*

4:15 p.m.

Effects and Detection of Random-effects Model Misspecification in GLMM

Shun Yu* and Xianzheng (Shan) Huang, *University of South Carolina, Columbia*

MONDAY, MARCH 11 (continued)

4:30 p.m.	**A Discrete Survival Model with Random Effect for Designing and Analyzing Repeated Low-dose Challenge**
	Chaeryon Kang* and Ying Huang, *Fred Hutchinson Cancer Research Center*
4:45 p.m.	**Covariate Adjustment in Estimating the Area Under ROC Curve with Partially Missing Gold Standard**
	Danping Liu*, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health* Xiao-Hua Zhou, *University of Washington*
5:00 p.m.	**Novel Agreement Measures for Continuous Survival Times**
	Tian Dai*, Ying Guo, Limin Peng and Amita K. Manatunga, *Emory University*
5:15 p.m.	**Floor Discussion**

56. CONTRIBUTED PAPERS:

IMAGING

Grand Ballroom 3

Sponsors: ENAR and ASA Biopharmaceutical Section

Chair: Michael R. Wierzbicki
University of Pennsylvania

3:45 p.m. **Genetic Dissection of Neuroimaging Phenotypes**

Yijuan Hu* and Jian Kang, *Emory University*

4:00 p.m. **Fitting the Corpus Callosum Using Principal Surfaces**

Chen Yue*, Brian S. Caffo and Vadim Zipunnikov
Johns Hopkins University
Dzung L. Pham, *Radiology and Imaging Sciences, National Institutes of Health*
Daniel S. Reich, *National Institute of Neurological Disorders and Stroke, National Institutes of Health*

4:15 p.m. **Fast Scalar-on-Image Regression with Application to Association Between DTI and Cognitive Outcomes**

Lei Huang*, *Johns Hopkins Bloomberg School of Public Health*
Jeff Goldsmith, *Columbia University Mailman School of Public Health*
Philip T. Reiss, *New York University School of Medicine*
Daniel Reich, *Johns Hopkins School of Medicine*
Ciprian M. Crainiceanu, *Johns Hopkins Bloomberg School of Public Health*

4:30 p.m. **Investigation of Structural Connectivity underlying Functional Connectivity Using fMRI Data**

Phebe B. Kemmer*, Ying Guo and F. DuBois Bowman
Emory University

4:45 p.m. **Network Analysis of Resting-state fMRI Using Penalized Regression Models**

Gina D'Angelo* and Gongfu Zhou, *Washington University School of Medicine*

MONDAY, MARCH 11 (continued)

5:00 p.m.	**Effective Connectivity Modeling of Functional MRI using Dynamic Causal Modeling with Application to Depression in Adolescence** Donald R. Musgrove*, Lynn E. Eberly and Kathryn R. Cullen, *University of Minnesota*
5:15 p.m.	**Laplace Deconvolution and its Application to Dynamic Contrast Enhanced Imaging** Marianna Pensky*, *University of Central Florida* Fabienne Comte and Yves Rozenholc, *University of Paris V* Charles-Andre Cuenod, *University of Paris V* and *European Hospital George Pompidou*

57. CONTRIBUTED PAPERS:

STATISTICAL CONSULTING AND SURVEY RESEARCH

San Francisco Room

Sponsor: ENAR

Chair: Ronald Gangnon, *University of Wisconsin*

3:45 p.m.	**Analysis of Population-Based Case-Control Studies with Complex Samples on Haplotype Effects Exploiting Gene-Environment Independence in Genetics Association Studies** Daoying Lin*, *University of Texas, Arlington* Yan Li, *University of Maryland*
4:00 p.m.	**Conditional Pseudolikelihood and Generalized Linear Mixed Model Methods for to Adjust for Confounding Due to Cluster with Ordinal, Multinomial, or Nonnegative Outcomes and Complex Survey Data** Babette A. Brumback* and Zhuangyu Cai, *University of Florida* Zhulin He, *National Institute of Statistical Sciences* and *American Institutes for Research* Hao Zheng, *University of Florida* Amy B. Dailey, *Gettysburg College*

4:15 p.m.	**Lasso-Based Methodology for Questionnaire Design Applied to the OPPERA Study** Erika Helgeson* and Gary Slade, *University of North Carolina, Chapel Hill* Richard Ohrbach, *University of Buffalo* Roger Fillingim, *University of Florida* Joel Greenspan and Ron Dubner, *University of Maryland, Baltimore* William Maixner and Eric Bair, *University of North Carolina, Chapel Hill*
4:30 p.m.	**Variable Selection and Estimation for Longitudinal Survey Data** Lily Wang*, *University of Georgia* Suojin Wang, *Texas A&M University*
4:45 p.m.	**Rating Scales as Predictors - the Old Question of Scale Level and some Answers** Jan Gertheiss* and Gerhard Tutz, *Ludwig Maximilian University, Munich*
5:00 p.m.	**Practical Issues in the Design and Analysis of Dual-Frame Telephone Surveys** Bo Lu*, Juan Peng and Timothy Sahr, *The Ohio State University*
5:15 p.m.	**Experience with Statistical Consulting on Grant Submission in a Large Medical Center** James D. Myles* and Robert A. Parker, *University of Michigan*

MONDAY, MARCH 11 (continued)

58. CONTRIBUTED PAPERS: CATEGORICAL DATA METHODS

Tampa Room

Sponsors: ENAR and ASA Section on Statistics in Epidemiology

Chair: Jingyang Zhang, *Fred Hutchinson Cancer Research Center*

3:45 p.m.	**An Efficient and Exact Approach for Detecting Trends with Binary Endpoints** Guogen Shan*, *University of Nevada, Las Vegas*
4:00 p.m.	**Permutation Tests for Subgroup Analyses with Binary Response** Siyoen Kil* and Eloise Kaizar, *The Ohio State University*
4:15 p.m.	**Are you Looking for the Right Interactions? Additive Versus Multiplicative Interactions with Dichotomous Outcome Variables** Melanie M. Wall* and Sharon Schwartz, *Columbia University*
4:30 p.m.	**Comparison of Additive and Multiplicative Bayesian Models for Longitudinal Count Data with Overdispersion Parameters: A Simulation Study** Mehreteab F. Aregay*, Ziv Shkedy and Geert Molenberghs, *I-BioStat, Hasselt Universiteit & Katholieke Universiteit Leuven, Belgium*
4:45 p.m.	**The Focused and Model Average Estimation for Panel Count Data** HaiYing Wang*, Jianguo Sun and Nancy Flournoy *University of Missouri*
5:00 p.m.	**Two-Sample Nonparametric Comparison for Panel Count Data with Unequal Observation Processes** Yang Li*, *University of Missouri, Columbia* Hui Zhao, *Huazhong Normal University, China* Jianguo Sun, *University of Missouri, Columbia*
5:15 p.m.	**A Marginalized Zero-Inflated Poisson Regression Model with Overall Exposure Effects** D. Leann Long*, John S. Preisser and Amy H. Herring *University of North Carolina, Chapel Hill*

TUESDAY, MARCH 12

8:30 – 10:15 a.m.	**59.**	**GRADUATE STUDENT AND RECENT GRADUATE COUNCIL** **INVITED SESSION: GETTING YOUR FIRST JOB** Grand Ballroom 6 Sponsor: ENAR Organizer: Hormuzd A. Katki, *National Cancer Institute, National Institutes of Health* Chair: Reneé Moore, *North Carolina State University*
8:30 a.m.		**The Graduate Student and Recent Graduate Council** Victoria Liublinska*, *Harvard University*
9:00 a.m.		**Finding a Post-doctoral Fellowship or a Tenure-track Job** Eric Bair*, *University of North Carolina Center for Neurosensory Disorders*
9:30 a.m.		**Getting Your First Job in the Federal Government** Lillian Lin*, *Centers for Disease Control and Prevention*
10:00 a.m.		**Finding Your First Industry Job** Ryan May*, *EMMES Corporation*
	60.	**STATISTICAL THERAPIES FOR HIGH-THROUGHPUT COMPLEX MISSING DATA AND DATA WITH MEASUREMENT BIAS** Grand Ballroom 8a Sponsor: ENAR Organizer: Lin Chen, *University of Chicago* Chair: Momiao Xiong, *University of Texas School of Public Health*
8:30 a.m.		**The Potential and Perils of Preprocessing: Statistical Principles for High-Throughput Science** Alexander W. Blocker and Xiao-Li Meng* *Harvard University*
8:55 a.m.		**Missing Genotype Inference and Association Analysis of Rare Variants in Admixed Populations** Yun Li*, *University of North Carolina, Chapel Hill* Mingyao Li, *University of Pennsylvania* Yi Liu, *University of North Carolina, Chapel Hill* Xianyun Mao, *University of Pennsylvania* Wei Wang, *University of North Carolina, Chapel Hill*

9:20 a.m.	**A Penalized EM Algorithm for Multivariate Gaussian Parameter Estimation with Non-ignorable Missing Data** Lin S. Chen*, *University of Chicago* Ross L. Prentice and Pei Wang, *Fred Hutchinson Cancer Research Center*
9:45 a.m.	**Mixture Modeling of Rare Variant Association** Charles Kooperberg*, Benjamin Logsdon and James Y. Dai, *Fred Hutchinson Cancer Research Center*
10:10 a.m.	**Floor Discussion**

61. ADVANCES IN INFERENCE FOR STRUCTURED AND HIGH-DIMENSIONAL DATA

Grand Ballrooms 1 & 2

Sponsor: IMS

Organizer: Debashis Paul, *University of California, Davis*

Chair: Ming Yuan, *Georgia Tech University*

8:30 a.m.	**The Marcienko-Pastur Law for Time Series** Haoyang Liu, Debashis Paul and Alexander Aue* *University of California, Davis*
8:55 a.m.	**Generalized Exponential Predictors for Time Series** Prabir Burman*, Lu Wang, Alexander Aue and Robert Shumway, *University of California, Davis*
9:20 a.m.	**On Estimation of Sparse Eigenvectors in High Dimensions** Boaz Nadler*, *Weizmann Institute of Science*
9:45 a.m.	**Spectra of Random Graphs and the Limits of Community Identification** Raj Rao Nadakuditi*, *University of Michigan*
10:10 a.m.	**Floor Discussion**

62. FUNCTIONAL NEUROIMAGING DECOMPOSITIONS

Grand Ballroom 3

Sponsor: ENAR

Organizer: Ani Eloyan, *Johns Hopkins University*

Chair: Seonjoo Lee, *National Institutes of Health/ Uniformed Services University of the Health Sciences The Henry M. Jackson Foundation for the Advancement of Military Medicine*

8:30 a.m.	**Large Scale Decompositions for Functional Imaging Studies**
	Brian S. Caffo*, Ani Eloyan, Juemin Yang, Seonjoo Lee, Shanshan Li, Shaojie Chen, Lei Huang, Huitong Qiu and Ciprian Crainiceanu, *Johns Hopkins Bloomberg School of Public Health*
8:55 a.m.	**A Bayesian Approach for Matrix Decompositions for Neuroimaging Data**
	Ani Eloyan*, *Johns Hopkins Bloomberg School of Public Health* Sujit K. Ghosh, *North Carolina State University*
9:20 a.m.	**Modeling Covariate Effects in Independent Component Analysis of fMRI Data**
	Ying Guo* and Ran Shi, *Emory University Rollins School of Public Health*
9:45 a.m.	**Dynamics of Intrinsic Brain Networks**
	Vince Calhoun*, *The Mind Research Network* and *The University of New Mexico* Eswar Damaraju, *The Mind Research Network* Elena Allen, *University of Bergen, Norway*
10:10 a.m.	**Floor Discussion**

TUESDAY, MARCH 12 (continued)

63. STATISTICAL METHODS FOR TRIALS WITH HIGH PLACEBO RESPONSE

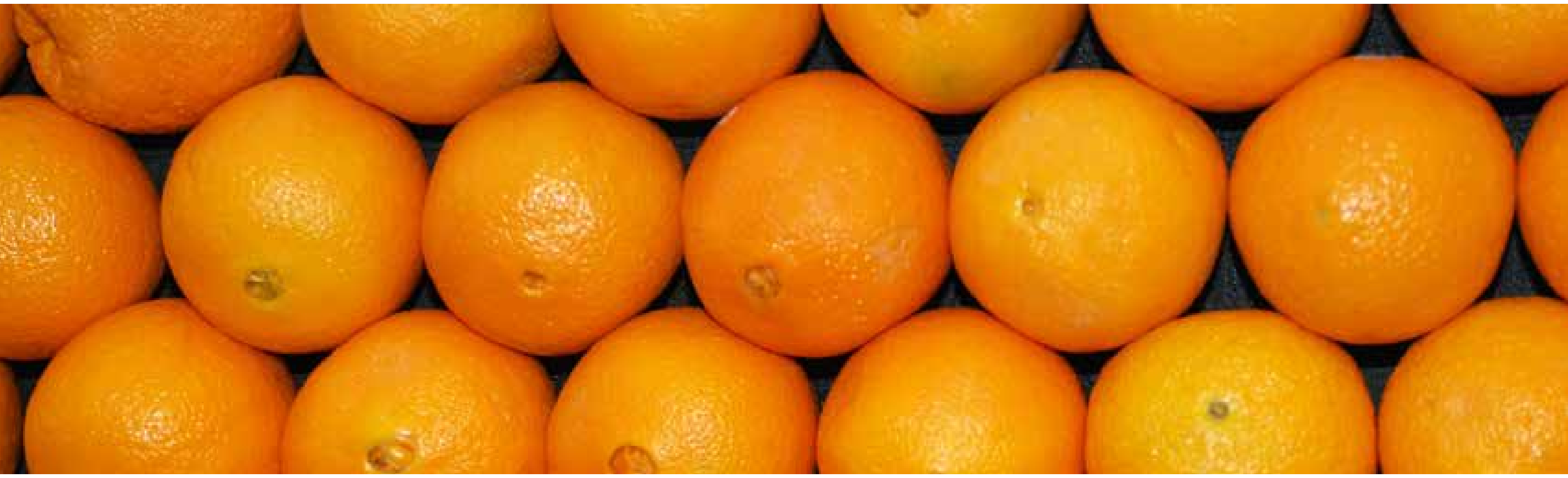
Grand Ballroom 5

Sponsor: ASA Biopharmaceutical Section

Organizer: Roy Tamura, *University of South Florida*

Chair: Lu Zhang, *Eli Lilly and Company*

8:30 a.m.	**Beyond Current Enrichment Designs Using Placebo Non-Responders**
	Yeh-Fong Chen*, *U.S. Food and Drug Administration*
9:00 a.m.	**Comparing Strategies for Placebo Controlled Trials with Enrichment**
	Anastasia Ivanova*, *University of North Carolina, Chapel Hill*
9:30 a.m.	**Reducing Effect of Placebo Response with Sequential Parallel Comparison Design for Continuous Outcomes**
	Michael J. Pencina*, *Boston University and Harvard Clinical Research Institute* Gheorghe Doros and Denis Rybin, *Boston University* Maurizio Fava, *Massachusetts General Hospital*
10:00 a.m.	**Discussant:**
	Roy Tamura, *University of South Florida*



64. COMPOSITE/PSEUDO LIKELIHOOD METHODS AND APPLICATIONS

Grand Ballroom 8B

Sponsors: ASA Biometrics Section and ASA Section on Statistics and the Environment

Organizer: Grace Y. Yi, *University of Waterloo*

Chair: Grace Y. Yi, *University of Waterloo*

8:30 a.m. **Doubly Robust Pseudo-likelihood Estimation for Incomplete Data**

Geert Molenberghs* and Geert Verbeke
I-BioStat, Hasselt Universiteit & Katholieke Universiteit Leuven, Belgium
Michael G. Kenward, *London School of Hygiene and Tropical Medicine, U.K.*
Birhanu Teshome Ayele, *I-BioStat, Hasselt Universiteit & Katholieke Universiteit Leuven, Belgium*

8:55 a.m. **Composite Likelihood Inference for Complex Extremes**

Emeric Thibaud*, Anthony Davison and Raphaël Huser, *École polytechnique fédérale de Lausanne*

9:20 a.m. **Standard Error Estimation in the EM Algorithm when Joint Modeling of Survival and Longitudinal Data**

Cong Xu, Paul Baines and Jane-Ling Wang*
University of California, Davis

9:45 a.m. **Composite Likelihood Approach for Regime-switching Model**

Jiahua Chen*, *University of British Columbia, Vancouver, Canada*
Peiming Wang, *Auckland University of Technology, New Zealand*

10:10 a.m. **Floor Discussion**

TUESDAY, MARCH 12 (continued)

65. RECENT ADVANCES IN ASSESSMENT OF AGREEMENT FOR CLINICAL AND LAB DATA

Los Angeles Room

Sponsor: ASA Section on Statistics in Epidemiology

Organizers: Yi Pan, *Centers for Disease Control and Prevention*
Michael Haber, *Emory University*

Chair: Huiman Barnhart, *Duke University*

8:30 a.m.	**Unified and Comparative Models on Assessing Agreement for Continuous and Categorical Data** Lawrence Lin*, *JBS Consulting Services Company*
8:55 a.m.	**The Interpretation of the Intraclass Correlation Coefficient in the Agreement Assay** Josep L. Carrasco*, *University of Barcelona*
9:20 a.m.	**Measuring Agreement in Method Comparison Studies with Heteroscedastic Measurements** Lakshika Nawarathna and Pankaj K. Choudhary* *University of Texas, Dallas*
9:45 a.m.	**An AUC-like Index for Agreement Assessment** Zheng Zhang*, Youdan Wang and Fenghai Duan *Brown University*
10:10 a.m.	**Floor Discussion**

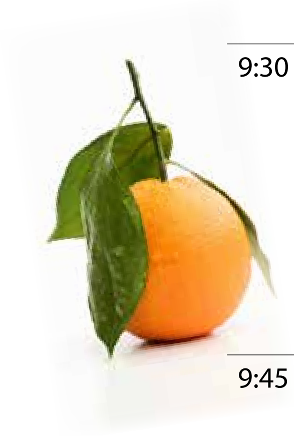
66. CONTRIBUTED PAPERS: FUNCTIONAL DATA ANALYSIS

Grand Ballroom 4

Sponsor: ENAR

Chair: Vivian Shih, *University of California, Los Angeles*

8:30 a.m.	**Testing the Effect of Functional Covariate for Functional Linear Model** Dehan Kong*, Ana-Maria Staicu and Arnab Maity *North Carolina State University*
8:45 a.m.	**Accelerometry Metrics for Epidemiology** Jiawei Bai*, Bing He, Thomas A. Glass and Ciprian M. Crainiceanu, *Johns Hopkins University*
9:00 a.m.	**Sparse Semiparametric Nonlinear Model with Application to Chromatographic Fingerprints** Michael R. Wierzbicki*, *University of Pennsylvania* Li-bing Guo and Qing-tao Du, *Guangdong College of Pharmacy* Wensheng Guo, *University of Pennsylvania*



9:15 a.m. **Regularized 3D Functional Regression for Brain Imaging via Haar Wavelets**

● Xuejing Wang*, Bin Nan, Ji Zhu and Robert Koeppe
University of Michigan

9:30 a.m. **Mechanistic Hierarchical Gaussian Processes**

● Matthew W. Wheeler*, *The National Institute for Occupational Safety and Health* and *University of North Carolina*, *Chapel Hill*
David B. Dunson, *Duke University*
Amy H. Herring, *University of North Carolina, Chapel Hill*
Sudha P. Pandalai and Brent A. Baker, *The National Institute for Occupational Safety and Health*

9:45 a.m. **Variability Analysis on Repeatability Experiment of Fluorescence Spectroscopy Devices**

Lu Wang* and Dennis D. Cox, *Rice University*

10:00 a.m. **Floor Discussion**

67. CONTRIBUTED PAPERS: PERSONALIZED MEDICINE

St. Louis Room

Sponsors ENAR and ASA Biopharmaceutical Section

Chair: Edward J. Stanek III, *University of Massachusetts*

8:30 a.m. **Hypothesis Testing for Personalizing Treatment**

Huitian Lei* and Susan Murphy, *University of Michigan*

8:45 a.m. **Non-parametric Inference of Cumulative Incidence Function for Dynamic Treatment Regimes under Two-Stage Randomization**

● Idil Yavuz*, Yu Cheng and Abdus S. Wahed
University of Pittsburgh

9:00 a.m. **Using Pseudo-observations to Estimate Dynamic Marginal Structural Models with Right Censored Responses**

David M. Vock*, *University of Minnesota*
Anastasios A. Tsiatis and Marie Davidian, *North Carolina State University*

9:15 a.m. **Double Robust Estimation of Individualized Treatment for Censored Outcome**

Yingqi Zhao*, *University of Wisconsin, Madison*
Donglin Zeng and Michael R. Kosorok, *University of North Carolina, Chapel Hill*

TUESDAY, MARCH 12 (continued)

9:30 **Penalized Regression and Risk Prediction in Genome-Wide Association Studies**

Erin Austin*, Wei Pan and Xiaotong Shen, *University of Minnesota*

9:45 a.m. **Time-sensitive Prediction Rules for Disease Risk or Onset Through Localized Kernel Machine Learning**

Tianle Chen*, *Columbia University*
Huaihou Chen, *New York University*
Yuanjia Wang, *Columbia University*
Donglin Zeng, *University of North Carolina at Chapel Hill*

10:00 a.m. **Improvements to the Interaction Trees Algorithm for Subgroup Analysis in Clinical Trials**

Yi-Fan Chen* and Lisa A. Weissfeld, *University of Pittsburgh*

68. CONTRIBUTED PAPERS: EPIDEMIOLOGIC METHODS IN SURVIVAL ANALYSIS

Tampa Room

Sponsors: ENAR and ASA Section on Statistics in Epidemiology

Chair: Xu Zhang, *University of Mississippi Medical Center*

8:30 a.m. **Matching in the Presence of Missing Data in Time-to-event Studies**

Ruta Brazauskas*, Mei-Jie Zhang and Brent R. Logan *Medical College of Wisconsin*

8:45 a.m. **Application of Time-Dependent Covariates Cox Model in Examining the Dynamic Associations of Body Mass Index and Cause-Specific Mortalities**

Jianghua He and Huiquan Zhang*, *University of Kansas Medical Center*

9:00 a.m. **Generalized Case-cohort Studies with Multiple Events**

Soyoung Kim* and Jianwen Cai, *University of North Carolina, Chapel Hill*

9:15 a.m. **An Ornstein-Uhlenbeck Random Effects Threshold Regression Cure Rate Model**

Roger A. Erich, *Air Force Institute of Technology*
Michael L. Pennell*, *The Ohio State University*

9:30 a.m.	**Accounting for Length-bias and Selection Bias in Estimating Menstrual Cycle Length**
	Kirsten J. Lum*, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health* and *Johns Hopkins Bloomberg School of Public Health* Rajeshwari Sundaram, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health* Thomas A. Louis, *Johns Hopkins Bloomberg School of Public Health*
9:45 a.m.	**Incorporating a Reproducibility Sample into Multi-State Models for Incidence, Progression and Regression of Age-Related Macular Degeneration**
	Ronald E. Gangnon*, Kristine E. Lee and Barbara EK Klein, *University of Wisconsin* Sudha K. Iyengar, *Case Western Reserve University* Theru A. Sivakumaran, *Cincinnati Children's Medical Center* Ronald Klein, *University of Wisconsin*
10:00 a.m.	**Floor Discussion**

TUESDAY, MARCH 12 (continued)

69. CONTRIBUTED PAPERS: POWER AND SAMPLE SIZE

Washington Room

Sponsor: ENAR

Chair: Xiaomei Liao, *Harvard School of Public Health*

8:30 a.m. **Decision Rules and Associated Sample Size Planning for Regional Approval in Multiregional Clinical Trials**

Rajesh Nair*, Nelson Lu and Yunling Xu, *U.S. Food and Drug Administration*

8:45 a.m. **Multi-Regional Clinical Trial Design and Consistency Assessment of Treatment Effects**

Hui Quan, Sanofi; Xuezhou Mao*, *Sanofi* and *Columbia University, Mailman School of Public Health*
Joshua Chen, *Merck Research Laboratories*
Weichung Joe Shih, *University of Medicine and Dentistry of New Jersey*
Soo Peter Ouyang, *Celgene Corporation*
i Zhang and Peng-Liang Zhao, *Sanofi*
Bruce Binkowitz, *Merck Research Laboratories*

9:00 a.m. **Sample Size/Power Calculation for Stratified Case-cohort Design**

Wenrong Hu*, *University of Memphis*
Jianwen Cai and Donglin Zeng, *University of North Carolina, Chapel Hill*

9:15 a.m. **The Effect of Interim Sample Size Recalculation on Type I and II Errors when Testing a Hypothesis on Regression Coefficients**

Sergey Tarima*, Aniko Szabo, Peng He and Tao Wang, *Medical College of Wisconsin*

9:30 a.m. **A Comment on Sample Size Calculations for Binomial Confidence Intervals**

Lai Wei* and Alan D. Hutson, *State University of New York at Buffalo*

9:45 a.m.	**Optimal Design for Diagnostic Accuracy Studies When the Biomarker is Subject to Measurement Error** Matthew T. White*, *Boston Children's Hospital* Sharon X. Xie, *University of Pennsylvania*
10:00 a.m.	**Study Design in the Presence of Error-prone Self-reported Outcomes** Xiangdong Gu* and Raji Balasubramanian, *University of Massachusetts, Amherst*

70. CONTRIBUTED PAPERS: MULTIPLE TESTING

San Francisco Room

Sponsors: ENAR and ASA Biopharmaceutical Section

Chair: Guochen Song, *Quintiles*

8:30 a.m.	**Multiplicity Adjustment of Multi-level Hypothesis Testing in Imaging Biomarker Research** Shubing Wang*, *Merck*
8:45 a.m.	**Multiplicity Strategies for Multiple Treatments and Multiple Endpoints** Kenneth Liu*, Paulette Ceesay, Ivan Chan, Nancy Liu, Duane Snavely and Jin Xu, *Merck*
9:00 a.m.	**Multiple Comparisons with the Best for Survival Data with Treatment Selection Adjustment** Hong Zhu* and Bo Lu, *The Ohio State University*
9:15 a.m.	**An Adaptive Resampling Test for Detecting the Presence of Significant Predictors** Ian McKeague and Min Qian*, *Columbia University*
9:30 a.m.	**A Two-dimensional Approach to Large-scale Simultaneous Hypothesis Testing Using Voronoi Tessellations** Daisy L. Phillips* and Debashis Ghosh *The Pennsylvania State University*
9:45 a.m.	**A General Multistage Procedure for k-out-of-n Gatekeeping** Dong Xi* and Ajit C. Tamhane, *Northwestern University*
10:00 a.m.	**Floor Discussion**

10:15 – 10:30 a.m.	**Refreshment Break and Visit Our Exhibitors** Grand Ballroom Royer

TUESDAY, MARCH 12 (continued)

10:30 a.m. – 12:15 p.m.	**71.**	**PRESIDENTIAL INVITED ADDRESS** Grand Ballroom 7 Sponsor: ENAR Organizer/Chair: Daniel Heitjan, *University of Pennsylvania*
10:30 a.m.		**INTRODUCTION**
10:35 a.m.		**Distinguished Student Paper Awards**
10:45 a.m.		**Modeling Data in a Scientific Context** Jeremy M. G. Taylor, PhD, *Department of Biostatistics, University of Michigan*
1:45 a.m. – 3:30 p.m.	**72.**	**JABES SHOWCASE** Grand Ballroom 8A Sponsors: ENAR and ASA Section on Statistics and the Environment Organizer: Montse Fuentes, *North Carolina State University* Chair: Montse Fuentes, *North Carolina State University*
1:45 p.m.		**Modeling Space-Time Dynamics of Aerosols using Satellite Data and Atmospheric Transport Model Output** Candace Berrett*, *Brigham Young University* Catherine A. Calder, Tao Shi, Ningchuan Xiao and Darla K. Munroe, *The Ohio State University*
2:10 p.m.		**Uncertainty Analysis for Computationally Expensive Models** David Ruppert* and Christine A. Shoemaker *Cornell University* Yilun Wang, *University of Electronic Science and Technology of China* Yingxing Li, *Xiamen University* Nikolay Bliznyuk, *University of Florida*
2:35 p.m.		**Improving Crop Model Inference through Bayesian Melding with Spatially-varying Parameters** Andrew O. Finley*, *Michigan State University* Sudipto Banerjee, *University of Minnesota* Bruno Basso, *Michigan State University*

3:00 p.m.	**Demographic Analysis of Forest Dynamics Using Stochastic Integral Projection Models** Alan E. Gelfand*, *Duke University* Souparno Ghosh, *Texas Tech University* James S. Clark, *Duke University*
3:25 p.m.	**Floor Discussion**

73. STATISTICAL CHALLENGES IN LARGE-SCALE GENETIC STUDIES OF COMPLEX DISEASES

Grand Ballroom 8B

Sponsor: ENAR

Organizer: Zuoheng Wang, *Yale University*

Chair: Zeny Feng, *University of Guelph*

1:45 p.m.	**Gene-gene Interaction Analysis for Next-generation Sequencing** Momiao Xiong*, *University of Texas School of Public Health* Yun Zhu, *Tulane University* Futao Zhang, *University of Texas School of Public Health*
2:10 p.m.	**Association Mapping of Rare Variants in Samples with Related Individuals** Duo Jiang and Mary Sara McPeek*, *University of Chicago*
2:35 p.m.	**Hidden Heritability and Risk Prediction Based on Genome-wide Association Studies** Nilanjan Chatterjee* and JuHyun Park, *National Cancer Institute, National Institutes of Health*
3:00 p.m.	**On a Class of Family-based Association Tests for Sequence Data, and Comparisons with Population-based Association Tests** Iuliana Ionita-Laza*, *Columbia University* Seunggeun Lee, *Harvard University* Vlad Makarov and Joseph Buxbaum, *Mount Sinai School of Medicine* Xihong Lin, *Harvard University*
3:25 p.m.	**Floor Discussion**

TUESDAY, MARCH 12 (continued)

74. ANALYSIS OF HIGH-DIMENSIONAL DATA

Grand Ballroom 3

Sponsor: IMS

Organizer: Tony Cai, *University of Pennsylvania*

Chair: Linda Zhao, *University of Pennsylvania*

1:45 p.m. **Stochastic Optimization for Sparse High-dimensional Statistics: Simple Algorithms with Optimal Convergence Rates**

Alekh Agarwal, *Microsoft Research*
Sahand Negahban, *Massachusetts Institute of Technology*
Martin J. Wainwright*, *University of California, Berkeley*

2:10 p.m. **Minimax and Adaptive Estimation of Covariance Operator for Random Variables Observed on a Lattice Graph**

Tony Cai, *University of Pennsylvania*
Ming Yuan*, *Georgia Tech*

2:35 p.m. **Strong Oracle Property of Folded Concave Penalized Estimation**

Jianqing Fan and Lingzhou Xue, *Princeton University*
Hui Zou*, *University of Minnesota*

3:00 p.m. **Simultaneous and Sequential Inference of Pattern Recognition**

Wenguang Sun*, *University of Southern California*

3:25 p.m. **Floor Discussion**

75. STATISTICAL BODY LANGUAGE: ANALYTICAL METHODS FOR WEARABLE COMPUTING

Grand Ballroom 4

Sponsor: ENAR

Organizer: Vadim Zipunnikov, *Johns Hopkins Bloomberg School of Public*

Chair: Bruce Swihart, *Johns Hopkins Bloomberg School of Public*

1:45 p.m. **A Novel Method to Estimate Free-living Energy Expenditure from an Accelerometer**

John W. Staudenmayer* and Kate Lyden, *University of Massachusetts, Amherst*

2:10 p.m. **Heart-to-Heart Diary of Physical Activity**

Vadim Zipunnikov*, Jennifer Schrack and Ciprian Crainiceanu, *Johns Hopkins Bloomberg School of Public Health*
Jeff Goldsmith, *Columbia University*
Luigi Ferrucci, *National Institute on Aging, National Institutes of Health*

2:35 p.m. **A New Accelerometer Wear and Nonwear Time Classification Algorithm**

Leena Choi*, Suzanne C. Ward, John F. Schnelle and Maciej S. Buchowski, *Vanderbilt University School of Medicine*

3:00 p.m. **Quantifying Physical Activity Using Accelerometers**

Julia Kozlitina*, *University of Texas Southwestern Medical Center*
William R. Schucany, *Southern Methodist University*

3:25 p.m. **Floor Discussion**

76. BIOMARKER UTILITY IN CLINICAL TRIALS

Sponsor: ENAR
Organizer: Bingqing Zhou, *Yale University*
Chair: Bingqing Zhou, *Yale University*

1:45 p.m. **Design and Analysis of Biomarker Threshold Studies in Randomized Clinical Trials**

Grand Ballrooms 1 & 2

Glen Laird*, *Bristol-Myers Squibb*
Yafeng Zhang, *University of California, Los Angeles*

2:10 p.m. **Biomarker Utility in Drug Development Programs**

Christopher L. Leptak*, *U.S. Food and Drug Administration*

2:35 p.m. **Analysis of Interactions for Assessing Heterogeneity of Treatment Effect in a Clinical Trial**

Stephanie A. Kovalchik*, *National Cancer Institute,* and *National Institutes of Health*
Carlos O. Weiss and Ravi Varadhan, *Johns Hopkins University*

3:00 p.m. **Biomarker Selection and Estimation with Heterogeneous Population**

Shuangge Ma*, *Yale University*

3:25 p.m. **Floor Discussion**

TUESDAY, MARCH 12 (continued)

77. NOVEL APPROACHES FOR MODELING VARIANCE IN LONGITUDINAL STUDIES

St. Louis Room

Sponsor: ENAR

Organizer: Juned Siddique, *Northwestern University Feinberg School of Medicine*

Chair: Ofer Harel, *University of Connecticut*

1:45 p.m.	**Joint Modeling of Longitudinal Health Predictors and Cross-sectional Health Outcomes via Mean and Variance Trajectories** Bei Jiang, Michael Elliott* and Naisyin Wang *University of Michigan* Mary D. Sammel, *University of Pennsylvania Perelman School of Medicine*
2:10 p.m.	**Detangling the Effect Between Rate of Change and Within-subject Variability in Longitudinal Risk Factors and Associations with a Binary Health Outcome** Mary D. Sammel*, *University of Pennsylvania Perelman School of Medicine*
2:35 p.m.	**A Location Scale Item Response Theory (IRT) Model for Analysis of Ordinal Questionnaire Data** Donald Hedeker* and Robin J. Mermelstein *University of Illinois at Chicago*
3:00 p.m.	**Bayesian Mixed-effects Location Scale Models for the Analysis of Objectively Measured Physical Activity Data from a Lifestyle Intervention Trial** Juned Siddique*, *Northwestern University Feinberg School of Medicine* Donald Hedeker, *University of Illinois at Chicago*
3:25 p.m.	**Floor Discussion**

78. EVIDENCE SYNTHESIS FOR ASSESSING BENEFIT AND RISK

Los Angeles Room

Sponsor: ASA Biopharmaceutical Section

Organizer: Ted Lystig, *Medtronic, Inc*

Chair: Ted Lystig, *Medtronic, Inc*

1:45 p.m. **Systematic Reviews in Comparative Effectiveness Research**

Sally C. Morton*, *University of Pittsburgh*

2:10 p.m. **Bayesian Indirect and Mixed Treatment Comparisons Across Longitudinal Time Points**

Haoda Fu* and Ying Ding, *Eli Lilly and Company*

2:35 p.m. **Adaptive Trial Design in the Presence of Historical Controls**

Brian P. Hobbs*, *University of Texas MD Anderson Cancer Center*
Bradley P. Carlin, *University of Minnesota*
Daniel J. Sargent, *Mayo Clinic*

3:00 p.m. **Incorporating External Information to Assess Robustness of Comparative Effectiveness Estimates to Unobserved Confounding**

Mary Beth Landrum* and Alfa Alsane, *Harvard Medical School*

3:15 p.m. **Floor Discussion**

79. CONTRIBUTED PAPERS:

MODEL SELECTION AND ANALYSIS IN GWAS STUDIES

Grand Ballroom 6

Sponsor: ENAR

Chair: Yao Yu, *University of Rochester*

1:45 p.m. **A Genetic Risk Prediction Method Based on SVM**

Qianchuan He*, *Fred Hutchinson Cancer Research Center*
Helen Zhang, *North Carolina State University*
Dan-Yu Lin, *University of North Carolina, Chapel Hill*

2:00 p.m. **Testing Genetic Association with Binary and Quantitative Traits Using a Proportional Odds Model**

Gang Zheng, *National Heart, Lung and Blood Institute, National Institutes of Health*
Ruihua Xu*, *George Washington University*
Neal Jeffries, *National Heart, Lung and Blood Institute, National Institutes of Health*
Ryo Yamada, *Kyoto University*
Colin O. Wu, *National Heart, Lung and Blood Institute, National Institutes of Health*

TUESDAY, MARCH 12 (continued)

2:15 p.m.	**A Novel Pathway-based Association Analysis with Application to Type 2 Diabetes** Tao He* and Yuehua Cui, *Michigan State University*
2:30 p.m.	**Test for Interactions between a Genetic Marker Set and Environment in Generalized Linear Models** ● Xinyi (Cindy) Lin*, Seunggeun Lee, David C. Christiani and Xihong Lin, *Harvard School of Public Health*
2:45 p.m.	**Leveraging Local IBD Increases the Power of Case/Control GWAS with Related Individuals** Joshua N. Sampson*, *National Cancer Institute, National Institutes of Health* Bill Wheeler, *Information Management Services* Peng Li and Jianxin Shi, *National Cancer Institute, National Institutes of Health*
3:00 p.m.	**A Novel Method to Evaluate the Nonlinear Response of Multiple Variants to Environmental Stimuli** Yuehua Cui and Cen Wu*, *Michigan State University*
3:15 p.m.	**Weighted Composite Likelihood for Analysis of Multiple Secondary Phenotypes in Genetic Association Studies** Elizabeth D. Schifano*, *University of Connecticut* Tamar Sofer, David C. Christiani and Xihong Lin *Harvard School of Public Health*
	80. CONTRIBUTED PAPERS: **ADAPTIVE DESIGN AND RANDOMIZATION** Grand Ballroom 5 Sponsors: ENAR and ASA Biopharmaceutical Section Chair: Rajesh Nair, *Center for Devices and Radiological Health, U.S. Food and Drug Administration*
1:45 p.m.	**Inferences for Covariate-Adjusted Response-Adaptive Designs** Hongjian Zhu*, *University of Texas School of Public Health, Houston* Feifang Hu, *University of Virginia*
2:00 p.m.	**Statistical Inference of Covariate-Adaptive Randomized Clinical Trials** Wei Ma* and Feifang Hu, *University of Virginia*

2:15 p.m.	**Information-Based Sample Size Re-estimation in Group Sequential Design for Longitudinal Trials** Jing Zhou*, *University of North Carolina, Chapel Hill* Adeniyi Adewale, Yue Shentu, Jiajun Liu and Keaven Anderson, *Merck*
2:30 p.m.	**Evaluating Type I Error Rate in Designing Bayesian Adaptive Clinical Trials: A Case Study** Manuela Buzoianu*, *U.S. Food and Drug Administration*
2:45 p.m.	**A Conditional Error Rate Approach to Adaptive Enrichment Trial Designs** Brent R. Logan*, *Medical College of Wisconsin*
3:00 p.m.	**A Phase I Bayesian Adaptive Design to Simultaneously Optimize Dose and Schedule Assignments Both Among and Within Patients** Jin Zhang* and Thomas Braun, *University of Michigan*
3:15 p.m.	**A Semi-parametric Approach for Designing Seamless Phase II/III Studies with Time-to-Event Endpoints** Fei Jiang*, *Rice University* Yanyuan Ma, *Texas A&M University* J. Jack Lee, *University of Texas MD Anderson Cancer Center*

81. CONTRIBUTED PAPERS:

METHODS FOR SURVIVAL ANALYSIS

Tampa Room

Sponsor: ENAR

Chair: Jing Qian, *University of Massachusetts, Amherst*

1:45 p.m.	**Doubly-robust Estimators of Treatment-specific Survival Distributions in Observational Studies with Stratified Sampling** ● Xiaofei Bai* and Anastasios (Butch) Tsiatis, *North Carolina State University* Sean M. O'Brien, *Duke University*
2:00 p.m.	**Identifying Important Effect Modification in Proportional Hazard Model using Adaptive Lasso** Jincheng Shen* and Lu Wang, *University of Michigan*
2:15 p.m.	**Proximity of Weighted and Lindley Models with Estimation from Censored Samples** Broderick O. Oluyede* and Mutiso Fidelis, *Georgia Southern University*

TUESDAY, MARCH 12 (continued)

2:30 p.m.	**Parameter Estimation in Cox Proportional Hazard Models with Missing Censoring Indicators** Naomi C. Brownstein*, Eric Bair, Jianwen Cai and Gary Slade, *University of North Carolina, Chapel Hill*
2:45 p.m.	**Nonparametric Bayes Estimation of Gap-Time Distribution with Recurrent Event Data** AKM F. Rahman*, James Lynch and Edsel A. Pena *University of South Carolina, Columbia*
3:00 p.m.	**Bayesian Regression Analysis of Multivariate Interval-censored Data** Xiaoyan Lin* and Lianming Wang, *University of South Carolina*
3:15 p.m.	**A Bayesian Semiparametric Approach for the Extended Hazards Model** Li Li* and Timothy Hanson, *University of South Carolina*

82. CONTRIBUTED PAPERS: META-ANALYSIS

Washington Room

Sponsors: ENAR and ASA Section on Statistics in Epidemiology

Chair: Kristine Broglio, *Berry Consultants*

1:45 p.m.	**Adaptive Fussed Lasso in Meta Longitudinal Studies** Fei Wang*, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health* and *Wayne State University* Lu Wang and Peter X.-K. Song, *University of Michigan*
2:00 p.m.	**Efficient Meta-analysis of Heterogeneous Studies Using Summary Statistics** Dungang Liu*, *Yale University* Regina Liu and Minge Xie, *Rutgers University*

2:15 p.m.

General Framework for Meta-analysis for Rare Variants Association Studies

Seunggeun Lee*, *Harvard School of Public Health*
Tanya Teslovich and Michael Boehnke, *University of Michigan*
Xihong Lin, *Harvard School of Public Health*

2:30 p.m.

Nonparametric Inference for Meta Analysis with a Set of Fixed, Unknown Study Parameters

Brian Claggett*, *Harvard School of Public Health*
Min-ge Xie, *Rutgers University*
Lu Tian, *Stanford University*
Lee-Jen Wei, *Harvard School of Public Health*

2:45 p.m.

Towards Patient-Centered Network Meta-analysis of Randomized Clinical Trials with Binary Outcomes: Reporting the Proper Summaries

Jing Zhang*, Bradley P Carlin and James D. Neaton
University of Minnesota
Guoxing G. Soon and Lei Nie, *U.S. Food and Drug Administration*
Robert Kane, Beth A. Virnig and Haitao Chu
University of Minnesota

3:00 p.m.

Statistical Characterization and Evaluation of Microarray Meta-analysis Methods: A Practical Application Guideline

Lun-Ching Chang*, Hui-Min Lin and
George C. Tseng, *University of Pittsburgh*

3:15 p.m.

Unconfounding the Confounded: Adjusting for Batch Effects in Completely Confounded Designs in Genomic Studies

W. Evan Johnson*, *Boston University School of Medicine*
Timothy M. Bahr, *University of Iowa School of Medicine*

83. CONTRIBUTED PAPERS:

STATISTICAL METHODS IN CANCER APPLICATIONS

San Francisco Room

Sponsor: ENAR

Chair: Tingting Zhan, *Thomas Jefferson University*

1:45 p.m.

Reclassification of Predictions for Comparing Risk Prediction Models

Swati Biswas*, *University of Texas, Dallas*
Banu Arun, *University of Texas MD Anderson Cancer Center*
Giovanni Parmigiani, *Dana Farber Cancer Institute* and *Harvard School of Public Health*

TUESDAY, MARCH 12 (continued)

2:00 p.m.	**Updating Existing Risk Prediction Tools for New Biomarkers**
	Donna P. Ankerst* and Andreas Boeck, *Technical University, Munich*
2:15 p.m.	**Parametric and Non Parametric Analysis of Colon Cancer**
	Venkateswara Rao Mudunuru* and Chris P. Tsokos *University of South Florida*
2:30 p.m.	**Assessing Interactions for Fixed-dose Drug Combinations in Tumor Xenograft Studies**
	Jianrong Wu* and Lorriaine Tracey, *St Jude Children's Research Hospital* Andrew Davidoff, *National University of Singapore*
2:45 p.m.	**Kernelized Partial Least Squares for Feature Reduction and Classification of Gene Microarray Data**
	Walker H. Land, Xingye Qiao*, Daniel E. Margolis, William S. Ford, Christopher T. Paquette and Joseph F. Perez-Rogers, *Binghamton University* Jeffrey A. Borgia, *Rush University Medical Center* Jack Y. Yang, *Harvard Medical School* Youping Deng, *Rush University Medical Center*
3:00 p.m.	**Gene Expression Deconvolution in Heterogenous Tumor Samples**
	Jaeil Ahn, *University of Texas MD Anderson Cancer Center* Giovanni Parmigiani, *Dana Farber Cancer Institute* and *Harvard School of Public Health* Ying Yuan and Wenyi Wang*, *University of Texas MD Anderson Cancer Center*
3:15 p.m.	**eQTL Mapping using RNA-seq Data from Cancer Patients**
	Wei Sun*, *University of North Carolina, Chapel Hill*
3:30 – 3:45 p.m.	**Refreshment Break and Visit Our Exhibitors** Grand Ballroom Foyer

3:45 – 5:30 p.m	**84. RECENT METHODOLOGICAL ADVANCES IN THE ANALYSIS OF CORRELATED DATA** Grand Ballroom 5 Sponsor: ASA Biometrics Section Organizer: Thomas M. Braun, *University of Michigan* Chair: Mary Sammel, *University of Pennsylvania*
3:45 p.m.	**An Improved Quadratic Inference Approach for the Marginal Analysis of Correlated Data** Philip M. Westgate*, *University of Kentucky*
4:10 p.m.	**Assessing Variance Components in Multilevel Linear Models using Approximate Bayes Factors** Ben Saville*, *Vanderbilt University*
4:35 p.m.	**Merging Longitudinal or Clustered Studies: Validation Test and Joint Estimation** Fei Wang, *Wayne State University* Lu Wang* and Peter X.K. Song, *University of Michigan*
5:00 p.m.	**Modeling the Distribution of Periodontal Disease with a Generalized von Mises Distribution** Thomas M. Braun* and Samopriyo Maitra *University of Michigan*
5:25 p.m.	**Floor Discussion**
	85. FRONTIERS IN STATISTICAL GENETICS AND GENOMICS Grand Ballroom 8B Sponsor: ENAR Organizer: Wei Sun, *University of North Carolina, Chapel Hill* Chair: Wei Sun, *University of North Carolina, Chapel Hill*
3:45 p.m.	**Bayesian Inference of Spatial Organizations of Chromosomes** Ming Hu and Ke Deng, *Harvard University* Zhaohui Qin, *Emory University* Bing Ren, *University of California, San Diego* Jun S. Liu*, *Harvard University*
4:10 p.m.	**Microbiome, Metagenomics and High Dimensional Composition Data** Hongzhe Li*, *University of Pennsylvania*

TUESDAY, MARCH 12 (continued)

4:35 p.m.	**Designs and Analysis of Sequencing Studies with Trait-Dependent Sampling** Danyu Lin*, *University of North Carolina, Chapel Hill*
5:00 p.m.	**An Empirical Bayesian Framework for Assessment of Individual-specific Risk of Recurrence** Kevin Eng, Shuyun Ye, Ning Leng and Christina Kendziorski*, *University of Wisconsin, Madison*
5:25 p.m.	**Floor Discussion**

86. BIG DATA: WEARABLE COMPUTING, CROWDSOURCING, SPACE TELESCOPES, AND BRAIN IMAGING

Grand Ballroom 8A

Sponsor ENAR

Organizer: Ciprian M. Crainiceanu, *Johns Hopkins University*

Chair: Russell T. Shinohara, *University of Pennsylvania*

3:45 p.m.	**Statistical Challenges in Large Astronomical Data Sets** Alexander S. Szalay*, *Johns Hopkins University*
4:10 p.m.	**Visual Data Mining Techniques and Software for Functional Actigraphy Data** Juergen Symanzik* and Abbass Sharif, *Utah State University*
4:35 p.m.	**Automatic Segmentation of Lesions in a Large Longitudinal Cohort of Multiple Sclerosis Subjects** Ciprian Crainiceanu*, *Johns Hopkins University*
5:00 p.m.	**eBird: Statistical Models For Crowdsourced Bird Data** Daniel Fink*, *Cornell University*
5:25 p.m.	**Floor Discussion**

87. NOVEL DEVELOPMENTS IN THE CONSTRUCTION AND EVALUATION OF RISK PREDICTION MODELS

Grand Ballrooms 1 & 2

Sponsor: ASA Biometrics Section

Organizer: Dandan Liu, *Vanderbilt University*

Chair: Qingxia Chen, *Vanderbilt University*

CANCELED	**Risk Assessment with Two Phase Studies** Tianxi Cai*, *Harvard University*
3:45 p.m.	**Projecting Population Risk with Cohort Data: Application to WHI Colorectal Cancer Data** Dandan Liu*, *Vanderbilt University* Yingye Zheng and Li Hsu, *Fred Hutchinson Cancer Research Center*
4:15 p.m.	**Extensions of Criteria for Evaluating Risk Prediction Models for Public Health Applications** Ruth M. Pfeiffer*, *National Cancer Institute, National Institutes of Health*
4:45 p.m.	**Evaluating Risk Markers under Flexible Sampling Design** Yingye Zheng*, *Fred Hutchinson Cancer Research Center* Tianxi Cai, *Harvard School of Public Health* Margaret Pepe, *Fred Hutchinson Cancer Research Center*
5:15 p.m.	**Floor Discussion**

TUESDAY, MARCH 12 (continued)

88. SAMPLE SIZE PLANNING FOR CLINICAL DEVELOPMENT

Grand Ballroom 6

Sponsor: ASA Biopharmaceutical Section

Organizer: H.M. James Hung, *U.S. Food and Drug Administration*

Chair: H.M. James Hung, *U.S. Food and Drug Administration*

3:45 p.m. **The Use of Adaptive Designs in the Efficient and Accurate Identification of Effective Therapies**

Scott S. Emerson*, *University of Washington*

4:15 p.m. **Sample Size Re-estimation Based upon Promising Interim Result: From 'Less Well Understood' to 'Well Accepted'**

Joshua Chen*, *Merck*

4:45 p.m. **Sample Size Evaluation in Clinical Trials with Co-primary Endpoints**

Toshimitsu Hamasaki*, *Osaka University Graduate School of Medicine*
Takashi Sozu, *Kyoto University School of Public Health*
Tomoyuki Sugimoto, *Hrosaki University Graduate School of Science and Technology*
Scott Evans, *Harvard School of Public Health*

5:15 p.m. **Discussant:**

Sue-Jane Wang, *U.S. Food and Drug Administration*

89. RECENT DEVELOPMENTS IN CHANGE POINT SEGMENTATION: FROM BIOPHYSICS TO GENETICS

Grand Ballroom 4

Sponsor: IMS

Organizer: Axel Munk, *University of Göettingen*

Chair: Sam Kou, *Harvard University*

3:45 p.m. **High Throughput Analysis of Flow Cytometry Data with the Earth Mover Distance**

Guenther Walther* and Noah Zimmermann
Stanford University

4:10 p.m. **Simultaneous Multiscale Change-Point Inference in Exponential Families: Sharp Detection Rates, Confidence Bands, Algorithms and Applications**

Axel Munk* *Goettingen University* and *Max Planck Institute for Biophyiscal Chemistry*
Klaus Frick, Hannes Sieling and
Rebecca von der Heide, *Goettingen University*

4:35 p.m. **Change Point Segmentation for Time Dynamic Voltage Dependent Ion Channel Recordings**

Rebecca von der Heide, *Georgia Augusta University of Goettingen*
Thomas Hotz*, *Ilmenau University of Technology*
Hannes Sieling, Claudia Steinem, Ole Schuette,
Ulf Diederichsen, Tatjana Polupanow,
Katarzyna Wasilczuk and Axel Munk, *Georgia Augusta University of Goettingen*

5:00 p.m. **Stepwise Signal Extraction Via Marginal Likelihood**

Chao Du*, *Stanford University*
Samuel C. Kou, *Harvard University*

5:25 p.m. **Floor Discussion**

90. NEW CHALLENGES FOR NETWORK DATA AND GRAPHICAL MODELING

Grand Ballroom 3

Sponsor ENAR

Organizer: Annie Qu, *University of Illinois at Urbana-Champaign*

Chair: Annie Qu, *University of Illinois at Urbana-Champaign*

3:45 p.m. **Consistency of Community Detection**

Yunpeng Zhao, *George Mason University*
Elizaveta Levina and Ji Zhu*, *University of Michigan*

4:10 p.m. **Sparse Estimation of Conditional Graphical Models with Application to Gene Networks**

Bing Li*, *The Pennsylvania State University*
Hyonho Chun, *Purdue University*
Hongyu Zhao, *Yale University*

4:35 p.m. **Model-Based Clustering of Large Networks**

Duy Q. Vu, *University of Melbourne*
David R Hunter* and Michael Schweinberger
The Pennsylvania State University

5:00 p.m. **Maximum Likelihood Estimation of a Directed Acyclic Gaussian Graph**

Yiping Yuan, Xiaotong Shen* and Wei Pan, *University of Minnesota*

5:25 p.m. **Floor Discussion**

91. CONTRIBUTED PAPERS: BAYESIAN ANALYSIS OF HIGH DIMENSIONAL DATA

St. Louis Room

Sponsors: ENAR and ASA Biometrics Section

Chair: Song Yan, *University of North Carolina, Chapel Hill*

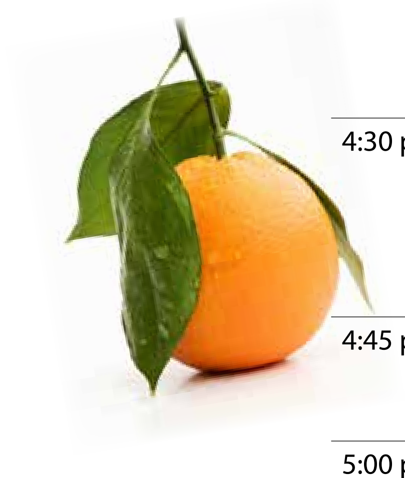
3:45 p.m.	**A Multivariate CAR Model for Pre-Surgical Planning with fMRI** Zhuqing Liu*, Veronica J. Berrocal and Timothy D. Johnson, *University of Michigan*
4:00 p.m.	**Modeling Functional Connectivity in the Human Brain with Incorporation of Structural Connectivity** Wenqiong Xue* and DuBois Bowman, *Emory University*
4:15 p.m.	**A Bayesian Spatial Positive-Definite Matrix Regression Model for Diffusion Tensor Imaging** Jian Kang*, *Emory University*
4:30 p.m.	**Bayesian Squashed Regression** Rajarshi Guhaniyogi* and David B. Dunson *Duke University*
4:45 p.m.	**Generalized Bayesian Infinite Factor Models** Kassie Fronczyk*, *University of Texas MD Anderson Cancer Center* and *Rice University* Michele Guindani, *University of Texas MD Anderson Cancer Center* Marina Vannucci, *Rice University*
5:00 p.m.	**A Bayesian Mixture Model for Gene Network Selection** Yize Zhao*, *Emory University*
5:15 p.m.	**Bayes Multiple Decision Functions in Classification** Wensong Wu*, *Florida International University* Edsel A. Pena, *University of South Carolina*

92. CONTRIBUTED PAPERS: MISSING DATA

Tampa Room

Sponsors: ENAR and ASA Biopharmaceutical Section

Chair: Bo Lu, *The Ohio State University*



3:45 p.m.	**A Class of Tests for Missing Completely at Random** Gong Tang*, *University of Pittsburgh*
4:00 p.m.	**Estimation in Longitudinal Studies with Nonignorable Dropout** Jun Shao, *University of Wisconsin, Madison* Jiwei Zhao*, *Yale University*
4:15 p.m.	**Semiparametrically Efficient Estimation in Longitudinal Data Analysis with Dropouts** Peisong Han*, Peter X. K. Song and Lu Wang *University of Michigan*
4:30 p.m.	**Weighted Estimating Equations for Semiparametric Transformation Models with Missing Covariates** Yang Ning* and Grace Yi, *University of Waterloo* Nancy Reid, *University of Toronto*
4:45 p.m.	**Handling Data with Three Types of Missing Values** Jennifer Boyko*, *University of Connecticut*
5:00 p.m.	**A Bayesian Sensitivity Analysis Model for Diagnostic Accuracy Tests with Missing Data** Chenguang Wang*, *Johns Hopkins University* Qin Li and Gene Pennello, *U.S. Food and Drug Administration*
5:15 p.m.	**Multiple Imputation Model Diagnostics** Irina Bondarenko* and Trivellore Raghunathan *University of Michigan*

TUESDAY, MARCH 12 (continued)

93. CONTRIBUTED PAPERS:

SEMIPARAMETRIC AND NONPARAMETRIC METHODS FOR SURVIVAL ANALYSIS

Los Angeles Room

Sponsor: ENAR

Chair: Broderick O. Oluyede, *Georgia Southern University*

3:45 p.m. **Bayesian Partial Linear Model for Skewed Longitudinal Data**

● Yuanyuan Tang*, Debajyoti Sinha and Debdeep Pati, *Florida State University*
Stuart Lipsitz, *Brigham and Women's Hospital*

4:00 p.m. **On Estimation of Generalized Transformation Model with Length-biased Right-censored Data**

Mu Zhao* and Hongmei Jiang, *Northwestern University*
Yong Zhou, *Academy of Mathematics and Systems Science, Chinese Academy of Sciences*

4:15 p.m. **Time-varying Copula Models for Longitudinal Data**

Esra Kurum, *Istanbul Medeniyet University*
John Hughes*, *University of Minnesota*
Runze Li, *The Pennsylvania State University*

4:30 p.m. **Regression Analysis of Current Status Data Using the EM Algorithm**

Christopher S. McMahan*, *Clemson University*
Lianming Wang and Joshua M. Tebbs, *University of South Carolina*

4:45 p.m. **Quantile Regression for Longitudinal Studies with Missing and Left Censored Measurements**

Xiaoyan Sun*, Limin Peng, Amita K. Manatunga, Robert H. Lyles and Michele Marcus, *Emory University*

5:00 p.m. **Quantile Regression of Semiparametric Time Varying Coefficient Model with Longitudinal Data**

Xuerong Chen* and Jianguo Sun, *University of Missouri, Columbia*

5:15 p.m. **Longitudinal Analysis of the Leukocyte and Cytokine Fluctuations after Stem Cell Transplantation using Varying Coefficient Models**

Xin Tian*, *National Heart, Lung and Blood Institute, National Institutes of Health*

94. CONTRIBUTED PAPERS: MEASUREMENT ERROR

Washington Room

Sponsors: ENAR and ASA Section on Statistics in Epidemiology

Chair: Mihai C Giurcanu, *University of Florida*

3:45 p.m. **Threshold-Dependent Proportional Hazards Model for Current Status Data with Biomarker Subject to Measurement Error**

Noorie Hyun*, Donglin Zeng and David J. Couper
University of North Carolina, Chapel Hill
James S. Pankow, *University of Minnesota*

4:00 p.m. **Proportional Hazards Model with Functional Covariate Measurement Error and Instrumental Variables**

Xiao Song*, *University of Georgia*
Ching-Yun Wang, *Fred Hutchinson Cancer Research Center*

4:15 p.m. **Distance and Gravity: Modeling Conditional Distributions of Heaped Self-Reported Count Data**

Sandra D. Griffith*, *Cleveland Clinic*
Saul Shiffman, *University of Pittsburgh*
Daniel F. Heitjan, *University of Pennsylvania*

4:30 p.m. **Pathway Analysis of Gene-environment Interactions in the Presence of Measurement Error in the Environmental Exposure**

Stacey E. Alexeeff* and Xihong Lin, *Harvard School of Public Health*

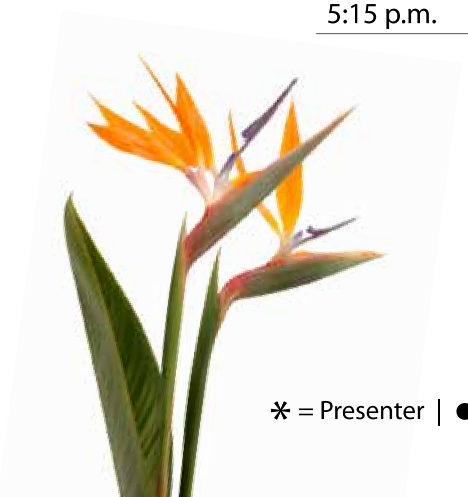
4:45 p.m. **Variable Selection for Multivariate Regression Calibration with Error-prone and Error-free Covariates**

Xiaomei Liao* Kathryn Fitzgerald and
Donna Spiegelman, *Harvard School of Public Health*

5:00 p.m. **Disk Diffusion Breakpoint Determination Using a Bayesian Nonparametric Variation of the Errors-in-Variables Model**

Glen DePalma* and Bruce A. Craig, *Purdue University*

5:15 p.m. **Floor Discussion**



TUESDAY, MARCH 12 (continued)

	95. CONTRIBUTED PAPERS: GRAPHICAL MODELS San Francisco Room Sponsor: ENAR Chair: Jason Connor, *Berry Consultants*
3:45 p.m.	**A Bayesian Graphical Model for Integrative Analysis of TCGA Data** Yanxun Xu*, *Rice University* and *University of Texas MD Anderson Cancer Center* Jie Zhang and Yuan Yuan, *University of Texas MD Anderson Cancer Center* Riten Mitra and Peter Muller, *University of Texas, Austin* Yuan Ji, *NorthShore University Health System*
4:00 p.m.	**Bayesian Inference of Multiple Gaussian Graphical Models** Christine B. Peterson*, *Rice University* Francesco C. Stingo, *University of Texas MD Anderson Cancer Center* Marina Vannucci, *Rice University*
4:15 p.m.	**Differential Patterns of Interaction and Gaussian Graphical Models** Masanao Yajima* and Donatello Telesca, *University of California, Los Angeles* Yuan Ji, *NorthShore University HealthSystem* Peter Muller, *University of Texas, Austin*
4:30 p.m.	**PenPC: A Two-step Approach to Estimate the Skeletons of High Dimensional Directed Acyclic Graphs** Min Jin Ha* and Wei Sun, *University of North Carolina, Chapel Hill* Jichun Xie, *Temple University*
4:45 p.m.	**Joint Estimation of Multiple Dependent Gaussian Graphical Models with Application to Tissue-specific Gene Expression** Yuying Xie*, William Valdar and Yufeng Liu, *University of North Carolina, Chapel Hill*
5:00 p.m.	**Graphical Network Models for Multi-Dimensional Neurocognitive Phenotypes of Pediatric Disorders** Vivian H. Shih* and Catherine A. Sugar, *University of California, Los Angeles*
5:15 p.m.	**Floor Discussion**
5:30 p.m. – 6:30 p.m.	**ENAR Business Meeting** ***(Open to all ENAR Members)*** San Francisco Room

8:30 – 10:15 a.m.	**96.**	**ADVANCES IN ROBUST ANALYSIS OF LONGITUDINAL DATA** Grand Ballroom 3 Sponsor: ENAR Organizer: Abdus Sattar, *Case Western Reserve University School of Medicine* Chair: Abdus Sattar, *Case Western Reserve University School of Medicine*
8:30 a.m.		**Nonparametric Random Coefficient Models for Longitudinal Data Analysis: Algorithms; Robustness, and Efficiency** John M. Neuhaus* and Charles E. McCulloch *University of California, San Francisco* Mary Lesperance and Rabih Saab, *University of Victoria, Canada*
8:55 a.m.		**Robust Inference for Marginal Longitudinal Generalized Linear Models** Elvezio M. Ronchetti*, *University of Geneva, Switzerland*
9:20 a.m.		**Robust Analysis of Longitudinal Data with Informative Drop-outs** Sanjoy Sinha*, *Carleton University* Abdus Sattar, *Case Western Reserve University*
9:45 a.m.		**Informative Observation Times in Longitudinal Studies** Kay-See Tan, Benjamin French* and Andrea B. Troxel *University of Pennsylvania*
10:10 a.m.		**Floor Discussion**

97. COMPLEX DESIGN AND ANALYTIC ISSUES IN GENETIC EPIDEMIOLOGIC STUDIES

Grand Ballroom 8B

Sponsors: ASA Biometrics Section and ASA Section on Statistics in Epidemiology

Organizer: Bhramar Mukherjee, *University of Michigan*

Chair: Xiaoquan William Wen, *University of Michigan*

8:30 a.m.	**Using Family Members to Augment Genetic Case-Control Studies of a Life-threatening Disease** Lu Chen*, *University of Pennsylvania School of Medicine* Clarice R. Weinberg, *National Institute of Environmental Health Sciences, National Institutes of Health* Jinbo Chen*, *University of Pennsylvania School of Medicine*
8:55 a.m.	**Case-sibling Studies that Acknowledge Unstudied Parents and Permit Unmatched Individuals** Min Shi*, David M. Umbach and Clarice R. Weinberg *National Institute of Environmental Health Sciences, National Institutes of Health*
9:20 a.m.	**Two-Phase Studies of Gene-Environment Interaction** Bhramar Mukherjee*, *University of Michigan* Jaeil Ahn, *University of Texas MD Anderson Cancer Center*
9:45 a.m.	**Methods for Analyzing Multivariate Phenotypes in Gene-based Association Studies using Families** Saonli Basu*, Yiwei Zhang and Matt McGue *University of Minnesota*
10:10 a.m.	**Floor Discussion**

98. LARGE DATA VISUALIZATION AND EXPLORATION

Grand Ballroom 4

Sponsor: ENAR

Organizer: Bruce Swihart, *Johns Hopkins Bloomberg School of Public Health*

Chair: Vadim Zipunnikov, *Johns Hopkins School of Public Health*

8:30 a.m. **Visualizing Brain Imaging in Interactive 3D**

John Muschelli* and Ciprian Crainiceanu, *Johns Hopkins Bloomberg School of Public Health*

8:55 a.m. **Big Data Visualisation in R with ggplot2**

Hadley Wickham*, *RStudio*

9:20 a.m. **Network Visualisation for Playful Big Data Analysis**

Amy R. Heineike*, *Quid Inc*

9:45 a.m. **Interactive Graphics for High-dimensional Genetic Data**

Karl W. Broman*, *University of Wisconsin, Madison*

10:10 a.m. **Floor Discussion**

99. STATISTICAL ANALYSIS OF BIOMARKER INFORMATION IN NUTRITIONAL EPIDEMIOLOGY

Grand Ballrooms 1 & 2

Sponsor: IMS

Organizer: Alicia L. Carriquiry, *Iowa State University*

Chair: Justine Shults, *University of Pennsylvania*

8:30 a.m. **Challenges in the Analysis of Biomarker Data for Nutrition Epidemiology**

Alicia L. Carriquiry*, *Iowa State University*

8:55 a.m. **Biomarkers of Nutritional Status - Methodological Challenges**

Victor Kipnis*, *National Cancer Institute, National Institutes of Health*

9:20 a.m. **A Semiparametric Approach to Estimation in Measurement Error Models with Error-in-the-equation: Application to Serum Vitamin D**

Maria L. Joseph*, Alicia L. Carriquiry and
Wayne A. Fuller, *Iowa State University*
Christopher T. Sempos, *Office of Dietary Supplements, National Institutes of Health*
Bess Dawson-Hughes, *Human Nutrition Research Center on Aging at Tufts University*

WEDNESDAY, MARCH 13 (continued)

9:45 a.m. **Implementation of a Bivariate Deconvolution Approach to Estimate the Joint Distribution of Two Non-normal Random Variables Observed with Measurement Error**

Alicia L. Carriquiry, Guillermo Basulto-Elías and Eduardo A. Trujillo-Rivera*, *Iowa State University*

10:10 a.m. **Floor Discussion**

100. UTILITIES OF STATISTICAL MODELING AND SIMULATION FOR DRUG DEVELOPMENT

Los Angeles Room

Sponsor: ASA Biopharmaceutical Section

Organizer: Sue-Jane Wang, *U.S. Food and Drug Administration*

Chair: Sue-Jane Wang, *U.S. Food and Drug Administration*

8:30 a.m. **Guided Clinical Trial Design: Does it Improve the Final Design?**

J. Kyle Wathen*, *Janssen Research & Development*

9:00 a.m. **On the Choice of Doses for Phase III Clinical Trials**

Carl-Fredrik Burman*, *AstraZeneca Research & Development*

9:30 a.m. **Simulation-Guided Design for Molecularly Targeted Therapies in Oncology**

Cyrus R. Mehta*, *Cytel Inc.*

10:00 a.m. **Discussant:**

H.M. James Hung, *U.S. Food and Drug Administration*

101. RECENT ADVANCES IN SURVIVAL AND EVENT-HISTORY ANALYSIS

Miami Room

Sponsor: ASA Biometrics Section

Organizer: Xin He, *University of Maryland*

Chair: Mei-Ling Ting Lee, *University of Maryland*

8:30 a.m.	**Analysis of Direct and Indirect Effects in Survival Analysis** Odd O. Aalen*, *University of Oslo, Norway*
8:55 a.m.	**Recurrent Marker Processes with Competing Terminal Events** Mei-Cheng Wang*, *Johns Hopkins Bloomberg School of Public Health*
9:20 a.m.	**Distribution-free Inference Methods for Threshold Regression** G. A. (Alex) Whitmore*, *McGill University* Mei-Ling T. Lee, *University of Maryland*
9:45 a.m.	**Estimating the Counting Statistics of a Self-exciting Process** Paula R. Bouzas*, *University of Granada, Spain* Nuria Ruiz-Fuentes, *University of Jaén, Spain*
10:10 a.m.	**Floor Discussion**

102. INNOVATIVE METHODS IN CAUSAL INFERENCE WITH APPLICATIONS TO MEDIATION, NEUROIMAGING, AND INFECTIOUS DISEASES

Grand Ballroom 8A

Sponsor: ENAR

Organizer: Michael Daniels, *University of Texas, Austin*

Chair: Joseph Hogan, *Brown University*

8:30 a.m.	**Bayesian Causal Inference for Multiple Mediators** Michael Daniels*, *University of Texas, Austin* Chanmin Kim, *University of Florida*
9:00 a.m.	**Inference with Interference in fMRI** Xi Luo*, *Brown University* Dylan S. Small, *University of Pennsylvania* Chiang-shan R. Li, *Yale University* Paul R. Rosenbaum, *University of Pennsylvania*
9:30 a.m.	**Assessing the Effects of Cholera Vaccination in the Presence of Interference** Michael G. Hudgens*, *University of North Carolina, Chapel Hill*
10:00 a.m.	**Floor Discussion**

103. CONTRIBUTED PAPERS: CLINICAL TRIALS

St. Louis Room

Sponsor: ASA Biopharmaceutical Section

Chair: Hongjian Zhu, *University of Texas School of Public Health*

8:30 a.m.	**A Multistage Non-inferiority Study Analysis Plan to Evaluate Successively More Stringent Criteria for a Clinical Trial with Rare Events** Siying Li* and Gary G. Koch, *University of North Carolina, Chapel Hill*
8:45 a.m.	**On the Efficiency of Nonparametric Variance Estimation in Sequential Dose-finding** Chih-Chi Hu* and Ying Kuen K. Cheung, *Columbia University Mailman School of Public Health*
9:00 a.m.	**Bayesian Enrollment and Stopping Rules for Managing Toxicity Requiring Long Follow-up in Phase II Oncology Trials** Guochen Song*, *Quintiles* Anastasia Ivanova, *University of North Carolina, Chapel Hill*
9:15 a.m.	**Analysis of Safety Data in Clinical Trials Using a Recurrent Event Approach** Qi Gong*, *Amgen Inc.* Yansheng Tong, *Genentech Inc.* Alexander Strasak, *F. Hoffmann-La Roche Ltd.* Liang Fang, *Genentech Inc.*
9:30 a.m.	**Smaller, Faster Phase III Trials: A Better Way to Assess Targeted Agents?** Karla V. Ballman*, *Mayo Clinic* Marie-Cecile Le Deley, *Institut Gustave Roussy, Université Paris-Sud 11* Daniel J. Sargent, *Mayo Clinic*
9:45 a.m.	**Superiority Testing in Group Sequential Non-inferiority Trials** Vandana Mukhi* and Heng Li, *U.S. Food and Drug Administration*
10:00 a.m.	**Comparing Study Results from Various Propensity Score Methods using Real Clinical Trial Data** Terri K. Johnson* and Yunling Xu, *U.S. Food and Drug Administration*

104. CONTRIBUTED PAPERS:
NEXT GENERATION SEQUENCING

Grand Ballroom 5

Sponsor: ENAR

Chair: Lingling An, *University of Arizona*

8:30 a.m.

DELPTM: A Statistical Algorithm to Identify Post-Translational Modifications from Tandem Mass Spectrometry (MS/MS) Data

Susmita Datta* and Jasmit S. Shah, *University of Louisville*

8:45 a.m.

Protein Identification: A Bayesian Approach

Nicole Lewis* and David B. Hitchcock, *University of South Carolina*
Ian L. Dryden, *University of Nottingham*
John R. Rose, *University of South Carolina*

9:00 a.m.

iASeq: Integrative Analysis of Allele-specificity of Protein-DNA Interactions in Multiple ChIP-seq Datasets

● Yingying Wei*, *Johns Hopkins University Bloomberg School of Public Health*
Xia Li and Qianfei Wang, *Chinese Academy of Sciences*
Hongkai Ji, *Johns Hopkins University Bloomberg School of Public Health*

9:15 a.m.

Differential Expression Analysis of RNA-seq Data at Base-pair Resolution

Alyssa C. Frazee*, Rafael Irizarry and Jeffrey T. Leek
Johns Hopkins University

9:30 a.m.

A Novel Functional PCA Method for Testing Differential Expression with RNA-seq Data

Hao Xiong*, Haiyan Huang and Peter Bickel
University of California, Berkeley

9:45 a.m.

Can Human Ethnic Subgroups be Uncovered by Next Generation Sequencing Data?

Yiwei Zhang* and Wei Pan, *University of Minnesota*

10:00 a.m.

Autoregressive Modeling and Variable Selection Procedures in Hidden Markov Models with Covariates, with Applications to DAE-seq Data

Naim U. Rashid*, Wei Sun and Joseph G. Ibrahim
University of North Carolina, Chapel Hill

WEDNESDAY, MARCH 13 (continued)

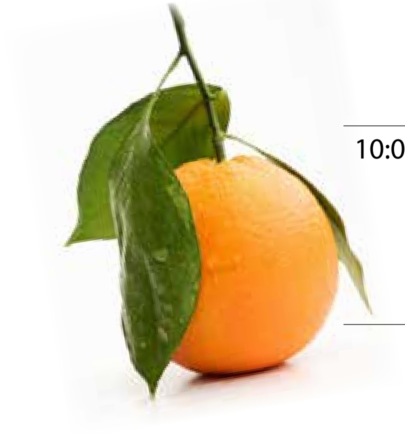
105. CONTRIBUTED PAPERS: NONPARAMETRIC METHODS

Tampa Room

Sponsor: ENAR

Chair: Wenyi Wang, *University of Texas MD Anderson Cancer Center*

8:30 a.m.	**Variable Selection in Monotone Single-index Models Via the Adaptive LASSO** ● Jared Foster*, *University of Michigan*
8:45 a.m.	**Cross-Validation and a U-statistic Model Selection Tool** Qing Wang*, Williams College; Bruce G. Lindsay *The Pennsylvania State University*
9:00 a.m.	**Maximum Likelihood Estimation for Semiparametric Exponential Tilt Models with Adjustment of Covariates** Jinsong Chen*, *University of Illinois at Chicago* George R. Terrell and Inyoung Kim, *Virginia Tech University*
9:15 a.m.	**Two Step Estimation of Proportional Hazards Regression Models with Nonparametric Additive Effects** Rong Liu*, *University of Toledo*
9:30 a.m.	**Two-sample Density-based Empirical Likelihood Ratio Tests Based on Paired Data, with Application to a Treatment Study of Attention-Deficit/Hyperactivity Disorder and Severe Mood Dysregulation** Albert Vexler*, *The State University of New York at Buffalo*
9:45 a.m.	**Estimating the Distribution Function Using Ranked Set Samples from Biased Distributions** Kaushik Ghosh*, *University of Nevada, Las Vegas* Ram C. Tiwari, *U.S. Food and Drug Administration*
10:00 a.m.	**A Unifying Framework for Rank Tests** Jan R. De Neve*, *Ghent University* Olivier Thas, *Ghent University* and *University of Wollongong* Jean-Pierre Ottoy, *Ghent University*



106. CONTRIBUTED PAPERS:

JOINT MODELS FOR LONGITUDINAL AND SURVIVAL DATA

Washington Room

Sponsors: ENAR and ASA Biopharmaceutical Section

Chair: Danping Liu, *Eunice Kennedy Shriver National Institute of Child Health* and *Human Development, National Institutes of Health*

8:30 a.m.	**Joint Modeling of Survival Data and Mismeasured Longitudinal Data Using the Proportional Odds Model**
	Juan Xiong and Wenqing He*, *University of Western Ontario* Grace Yi, *University of Waterloo*
8:45 a.m.	**Joint Modeling of Longitudinal Data and Informative Observational Times with Time-Varying Coefficients**
	Liang Li*, *Cleveland Clinic*
9:00 a.m.	**A Bayesian Approach to Joint Analysis of Parametric Accelerated Failure Time and Multivariate Longitudinal Data**
	Sheng Luo*, *University of Texas, Houston*
9:15 a.m.	**Prediction Accuracy of Longitudinal Biomarkers in Joint Latent Class Models**
	Lan Kong* and Guodong Liu, *The Pennsylvania State University College of Medicine*
9:30 a.m.	**Structural Nested Models for Joint Modeling of Repeated Measures and Survival Outcomes**
	Marshall M. Joffe*, *University of Pennsylvania*
9:45 a.m.	**Joint Modeling of Longitudinal and Cure-survival Data**
	Sehee Kim*, *University of Michigan* Donglin Zeng, *University of North Carolina, Chapel Hill* Yi Li, *University of Michigan* Donna Spiegelman, *Harvard School of Public Health*
10:00 a.m.	**Regression Modeling of Longitudinal Data with Informative Observation Times: Extensions and Comparative Evaluation**
	Kay-See Tan*, Benjamin C. French and Andrea B. Troxel, *University of Pennsylvania*

WEDNESDAY, MARCH 13 (continued)

107. CONTRIBUTED PAPERS: MULTIVARIATE METHODS

San Francisco Room

Sponsor: ENAR

Chair: Deniz Akdemir, *Cornell University*

8:30 a.m.	**On Simple Tests of Diagonal Symmetry for Bivariate Distributions** Hani M. Samawi* and Robert Vogel, *Georgia Southern University*
8:45 a.m.	**Optimal Designs for Bivariate Accelerated Life Testing Experiments** Xiaojian Xu* and Mark Krzeminski, *Brock University*
9:00 a.m.	**James-Stein Type Compound Estimation of Multiple Mean Response Functions and their Derivatives** Limin Feng*, Richard Charnigo and Cidambi Srinivasan, *University of Kentucky*
9:15 a.m.	**Bayesian Modeling of a Bivariate Distribution with Correlated Continuous and Binary Outcomes** Ross A. Bray*, John W. Seaman Jr. and James D. Stamey, *Baylor University*
9:30 a.m.	**Robust Partial Least Squares Regression Using Repeated Minimum Covariance Determinant** Dilrukshika M. Singhabahu* and Lisa Weissfeld *University of Pittsburgh*
9:45 a.m.	**Principal Component Analysis on High Dimensional non-Gaussian Dependent Data** ● Fang Han*, *Johns Hopkins University* Han Liu, *Princeton University*
10:00 a.m.	**Sparse Principal Component Regression** Tamar Sofer* and Xihong Lin, *Harvard School of Public Health*
10:15 – 10:30 a.m.	**Refreshment Break and Visit Our Exhibitors** Grand Ballroom Foyer

10:30 a.m. – 12:15 p.m.	**108. NEW STATISTICAL CHALLENGES FOR LONGITUDINAL/MULTIVARIATE ANALYSIS WITH MISSING DATA** Grand Ballroom 8A Sponsor: ASA Biometrics Section Organizer: Lu Wang, *University of Michigan* Chair: Lu Wang, *University of Michigan*
10:30 a.m.	**Outcome Dependent Sampling for Continuous-response Longitudinal Data** Paul J. Rathouz*, *University of Wisconsin, Madison* Jonathan S. Schildcrout, *Vanderbilt University School of Medicine* Lee McDaniel, *University of Wisconsin, Madison*
10:55 a.m.	**A Systematic Approach to Model Ignorable Missingness of High-Dimensional Data** Naisyin Wang*, *University of Michigan*
11:20 a.m.	**Missing at Random and Ignorability for Inferences about Individual Parameters with Missing Data** Roderick J. Little*, *University of Michigan* Sahar Zanganeh, *University of Washington*
11:45 a.m.	**Solving Computational Challenges with Composite Likelihood** Bruce G. Lindsay* and Prabhani Kuruppumullage *The Pennsylvania State University*
12:10 p.m.	**Floor Discussion**
	109. STATISTICAL INFORMATION INTEGRATION OF -OMICS DATA Grand Ballrooms 1 & 2 Sponsor: ENAR Organizer: George C. Tseng, *University of Pittsburgh* Chair: George C. Tseng, *University of Pittsburgh*
10:30 a.m.	**The Inference of Drug Pathway Associations Through Joint Analysis of Diverse High Throughput Data Sets** Haisu Ma, Ning Sun and Hongyu Zhao* *Yale University*

WEDNESDAY, MARCH 13 (continued)

11:00 a.m.	**iASeq: Integrative Analysis of Allele-Specificity of Protein-DNA Interactions in Multiple ChIP-seq Datasets**
	Yingying Wei, *Johns Hopkins Bloomberg School of Public Health* Xia Li and Qianfei Wang, *Chinese Academy of Sciences* Hongkai Ji*, *Johns Hopkins Bloomberg School of Public Health*
11:30 a.m.	**Integrative Analysis of RNA and DNA Sequencing Data Identifies Tissue Specific Transcriptomic Signatures of Evoked Inflammation in Humans**
	Minyao Li*, *University of Pennsylvania*
12:00 p.m.	**Discussant:**
	Debashis Ghosh, *The Pennsylvania State University*

110. EXPLORING INTERACTIONS IN BIG DATA

Grand Ballroom 3

Sponsor: IMS

Organizer: Jianqing Fan, *Princeton University*

Chair: Jianqing Fan, *Princeton University*

10:30 a.m.	**Spectral Methods for Analyzing Big Network Data**
	Jiashun Jin*, *Carnegie Mellon University*
10:55 a.m.	**Link Prediction for Partially Observed Networks**
	Yunpeng Zhao, *George Mason University* Elizaveta Levina* and Ji Zhu, *University of Michigan*
11:20 a.m.	**Interaction Selection for Ultra High-Dimensional Data**
	Hao Zhang* and Ning Hao, *University of Arizona*
11:45 a.m.	**Consistent Cross-Validation for Tuning Parameter Selection in High-Dimensional Variable Selection**
	Yang Feng*, *Columbia University* Yi Yu, *Fudan University*
12:10 p.m.	**Floor Discussion**

111. ASSESSING THE CLINICAL UTILITY OF BIOMARKERS AND STATISTICAL RISK MODELS

Miami Room

Sponsor: ENAR

Organizer: Hormuzd Katki, *National Cancer Institute, National Institutes of Health*

Chair: Rhonda Szczesniak, *Cincinnati Children's Hospital Medical Center*

10:30 a.m.	**A New Framework for Assessing the Risk Stratification of Markers and Statistical Risk Models** Hormuzd Katki*, *National Cancer Institute, National Institutes of Health*
11:00 a.m.	**Incorporating Covariates in Assessing the Performance of Markers for Treatment Selection** Holly Janes*, *Fred Hutchinson Cancer Research Center*
11:30 a.m.	**Personalized Evaluation of Biomarker Value: A Cost-benefit Perspective** Ying Huang*, *Fred Hutchinson Cancer Research Center*
12:00 p.m.	**Floor Discussion**

112. DESIGN OF CLINICAL TRIALS FOR TIME-TO-EVENT DATA

Grand Ballroom 4

Sponsor: ENAR

Organizer: Ming-Hui Chen, *University of Connecticut*

Chair: Gary Aras, *Amgen, Inc.*

10:30 a.m.	**Bayesian Sequential Meta-analysis Design in Evaluating Cardiovascular Risk in a New Antidiabetic Drug Development Program** Joseph G. Ibrahim*, *University of North Carolina, Chapel Hill* Ming-Hui Chen, *University of Connecticut* Amy Xia, Thomas Liu and Violeta Hennessey *Amgen, Inc.*
11:00 a.m.	**Using Data Augmentation to Facilitate Conduct of Phase I/II Clinical Trials with Delayed Outcomes** Ying Yuan*, Ick Hoon Jin and Peter Thall, *University of Texas MD Anderson Cancer Center*

WEDNESDAY, MARCH 13 (continued)

11:30 a.m. **Bayesian Design of Superiority Clinical Trials for Recurrent Events Data with Applications to Bleeding and Transfusion Events in Myelodyplastic Syndrome**

Ming-Hui Chen*, *University of Connecticut*
Joseph G. Ibrahim and Donglin Zeng, *University of North Carolina, Chapel Hill*
Kuolung Hu and Catherine Jia, *Amgen, Inc.*

12:00 p.m. **Floor Discussion**

113. STATISTICAL ANALYSIS OF SUBSTANCE ABUSE DATA

Grand Ballroom 8B

Sponsors: ASA Biometrics Section and ASA Section on Statistics in Epidemiology

Organizer: Lei Liu, *Northwestern University*

Chair: Don Hedeker, *University of Illinois at Chicago*

10:30 a.m. **Time-Varying Coefficient Models for Longitudinal Mixed Responses**

Esra Kurum, *Istanbul Medeniyet University, Istanbul, Turkey*
Runze Li*, *The Pennsylvania State University*
Saul Shiffman, *University of Pittsburgh*
Weixin Yao, *Kansas State University*

10:55 a.m. **Methods for Mediation Analysis in Alcohol Intervention Studies**

Joseph W. Hogan*, *Brown University*
Michael J. Daniels, *University of Texas, Austin*

11:20 a.m. **Mixture Models for the Analysis of Drinking Data in Clinical Trials in Alcohol Dependence**

Ralitza Gueorguieva*, *Yale University*

11:45 a.m. **Analyzing Repeated Measures Semi-continuous Data, with Application to an Alcohol Dependence Study**

Lei Liu*, *Northwestern University*
Robert Strawderman, *University of Rochester*
Bankole Johnson, *University of Virginia*
John O'Quigley, *The´orique et Applique´e Universite´ Pierre et Marie Curie, Paris*

12:10 p.m. **Floor Discussion**

114. GLM AND BEYOND: BOOK AUTHORS DISCUSS CUTTING-EDGE APPROACHES AND THEIR CHOSEN VENUE FOR PUBLICATION

Los Angeles Room

Sponsor: ENAR

Organizer: Justine Shults, *University of Pennsylvania* and *Children's Hospital of Philadelphia*

Chair: Mekibib Altaye, *Cincinnati Children's Hospital Medical Center*

10:30 a.m. **Fame and Fortune in GLM-Related Textbooks**

James W. Hardin*, *University of South Carolina*

11:00 a.m. **Decaying Product Structures in Extended GEE (QLS) Analysis of Longitudinal and Discrete Data**

Justine Shults*, *University of Pennsylvania Pereleman School of Medicine*

11:40 a.m. **Discussant:**

Matthew Guerra, *U.S. Food and Drug Administration*

115. CONTRIBUTED PAPERS:

MORE METHODS FOR HIGH-DIMENSIONAL DATA ANALYSIS

St. Louis Room

Sponsor: ENAR

Chair: Minsun Song, *National Cancer Institute, National Institutes of Health*

10:30 a.m. **Random Forests for Correlated Predictors in Immunologic Data**

Joy Toyama* and Christina Kitchen, *University of California, Los Angeles*

10:45 a.m. **Evaluating Gene-gene and Gene-environmental Interactions Using the Two-stage RF-MARS Approach: The Lung Cancer Example**

Hui-Yi Lin*, *Moffitt Cancer Center & Research Institute*

11:00 a.m. **Statistical Linkage across High Dimensional Observational Domains**

Leonard Hearne* and Toni Kazic, *University of Missouri*

11:15 a.m. **Hypothesis Testing using a Flexible Additive Least Squares Kernel Machine Approach**

Jennifer J. Clark* and Mike Wu, *University of North Carolina, Chapel Hill*
Arnab Maity, *North Carolina State University*

WEDNESDAY, MARCH 13 (continued)

11:30 a.m.	**Node- and Graph-Level Properties of Centrality in Small Networks**
	C. Christina Mehta* and Vicki S. Hertzberg *Emory University*
11:45 a.m.	**Adaptive Nonparametric Empirical Bayes Estimation Via Wavelet Series**
	Rida Benhaddou*, *University of Central Florida*
12:00 p.m.	**Floor Discussion**

116. CONTRIBUTED PAPERS: SEMIPARAMETRIC AND NONPARAMETRIC MODELS FOR LONGITUDINAL DATA

Tampa Room

Sponsor: ENAR

Chair: Haiyan Su, *Montclair State University*

10:30 a.m.	**Adjustment of Dependent Truncation with Inverse Probability of Weighting**
	Jing Qian*, *University of Massachusetts, Amherst* Rebecca A. Betensky, *Harvard School of Public Health*
10:45 a.m.	**Nonparametric Inference for Inverse Probability Weighted Estimators with a Randomly Truncated Sample**
	Xu Zhang*, *University of Mississippi Medical Center*
11:00 a.m.	**EM Algorithm for Regression Analysis of Interval-censored Data under the Proportional Hazards Model**
	Lianming Wang*, *University of South Carolina* Christopher S. McMahan, *Clemson University* Michael G. Hudgens, *University of North Carolina, Chapel Hill* Xiaoyan Lin, *University of South Carolina*
11:15 a.m.	**Inference on Conditional Quantile Residual Life for Censored Survival Data**
	Wen-Chi Wu* and Jong-Hyeon Jeong, *University of Pittsburgh*
11:30 a.m.	**Regression Analysis of Bivariate Current Status Data under the Gamma-frailty Proportional Hazards Model using EM Algorithm**
	Naichen Wang* and Lianming Wang, *University of South Carolina* Christopher S. McManhan, *Clemson University*

11:45 a.m.	**Nonparametric Restricted Mean Analysis Across Multiple Follow-up Intervals** Nabihah Tayob* and Susan Murray, *University of Michigan*
12:00 p.m.	**A Piecewise Linear Conditional Survival Function Estimator** Seung Jun Shin*, Helen Zhang and Yichao Wu *North Carolina State University*

117. CONTRIBUTED PAPERS: TIME SERIES ANALYSIS

Washington Room

Sponsor: ENAR

Chair: Hong Zhu, *The Ohio State University*

10:30 a.m.	**A Prior for Partial Autocorrelation Selection** ● Jeremy Gaskins*, *University of Florida* Michael Daniels, *University of Texas, Austin*
10:45 a.m.	**Bayesian Analysis of Time-series Data Under Case-crossover Designs: Posterior Equivalence and Inference** ● Shi Li*, Bhramar Mukherjee and Stuart Batterman *University of Michigan* Malay Ghosh, *University of Florida*
11:00 a.m.	**Coherent Nonparametric Bayes Models for Non-Gaussian Time Series** Zhiguang Xu, Steven MacEachern and Xinyi Xu* *The Ohio State University*
11:15 a.m.	**State-Space Models for Count Time Series with Excess Zeros** Ming Yang*, *Harvard School of Public Health* Joseph Cavanaugh and Gideon Zamba *University of Iowa*
11:30 a.m.	**Penalized M-Estimation and an Oracle Block Bootstrap** Mihai C. Giurcanu* and Brett D. Presnell, *University of Florida*
11:45 a.m.	**Evolutionary Functional Connectivity in fMRI Data** Lucy F. Robinson*, *Drexel University* Lauren Y. Atlas, *New York University*
12:00 p.m.	**A Unified Joint Modeling Approach for Longitudinal Studies** Weiping Zhang, *University of Science of Technology of China* Chenlei Leng, *National University of Singapore* Cheng Yong Tang*, *University of Colorado, Denver*

WEDNESDAY, MARCH 13 (continued)

118. CONTRIBUTED PAPERS: HIERARCHICAL AND LATENT VARIABLE MODELS

Grand Ballroom 5

Sponsor: ENAR

Chair: Zugui Zhang, *Christiana Care Health System*

10:30 a.m.	**Bayesian Family Factor Models for Analyzing Multiple Outcomes in Familial Data** Qiaolin Chen*, Robert E. Weiss and Catherine A. Sugar, *University of California, Los Angeles*
10:45 a.m.	**Multivariate Longitudinal Data Analysis with Mixed Effect Hidden Markov Models** ● Jesse D. Raffa* and Joel A. Dubin, *University of Waterloo*
11:00 a.m.	**Improved Assessment of Ordinal Transitional Data in Multiple Sclerosis Through Bayesian Hierarchical Poisson Models with a Hidden Markov Structure** Ariana Hedges*, *Brigham Young University* Brian Healy, *Massachusetts General Hospital* David Engler, *Brigham Young University*
11:15 a.m.	**Improving the Estimate of Effectiveness in HIV Prevention Trials by Incorporating the Exposure Process** Jingyang Zhang*, *Fred Hutchinson Cancer Research Center* Elizabeth R. Brown, *Fred Hutchinson Cancer Research Center* and *University of Washington*
11:30 a.m.	**Weighted Kaplan-Meier and Commensurate Bayesian Models for Combining Current and Historical Survival Information** Thomas A. Murray*, *University of Minnesota* Brian P. Hobbs, *University of Texas MD Anderson Cancer Center* Theodore Lystig, *Medtronic Inc.* Bradley P. Carlin, *University of Minnesota*
11:45 a.m.	**Floor Discussion**

119. CONTRIBUTED PAPERS:

COMPUTATIONAL METHODS AND IMPLEMENTATION

San Framcisco Room

Sponsor: ENAR

Chair: Hani Samawi, *Georgia Southern University*

10:30 a.m.	**Orthogonal Functions in the Study of Various Biological Problems** Mohsen Razzaghi*, *Mississippi State University*
10:45 a.m.	**Image Details Preserving Image Denoising by Local Clustering** Partha Sarathi Mukherjee*, *Boise State University* Peihua Qiu, *University of Minnesota*
11:00 a.m.	**Mapping Quantitative Trait Loci Underlying Function-valued Phenotypes** Il-Youp Kwak* and Karl W. Broman, *University of Wisconsin, Madison*
11:15 a.m.	**Bias Correction when Selecting the Minimal-error Classifier from many Machine Learning Models in Genomic Applications** Ying Ding*, Shaowu Tang and George Tseng *University of Pittsburgh*
11:30 a.m.	**Correlation Between Two Large-scale Temporal Statistics** Linlin Chen, *Rochester Institute of Technology* Chen Ding*, *University of Rochester*
11:45 a.m.	**A New Semiparametric Estimation Method for Accelerated Hazards Mixture Cure Model** Jiajia Zhang*, *University of South Carolina* Yingwei Peng, *Queen's University* Haifen Li, *East China Normal University*
12:00 p.m.	**Theoretical Properties of the Weighted Generalized Raleigh and Related Distributions** Mavis Pararai*, *Indiana University of Pennsylvania* Xueheng Shi, *Georgia Institute of Technology* Broderick Oluyede, *Georgia Southern University*

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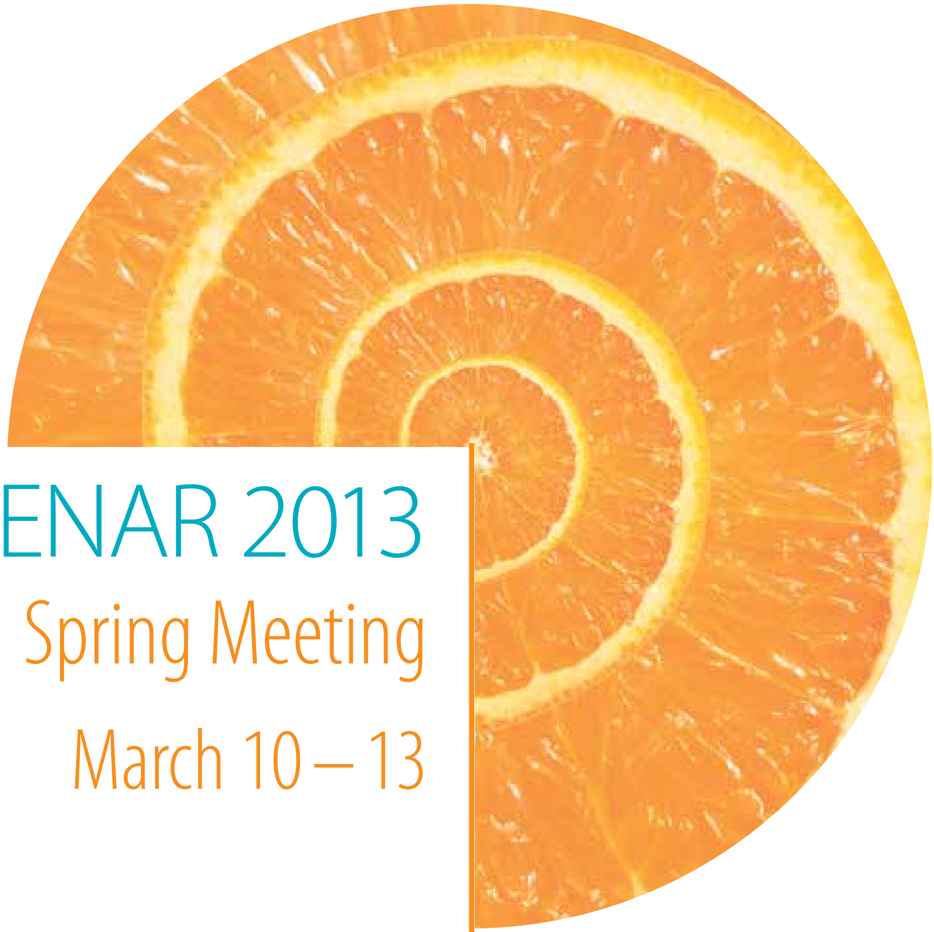


ENAR 2013

Spring Meeting

March 10 – 13

With IMS and
Sections of ASA

Orlando World Center Marriott Resort | Orlando, Florida

Marriott Resort Map

RESORT DIRECTORY

Ballrooms/Meeting Rooms	Level	Tower
Crystal Ballroom	1	East
Grand Ballroom	1	East
Palms Ballroom	1	East
Cypress Ballroom	1	East
Hall of Cities	1	East
Florida Ballrooms	2	North
Harbor Beach, Sawgrass, Marco Island, Vinoy		
Caribbean Ballrooms *Aruba, Bahamas, Grand Cayman* *St.. Thomas, West Indies, Puerto Rico*	2	North
The Keys *Key Biscayne, Key Largo, Key West*	2	North
Spa Terrace	1	West

Retail Stores	Level	Tower
News Network	2	East
Mangrove Emporium	1	East
Hawk's Landing Pro Shop	2	East

Guest Services	Level	Tower
Business Center	1	East
Automated Business Center	2	North
Guest Laundry	2	East
Rental Car Desk	2	South
Valet Parking	2	South
Bell Services	2	East

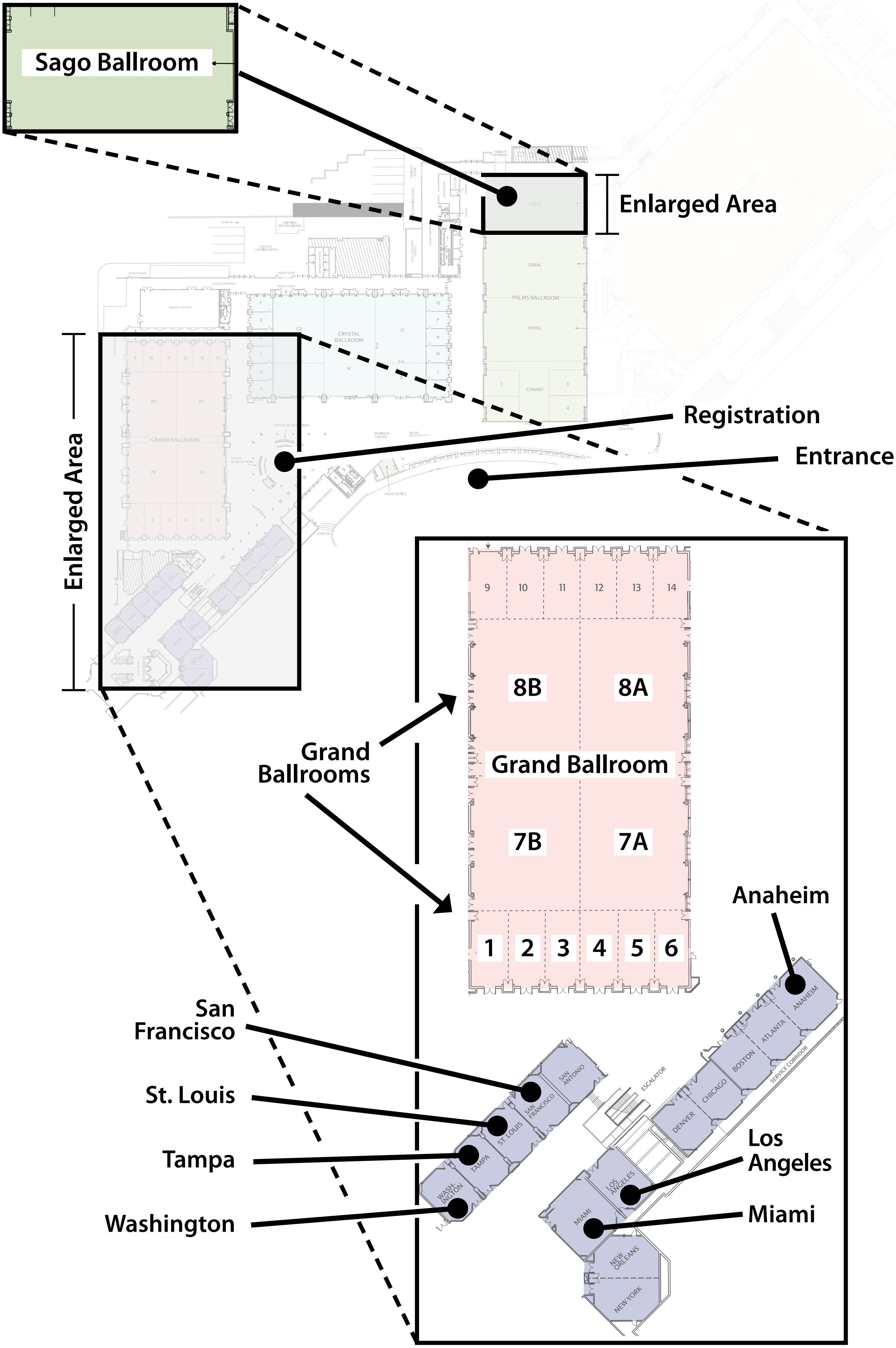
Guest Room Number	Level	Tower
10000	1-10	South
20000	4-28	East
30000	1-8	West
40000	4-19	North

Recreation & Leisure	Level
Activity Center	1
Hawk's Landing Golf Club	2
Spa & Fitness Center	1
Swimming Pools	1
Tennis Courts	1
Volleyball Courts	1
Basketball Court	1

Restaurants & Lounges	Level	Tower
Champions Sports Bar	2	East
Mangrove Emporium *Food Court*	1	East
Mikado Japanese Steakhouse	2	East
Pavilion *Specialty Drinks, Light Snacks*	1	East
Solaris	2	East
Hawk's Landing Steakhouse	2	East
Lobby Lounge	2	East
Ristorante Tuscany	2	East

Notes

Convention Center Floor Plan



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