

THURSDAY, AUGUST 8

Committee/Business Meetings & Other Activities

7:00 a.m.–10:30 a.m. CC-513c
Speaker Management Room

7:30 a.m.–10:30 a.m. CC-200 Viger Hall
JSM Main Registration

7:30 a.m.–10:30 a.m. CC-200 Viger Hall
ASA Membership/Help Desk/Press Desk

7:30 a.m.–10:30 a.m. CC-200 Viger Hall
Cyber Center, Sponsored by IBM

8:00 a.m.–9:30 a.m. CC-524c
Council of Sections Response Meeting
Chair(s): Katherine Halvorsen, Smith College

8:00 a.m.–1:00 p.m. CC-200 Viger Hall
JSM Luggage Storage

9:30 a.m.–10:30 a.m. CC-524c
Council of Sections Governing Board Debriefing Meeting (Closed)
Chair(s): Katherine Halvorsen, Smith College

Invited Sessions

8:30 a.m.–10:20 a.m.

613 CC-510c
Modern Nonparametric Theory for Functional and Time Series Data—Invited

Section on Nonparametric Statistics, Statistical Learning and Data Mining Section

Organizer(s): Xiao Wang, Purdue University

Chair(s): Xiao Wang, Purdue University

8:35 a.m. **Modeling Multiple Correlated Functional Outcomes with Spatially Heterogeneous Shape Characteristics**—♦David Ruppert, Cornell University; Kunlaya Soiaporn, Cornell University; Raymond J. Carroll, Texas A&M University

9:00 a.m. **Nonparametric Regression with Rescaled Autoregressive Errors**—♦Michael Levine, Purdue University; Jose E. Figueroa-Lopez, Purdue University

9:25 a.m. **Oracally Efficient Estimation of ARMA Model in the Presence of Trend**—Qin Shao, University of Toledo; ♦Lijian Yang, Michigan State University

9:50 a.m. **On Gaussian Oracle Inequalities for Structured Selection in Nonparametric Cox Model**—♦Jelena Bradic, University of California at San Diego; Rui Song, North Carolina State University

10:15 a.m. **Floor Discussion**

614

CC-511a

Special Applications of Multiple Imputation—Invited

ENAR, Biometrics Section, Section on Statistics in Epidemiology

Organizer(s): Manisha Desai, Stanford University

Chair(s): Sujata Patil, Memorial Sloan-Kettering Cancer Center

8:35 a.m. **Multiple Imputation of Heaped Longitudinal Cigarette Count Data**—♦Sandra D. Griffith, Cleveland Clinic; Saul Shiffman, University of Pittsburgh; Yimei Li, The Childrens' Hospital of Philadelphia; Daniel F. Heitjan, University of Pennsylvania

9:00 a.m. **Multiple Imputation in the Presence of Derived Variables**—♦Manisha Desai, Stanford University; Aya Mitani, Stanford University; Thomas Robinson, Stanford University

9:25 a.m. **Multiple Imputation for Nonignorable Missingness: Evaluating Alternative Nonresponse Bias Adjustment Cells**—♦Rebecca Roberts Andridge, The Ohio State University College of Public Health; Katherine Jenny Thompson, U.S. Census Bureau

9:50 a.m. **Maximum Likelihood Imputation**—♦Paul T. von Hippel, The University of Texas

10:15 a.m. **Floor Discussion**

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

615

■ ● JCGS Selections: Lassoing the Year of Statistics Into an Elastic Net—Invited

JCGS-Journal of Computational and Graphical Statistics, Section on Statistical Graphics, Section on Statistical Computing

Organizer(s): Richard A. Levine, San Diego State University

Chair(s): Richard A. Levine, San Diego State University

- 8:35 a.m. **Consistent Variable Selection via Penalized Credible Regions and Confidence Sets**—♦Howard Bondell, North Carolina State University; Funda Gunes, North Carolina State University; Brian J. Reich, North Carolina State University
- 9:05 a.m. **On the Semi-Supervised Joint-Trained Elastic Net**—♦Mark V. Culp, West Virginia University
- 9:35 a.m. **A Sparse-Group Lasso, Computation, and GPUs**—♦Noah Simon, Stanford University
- 10:05 a.m. **Floor Discussion**

616

Robust Inference in Time Series Analysis and Econometrics—Invited

Business and Economic Statistics Section, SSC, Scientific and Public Affairs Advisory Committee, Korean International Statistical Society

Organizer(s): Xiaofeng Shao, University of Illinois at Urbana-Champaign

Chair(s): Xiaofeng Shao, University of Illinois at Urbana-Champaign

- 8:35 a.m. **Asymptotic F Test in a GMM Framework with Cross Sectional Dependence**—Yixiao Sun, University of California at San Diego; ♦Min Seong Kim, Ryerson University
- 8:55 a.m. **Heteroscedasticity and Autocorrelation Robust Structural Change Detection**—♦Zhou Zhou, University of Toronto
- 9:15 a.m. **Bootstrap Prediction Intervals for Factor Models**—♦Silvia Goncalves, Université de Montréal
- 9:35 a.m. **Cluster Covariance Matrix Estimation for Quantile Regression Models**—♦Andreas Hagemann, University of Notre Dame
- 9:55 a.m. **Local Generalized Empirical Likelihood Under Nonstandard Conditions**—♦Ke-Li Xu, Texas A&M University
- 10:15 a.m. **Floor Discussion**

CC-519a

617

■ ● Bayesian Asymptotics in ‘Big’ Models—Invited

IMS, International Society for Bayesian Analysis (ISBA)

Organizer(s): Debdeep Pati, Florida State University

Chair(s): Anirban Bhattacharya, Duke University

- 8:35 a.m. **Frequentist Analysis of Posteriors for Sparse Priors**—♦Aad van der Vaart, Leiden University
- 8:55 a.m. **On Shrinkage Priors in High Dimensions**—♦Debdeep Pati, Florida State University; Anirban Bhattacharya, Duke University; Natesh S. Pillai, Harvard University; David B. Dunson, Duke University
- 9:15 a.m. **Bayes Procedures for Adaptive Inference in Nonparametric Inverse Problems**—♦Bartek Knapik, CEREMADE, Université Paris-Dauphine & CREST-ENSAE
- 9:35 a.m. **On Nonparametric Bernstein-Von Mises Theorems**—♦Ismael Castillo, CNRS
- 9:55 a.m. **Some Results on the One-Way ANOVA Model with an Increasing Number of Groups**—♦Feng Liang, University of Illinois at Urbana-Champaign; Bin Li, University of Illinois at Urbana-Champaign
- 10:15 a.m. **Floor Discussion**

CC-510a

618

■ ● Statistics and the Supreme Court—Invited

Scientific and Public Affairs Advisory Committee

Organizer(s): Mary W. Gray, American University

Chair(s): Mary W. Gray, American University

- 8:35 a.m. **Supreme Court Rulings Implementing the Sixth Amendment Right to an ‘Impartial’ Jury**—♦Joseph B. Kadane, Carnegie Mellon University
- 8:55 a.m. **Statistics and Voter ID Laws**—♦David A. Marker, Westat
- 9:15 a.m. **Do Courts Employ the Appropriate Biostatistical Measures? Examples from Recent Legal Cases**—♦Joseph L. Gastwirth, George Washington University; Qing Pan, George Washington University
- 9:35 a.m. **Variability in Punitive Damages: Empirically Assessing Exxon Shipping Co. v. Baker**—♦Martin T. Wells, Cornell University
- 9:55 a.m. **Disc: Jonas Anderson, American University**
- 10:15 a.m. **Floor Discussion**

CC-519b

619

● The SAMSI Program on Massive Data Sets—Invited

Statistical and Applied Mathematical Sciences Institute, Section on Statistics and the Environment, Scientific and Public Affairs Advisory Committee

Organizer(s): Richard L. Smith, SAMSI

Chair(s): Snehalata Huzurbazar, Statistical and Applied Mathematical Sciences Institute

- 8:35 a.m. **Statistical Methods in Astronomy—**
◆ Tamas Budavari, The Johns Hopkins University
- 9:00 a.m. **Exploratory and Inferential Methods for Massive Data—**◆ Naomi S. Altman, Penn State University; Wei Luo, Penn State University; Garvesh Raskutti, SAMSI
- 9:25 a.m. **A Bird's-Eye View of the Carbon Cycle: Spatiotemporal Tools for Constraining the CO₂ Budget from Atmospheric Observations—**
◆ Anna M. Michalak, Carnegie Institute for Science
- 9:50 a.m. Disc: Richard L. Smith, SAMSI
- 10:15 a.m. **Floor Discussion**

620

■ Recent Work in Causal Inference with Longitudinal Cohort Studies of HIV-Infected Patients—Invited

Section on Statistics in Epidemiology, SSC, Biometrics Section, Korean International Statistical Society

Organizer(s): Jessica G. Young, Harvard School of Public Health

Chair(s): Jessica G. Young, Harvard School of Public Health

- 8:35 a.m. **Marginal Structural Cox Models with Case-Cohort Sampling—**◆ Hana Lee, The University of North Carolina at Chapel Hill; Michael G. Hudgens, The University of North Carolina at Chapel Hill; Jianwen Cai, The University of North Carolina at Chapel Hill; Stephen R. Cole, The University of North Carolina at Chapel Hill
- 9:00 a.m. **Comparing Different Methods for Assessing When to Start Treatment—**◆ Bryan E. Shepherd, Vanderbilt University; Nate Mercaldo, Vanderbilt University
- 9:25 a.m. **Marginal Structural Competing Risk Models: Analysis of the Canadian HIV/HCV Coinfection Cohort Data—**◆ David A. Stephens, McGill University
- 9:50 a.m. **Floor Discussion**

CC-516c

621

Recent Advances in Bayesian Computation—Invited

Section on Statistical Computing

Organizer(s): Dawn B. Woodard, Cornell University

Chair(s): James M. Flegal, University of California at Riverside

- 8:35 a.m. **An Adaptive Exchange Algorithm for Sampling from Distribution with Intractable Normalizing Constants—**◆ Faming Liang, Texas A&M University
- 9:00 a.m. **Efficiency of Markov Chain Monte Carlo for Bayesian Computation—**◆ Dawn B. Woodard, Cornell University
- 9:25 a.m. **Scalable Inference for Hierarchical Topic Models—**◆ John W. Paisley, University of California at Berkeley
- 9:50 a.m. **Augmented Particle Filters—**◆ Yuguo Chen, University of Illinois at Urbana-Champaign
- 10:15 a.m. **Floor Discussion**

CC-516d

622

Medallion Lecture VII—Invited

IMS

Organizer(s): David B. Dunson, Duke University

Chair(s): Peter Bickel, University of California at Berkeley

- 8:35 a.m. **A Priori Analysis of Complex Models—**
◆ Yaacov Ritov, The Hebrew University of Jerusalem
- 9:35 a.m. Disc: Jayanta K. Ghosh, Purdue University
- 9:55 a.m. Disc: Larry Brown, University of Pennsylvania
- 10:15 p.m. **Floor Discussion**

CC-710b

623

New Developments in Small Area Estimation—Invited

ASA, Survey Research Methods Section, SSC, Section on Statistics in Epidemiology

Organizer(s): Gauri Sankar Datta, University of Georgia and U.S. Bureau of the Census

Chair(s): Rebecca Steorts, Carnegie Mellon University

- 8:35 a.m. **Nonparametric Small-Area Estimation—**
◆ Mahmoud Torabi, University of Manitoba; Farhad Shokoohi, University of Manitoba
- 9:00 a.m. **Benchmarked Empirical Bayes Small-Area Estimators Under Multiplicative Models—**
◆ Malay Ghosh, University of Florida

CC-710a

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

- 9:25 a.m. **Small-Area Estimation Method with Covariates Subject to Measurement Error**—♦ Gauri Sankar Datta, University of Georgia and U.S. Census Bureau; Brunero Liseo, University of La Sapienza; Serena Arima, University of Rome, La Sapienza
- 9:50 a.m. **Blending Domain Estimates from Two Victimization Surveys with Possible Bias**—♦ Sharon Lohr, Westat; J. Michael Brick, Westat
- 10:15 a.m. **Floor Discussion**

Invited Panels

8:30 a.m.–10:20 a.m.

624 CC-516b ■ Challenges in Evaluation of Correlates of Protection and Immunobridging in Vaccine Trials—Invited

Biopharmaceutical Section, Biometrics Section, Section on Statistics in Epidemiology, Scientific and Public Affairs Advisory Committee

Organizer(s): Ivan S. F. Chan, Merck Research Laboratories

Chair(s): Tammy Massie, CBER/FDA

- Panelists:** ♦ Peter Gilbert, University of Washington and Fred Hutchinson Cancer Research Center
♦ Ivan S. F. Chan, Merck Research Laboratories
♦ Ghideon Ghebregiorgis, CBER/FDA
♦ Catherine Njue, Health Canada
♦ Wasima Rida, Biostatistics Consultant

10:15 a.m. **Floor Discussion**

625 CC-516e ■ Helpful Tools for Successful Online Teaching—Invited

Section on Statistical Education, Section on Teaching of Statistics in the Health Sciences, Statistics Without Borders

Organizer(s): Jamis J. Perrett, Monsanto Company

Chair(s): Chris J. Malone, Winona State University

- Panelists:** ♦ Jamis J. Perrett, Monsanto Company
♦ Michelle G. Everson, University of Minnesota
♦ Beth Chance, California Polytechnic State University
♦ Webster West, North Carolina State University

10:05 a.m. **Floor Discussion**

Topic-Contributed Sessions

8:30 a.m.–10:20 a.m.

626 CC-511c ■ Integrative Data Analysis of Longitudinal Studies—Topic-Contributed

Biometrics Section, Mental Health Statistics Section, Survey Research Methods Section

Organizer(s): Scott M. Hofer, University of Victoria

Chair(s): Scott M. Hofer, University of Victoria

- 8:35 a.m. **Integrative Analysis of Longitudinal Studies of Aging (IALSA): A Collaborative Network for Parallel and Pooled Data Analysis of Within-Person Change**—♦ Andrea Piccinin, University of Victoria

- 8:55 a.m. **Harmonizing Individual Participant Data for Collaborative Research: How Should We Foster Such an Agenda?**—♦ Isabel Fortier, Research Institute of the McGill University Health Center

- 9:15 a.m. **Multilevel Item Response Theory: Modeling Changing Measurement Structures in Longitudinal Studies**—♦ Robert Wirth, Vector Psychometric Group, LLC

- 9:35 a.m. **Practical Issues with Aggregate and Individual-Level Meta-Analytic Methods for Combining Results from Longitudinal Studies**—♦ Ryan Williams, University of Memphis; Terri Pigott, Loyola University Chicago

- 9:55 a.m. **Disc:** Patrick Shrout, New York University

- 10:15 a.m. **Floor Discussion**

627 CC-518 ■ ● Uncertainty and Robustness in Design and Modeling of Simulations—Topic-Contributed

Quality and Productivity Section, Section on Physical and Engineering Sciences

Organizer(s): Benjamin A. Haaland, Centre for Quantitative Medicine, Office of Clinical Sciences, Duke-NUS

Chair(s): Benjamin A. Haaland, Centre for Quantitative Medicine, Office of Clinical Sciences, Duke-NUS

- 8:35 a.m. **Design for Computer Experiments with Qualitative and Quantitative Factors**—♦ Chunfang Lin, Queen's University; Xinwei Deng, Virginia Tech; Ying Hung, Rutgers University

- 8:55 a.m. **Multi-Objective Design Optimization for Computer Experiments**—♦ Werner Mueller, Johannes-Kepler-University Linz

- 9:15 a.m. **Adaptive Latin Hypercube Designs for Computer Experiments**—♦ Ying Hung, Rutgers University

- 9:35 a.m. **Statistical Analysis Integrating Complex Computer Models and Actual Measurements**—◆ Yasuo Amemiya, IBM T.J. Watson Research Center; Youngdoek Hwang, IBM Watson Research Center; Huijing Jiang, IBM T.J. Watson Research Center
- 9:55 a.m. **Density-Based Partitioning for K-Fold Cross-Validation**—◆ Lulu Kang, Illinois Institute of Technology
- 10:15 a.m. **Floor Discussion**

628 CC-516a ■ Statistical Methods for the Analysis of High-Dimensional Data from Matched Case Control Studies—Topic-Contributed

Section on Statistical Learning and Data Mining, WNAR, Biometrics Section, Section on Statistics in Epidemiology

Organizer(s): Raji Balasubramanian, Division of Biostatistics and Epidemiology

Chair(s): John Staudenmayer, University of Massachusetts

- 8:35 a.m. **Variable Importance in Matched Case Control Studies in Settings of High-Dimensional Data**—◆ Raji Balasubramanian, Division of Biostatistics and Epidemiology; E. Andres Houseman, Oregon State University; Brent A. Coull, Harvard School of Public Health; Michael Lev, Massachusetts General Hospital; Lee Schwamm, Massachusetts General Hospital; Rebecca A. Betensky, Harvard School of Public Health
- 8:55 a.m. **Variable Selection and Prediction Using a Nested, Matched Case-Control Study: Application to Hospital-Acquired Pneumonia in Stroke Patients**—◆ Jing Qian, University of Massachusetts; Payabvash, Massachusetts General Hospital; Andre Kemmling, Massachusetts General Hospital; Michael Lev, Massachusetts General Hospital; Lee Schwamm, Massachusetts General Hospital; Rebecca A. Betensky, Massachusetts General Hospital
- 9:15 a.m. **Bayesian Variable Selection Methods for Matched Case-Control Studies**—◆ Josephine Asafu-Adjei, Harvard School of Public Health; Mahlet Tadesse, Georgetown University; Brent A. Coull, Harvard School of Public Health; Raji Balasubramanian, Division of Biostatistics and Epidemiology; Rebecca A. Betensky, Harvard School of Public Health
- 9:35 a.m. **Integration of Biological Information in the Analysis of High-Dimensional Matched Case-Control Data**—◆ Mahlet Tadesse, Georgetown University; Josephine Asafu-Adjei, Harvard School of Public Health; Raji Balasubramanian, Division of Biostatistics and Epidemiology; Brent A. Coull, Harvard School of Public Health; Rebecca A. Betensky, Harvard School of Public Health
- 9:55 a.m. **Disc:** E. Andres Houseman, College of Public Health and Human Sciences, Oregon State University
- 10:15 a.m. **Floor Discussion**

629 CC-520f ● Challenges and Progress in Large-Scale Multiple Testing—Topic-Contributed

Mental Health Statistics Section, Biometrics Section

Organizer(s): Hongyuan Cao, The University of Chicago

Chair(s): Wenguang Sun, University of Southern California

- 8:35 a.m. **Graphical Model--Based Multiple Testing with Applications to Genome-Wide Association Studies**—◆ Chunming Zhang, University of Wisconsin-Madison; Jie Liu, University of Wisconsin-Madison; Page David, University of Wisconsin-Madison
- 8:55 a.m. **Multi-Scale Multiple Testing for Region Detection with Application to Genomic Copy Number Change in Population Analyses**—◆ Nezamoddin N. Kachouie, Florida Institute of Technology; Armin Schwartzman, Harvard School of Public Health; Xihong Lin, Harvard School of Public Health
- 9:15 a.m. **Large-Scale Multiple Testing for Spatially Clustered Data**—◆ Hongyuan Cao, The University of Chicago; Yunda Zhong, The University of Chicago; Wei Biao Wu, The University of Chicago
- 9:35 a.m. **Multiple Testing for Differential Expression Using RNA-Seq Data**—◆ Dan Nettleton, Iowa State University
- 9:55 a.m. **Time Course Models for RNA Sequencing Data**—◆ Andrew Jaffe, Lieber Institute for Brain Development
- 10:15 a.m. **Floor Discussion**

630 CC-512g ■ Recent Applications of Statistical Discrete Models and Inference in Biology—Topic-Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), WNAR

Organizer(s): Luis E. Carvalho, Boston University

Chair(s): Eric Kolaczyk, Boston University

- 8:35 a.m. **Recent Applications of Statistical Discrete Models and Inference in Biology**—◆ Charles Lawrence, Brown University; Luan Lin, Mt. Sinai Med Center; Bryce Richards, Brown University
- 8:55 a.m. **RNA Profiling: A New Approach to 'Denoising' Secondary Structure Prediction**—◆ Christine Heitsch, Georgia Institute of Technology
- 9:15 a.m. **Modeling Structural RNA Families Using Covariance Models**—◆ Eric Nawrocki, Howard Hughes Medical Institute

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

- 9:35 a.m. **An Integrative Bayesian Modeling Approach to Imaging Genetics**—♦ Francesco Stingo, The University of Texas MD Anderson Cancer Center; Michele Guindani, The University of Texas MD Anderson Cancer Center; Marina Vannucci, Rice University; Vince Calhoun, University of New Mexico
- 9:55 a.m. **Bayesian Centroid Inference and Characterization of Posterior Spaces with Applications in Motif-Finding**—♦ Luis E. Carvalho, Boston University
- 10:15 a.m. **Floor Discussion**

631 CC-511d

■ ● Recent Advances in Methodology for CNS Clinical Trials—Topic-Contributed

Biopharmaceutical Section, Mental Health Statistics Section, Biometrics Section

Organizer(s): Pilar Lim, Janssen Research & Development

Chair(s): H. M. James Hung, FDA

- 8:35 a.m. **Assessing Impairment Risk Produced by Use of a CNS Drug When Normal Ranges Are Uncertain**—♦ Eugene Laska, Nathan Kline Institute, New York University School of Medicine
- 8:55 a.m. **Interim Monitoring of Longitudinal Outcomes in Clinical Trials**—♦ Michael McDermott, University of Rochester Medical Center; Xueya Cai, University of Rochester Medical Center
- 9:15 a.m. **Recent Advances in Design and Methodology in Psychiatric Clinical Trials**—♦ Peiling Yang, FDA
- 9:35 a.m. **Study Designs and Ability to Deal with Missing Data and Yield Interpretations**—♦ Ralph D'Agostino, Sr., Boston University
- 9:55 a.m. **Fisherian Evidential Approach for Adaptive Doubly Randomized Withdrawal Designs**—♦ Qing Liu, Johnson & Johnson
- 10:15 a.m. **Floor Discussion**

632 CC-520c

■ ● Theories and Applications of Paradata in a Mixed Mode Data Collection—Topic-Contributed

Survey Research Methods Section, Social Statistics Section

Organizer(s): Asaph Young Chun, U.S. Census Bureau

Chair(s): Howard R. Hogan, U.S. Census Bureau

- 8:35 a.m. **Might a Social Integration Navigator Guide Response Propensity Models in Nonresponse Follow-Up?**—Asaph Young Chun, U.S. Census Bureau; ♦ Kevin Zajac, U.S. Census Bureau

- 8:55 a.m. **When Do 'Do It Yourself-DIYers' Really Do It Themselves? Using Paradata to Explore the Preference for Self-Completion Modes**—♦ Sara Zuckerbraun, RTI; Melissa Hobbs, RTI International; Angela Greene, RTI International; Lauren Harris-Kojetin, National Center for Health Statistics; Manisha Sengupta, National Center for Health Statistics
- 9:15 a.m. **Model-Based Mode of Data Collection Switching from Internet to Mail in the American Community Survey**—♦ John Chesnut, U.S. Census Bureau
- 9:35 a.m. **Using Paradata to Understand Panel Effects in the Current Population Survey**—♦ John Dixon, Bureau of Labor Statistics
- 9:55 a.m. **Opening the Box: What We Already Know and Don't Know Yet About the Response Process in the European Social Survey**—♦ Ineke Stoop, SCP
- 10:15 a.m. **Floor Discussion**

633 CC-520b

■ New Paradigms for Missing Data Methods in Social and Economic Surveys—Topic-Contributed

Social Statistics Section, Survey Research Methods Section, Section on Statistics in Epidemiology, Scientific and Public Affairs Advisory Committee

Organizer(s): Yves Thibaudeau, U.S. Census Bureau

Chair(s): Benjamin M. Reist, U.S. Census Bureau

- 8:35 a.m. **A Study of Data-Collection Rules Involving Real-Time Imputation for Adaptive Survey Design**—♦ Darcy Steeg Morris, U.S. Census Bureau; Yves Thibaudeau, U.S. Census Bureau
- 8:55 a.m. **Extending Imputation Techniques to Fill Gaps in Longitudinal Surveys to Dynamic Imputation**—♦ Sharon O'Donnell, U.S. Census Bureau; Yves Thibaudeau, U.S. Census Bureau
- 9:15 a.m. **Multivariate Linear Mixed-Effects Models for Missing Data Applied to a Business Survey**—♦ Joanna Fane Lineback, U.S. Census Bureau; Joseph Schafer, U.S. Census Bureau
- 9:35 a.m. **Building a Complete History for Respondents in Longitudinal Surveys Through Imputation**—♦ Yves Thibaudeau, U.S. Census Bureau; Sharon O'Donnell, U.S. Census Bureau
- 9:55 a.m. **Disc:** Louis-Paul Rivest, Université Laval
- 10:15 a.m. **Floor Discussion**

634 CC-511e ■ ● Challenges and Advances in Evaluation of Clinical Trials—Topic-Contributed

Biopharmaceutical Section, ASA Special Interest Group for Medical Devices and Diagnostics, Mental Health Statistics Section, Biometrics Section

Organizer(s): Weihua Cao, Center for Devices & Radiological Health, FDA; Yonghong Gao, U.S. Department of Health and Human Services
Chair(s): Martin P. Ho, FDA/CDRH

- 8:35 a.m. **Some Practical Issues with the Use of Composite Endpoints in Clinical Trials**—♦ Weihua Cao, Center for Devices & Radiological Health, FDA; Nelson Lu, Center for Devices & Radiological Health, FDA
- 8:55 a.m. **Statistical Considerations and Approaches on Using OUS Data to Support a Pre-Market Application of Medical Devices**—♦ Nelson Lu, Center for Devices & Radiological Health, FDA; Yunling Xu, FDA/CDRH
- 9:15 a.m. **Sample Size Re-Estimation in Confirmatory Studies**—♦ Min Lin
- 9:35 a.m. **Adaptive Enrichment Design in Clinical Trial**—♦ Yonghong Gao, U.S. Department of Health and Human Services
- 9:55 a.m. **Design Considerations in Testing Superiority and Noninferiority Hypotheses for a Set of Secondary Endpoints**—♦ Heng Li, FDA; Vandana Mukhi, FDA/CDRH
- 10:15 a.m. **Floor Discussion**

635 CC-515a ■ Statistical Methods for Assessing Hospital Performance: Risk-Adjusted Clinical Outcome Reporting—Topic-Contributed

Section for Statistical Programmers and Analysts, Health Policy Statistics Section, Mental Health Statistics Section, Section on Statistics in Epidemiology, Scientific and Public Affairs Advisory Committee

Organizer(s): Milan C. Seth, University of Michigan, BMC2 Clinical Collaborative

Chair(s): Nancy J. Petersen, Department of Veterans Affairs

- 8:35 a.m. **Random Forest Models for Patient-Level Clinical Risk Prediction in Risk-Adjusted Hospital Outcome Reporting**—♦ Milan C. Seth, University of Michigan, BMC2 Clinical Collaborative; Hitinder Gurm, University of Michigan
- 8:55 a.m. **Probability of Being Above a Percentile Cut-Point as a Metric for Facility Profiling and Payment**—♦ Michael Shwartz, Boston University; James F. Burgess, Jr, Center for Organization, Leadership and Management Research; Erol A. Pekoz, School of Management, Boston University; Cindy L. Christiansen, School of Public Health, Boston University; Boris Kader, Center for Health Quality, Outcomes and Economic Research; Amy Rosen, Center for Organization, Leadership and Management Research; Dan Berlowitz, Center for Health Quality, Outcomes and Economic Research

- 9:15 a.m. **Using the Lehman Family of ROC Curves to Evaluate Proxy Measures of Post-Operative Complications**—♦ Andrew Mullard, Michigan Surgical Quality Collaborative
- 9:35 a.m. Disc: Nick Salkowski, Chronic Disease Research Group
- 9:55 a.m. Disc: Peggy McLaughlin, University of Michigan Medical School
- 10:15 a.m. **Floor Discussion**

636 CC-522bc Real-World Approaches to the Knotty Problems of Outliers, Faulty Values, and Covariates in Complex Sampling Designs—Topic-Contributed

Survey Research Methods Section, Government Statistics Section, Section on Statistics in Epidemiology, Korean International Statistical Society

Organizer(s): Andrea Lamas, USDA/National Agricultural Statistics Service

Chair(s): Andrea Lamas, USDA/National Agricultural Statistics Service

- 8:35 a.m. **Analysis on Generalized Variance Function Estimators from Complex Sample Surveys**—♦ MoonJung Cho, Bureau of Labor Statistics
- 8:55 a.m. **Weights Adjustment in Project TALENT: A New Look at the AIR High School Survey**—♦ Zhulin He, National Institute of Statistical Sciences; Alan F. Karr, National Institute of Statistical Sciences; Michael Cohen, American Institutes for Research; Danielle Battle, American Institutes for Research; Deanna Lyter Achorn, American Institutes for Research; Alexander D. McKay, American Institutes for Research
- 9:15 a.m. **Multiple Imputation of Missing or Faulty Values Under Linear Constraints**—♦ Hang Joon Kim, Duke University and NISS; Jerry Reiter, Duke University; Quanli Wang, Duke University; Lawrence Cox, National Institute of Statistical Sciences; Alan F. Karr, National Institute of Statistical Sciences
- 9:35 a.m. **Using Internet Panel Surveys for Behavioral Health Surveillance**—♦ Carol Plerannonzi, Centers for Disease Control and Prevention; Carol Gotway Crawford, Centers for Disease Control and Prevention; Catherine A. Okoro, Centers for Disease Control and Prevention; Satvinder Dhingra, Centers for Disease Control and Prevention and Northrop Grumman; Haci Akcin, Centers for Disease Control and Prevention; Guixiang Zhao, Centers for Disease Control and Prevention; Derek Ford, Centers for Disease Control and Prevention and Northrop Grumman
- 9:55 a.m. **Numerical Impact of Topcoding on CE Microdata Utility**—♦ Daniel Yang, Bureau of Labor Statistics; Daniell Toth, Bureau of Labor Statistics
- 10:15 a.m. **Floor Discussion**

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ◆ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

637 CC-520e ■ Bayesian Bioinformatics—Topic-Contributed

International Indian Statistical Association, International Society for Bayesian Analysis (ISBA), WNAR, Korean International Statistical Society

Organizer(s): Sounak Chakraborty, University of Missouri-Columbia
Chair(s): Bertrand Clarke, University of Miami

- 8:35 a.m. **Estimation and Testing of Gene Expression Heterosis**—◆ Tieming Ji, University of Missouri-Columbia; Peng Liu, Iowa State University; Dan Nettleton, Iowa State University
- 8:55 a.m. **Survival Prediction and Variable Selection with Simultaneous Shrinkage and Grouping Priors for Gene Expression Microarray Data**—◆ Sounak Chakraborty, University of Missouri-Columbia; Kyu Ha Lee, Harvard School of Public Health; Jianguo Sun, University of Missouri-Columbia
- 9:15 a.m. **Bayesian Variable Selection in Linear Mixed Models with Shrinkage Priors**—◆ Mingan Yang, Central Michigan University
- 9:35 a.m. **Bayesian Sparse Graphical Models for Classification with Application to Protein Expression Data**—◆ Rajesh Talluri, The University of Texas MD Anderson Cancer Center
- 9:55 a.m. **Bayesian Hierarchical Multi-Subject Multiscale Analysis of Functional MRI Data**—◆ Marco Ferreira, University of Missouri; Nilotpal Sanyal, University of Missouri
- 10:15 a.m. **Floor Discussion**

638 CC-525a ■ New Approaches to Disclosure-Safe Dissemination of Medicare Claims Data—Topic-Contributed

Survey Research Methods Section, Social Statistics Section, Health Policy Statistics Section, Section on Statistics in Epidemiology, Scientific and Public Affairs Advisory Committee

Organizer(s): Avi Singh, NORC at the University of Chicago
Chair(s): Stephen Cohen, National Science Foundation

- 8:35 a.m. **Data Entrepreneurs' Synthetic PUF: A Working PUF as an Alternative to Traditional Synthetic and Nonsynthetic PUFs**—Tzy-Chyi Yu, NORC at the University of Chicago; Joshua M. Borton, NORC at the University of Chicago; ◆ A.M. Crego, NORC at the University of Chicago; Avi Singh, NORC at the University of Chicago; Micheal Davern, NORC; Elizabeth Hair, NORC at the University of Chicago
- 8:55 a.m. **The CMS Public Use File Reidentification Experience**—◆ Susan Hinkins, NORC; Patrick Baier, NORC; Fritz J. Scheuren, NORC at the University of Chicago

- 9:15 a.m. **Aggregate-Level PUF with High Data Confidentiality and Analytic Utility for Descriptive Analyses from Medicare Claims Data**—◆ Erkan Erdem, IMPAQ International LLC; Avi Singh, NORC at the University of Chicago; Joshua M. Borton, NORC at the University of Chicago
- 9:35 a.m. **Query-Based PUF for Disclosure-Safe Remote Analysis from Medicare Claims Microdata**—Avi Singh, NORC at the University of Chicago; ◆ Joshua M. Borton, NORC at the University of Chicago; Micheal Davern, NORC; A. T-C. Yu, NORC at the University of Chicago
- 9:55 a.m. Disc: Jerry Reiter, Duke University
- 10:15 a.m. **Floor Discussion**

639 CC-512e ■ Recent Improvements in Inference for Evolutionary Models—Topic-Contributed

Biometrics Section, WNAR

Organizer(s): Benjamin Redelings, Duke University

Chair(s): Marc A. Suchard, University of California at Los Angeles

- 8:35 a.m. **On Measuring Dependence of Objects Related by a Tree**—◆ Alexander V. Alekseyenko, New York University School of Medicine, Center for Health Informatics and Bioinformatics; Marc A. Suchard, University of California at Los Angeles; Nick Goldman, EMBL-European Bioinformatics Institute
- 8:55 a.m. **Approximate Conditional Independence of Separated Subtrees and Phylogenetic Inference**—◆ Bret Larget, University of Wisconsin-Madison
- 9:15 a.m. **Erasing Errors Due to Alignment Ambiguity When Estimating Positive Selection**—◆ Benjamin Redelings, Duke University
- 9:35 a.m. **A Phylogenetic Latent Liability Model for Assessing Correlations in Phenotype Evolution**—◆ Gabriela Cybis, University of California at Los Angeles; Janet Sinsheimer, University of California at Los Angeles; Philippe Lemey, KU Leuven; Marc A. Suchard, University of California at Los Angeles
- 9:55 a.m. **Continuous Phylogeographic Diffusion with Drift**—◆ Mandev Gill, University of California at Los Angeles; Marc A. Suchard, University of California at Los Angeles
- 10:15 a.m. **Floor Discussion**

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● Recent Developments in Ranked-Set Sampling—Topic-Contributed

Section on Nonparametric Statistics, Korean International Statistical Society

Organizer(s): Omer Ozturk, The Ohio State University

Chair(s): Asuman Turkmen, The Ohio State University

- 8:35 a.m. **CDF-Based Goodness-of-Fit Tests for Ranked-Set Sampling**—◆ Jesse Frey, Villanova University; Le Wang, Villanova University
- 8:55 a.m. **Estimation of Finite Population Mean Using Partially Ordered Set Samples**—◆ Omer Ozturk, The Ohio State University
- 9:15 a.m. **Using Ranked-Set Sampling in Group-Randomized Studies**—◆ Xinlei Wang, Southern Methodist University; Johan Lim, Seoul National University; Lynne Stokes, Southern Methodist University
- 9:35 a.m. **Estimation and Classification for Finite Mixture Models Under Ranked-Set Sampling**—◆ Armin Hatefi, University of Manitoba; Mohammad Jafari Jozani, University of Manitoba; Djemel Ziou, Université de Sherbrooke
- 9:55 a.m. **Nonparametric Confidence and Tolerance Intervals for Quantiles with Randomized Nomination Sampling**—◆ Mohammad Nourmohammadi, University of Manitoba; Mohammad Jafari Jozani, University of Manitoba; Brad Johnson, University of Manitoba
- 10:15 a.m. **Floor Discussion**

Topic-Contributed Panels 8:30 a.m.–10:20 a.m.

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● Evolution of Federal Statistical Agency Disclosure Review Boards—Topic-Contributed

Government Statistics Section, Scientific and Public Affairs Advisory Committee

Organizer(s): Eve E. Powell-Griner, National Center for Health Statistics, CDC

Chair(s): Jean-Louis Tambay, Statistics Canada

- Panelists:** ◆ Marilyn Seastrom, National Center for Education Statistics
- ◆ Michael Buso, U.S. Bureau of Labor Statistics
- ◆ Eve E. Powell-Griner, National Center for Health Statistics, Centers for Disease Control and Prevention
- ◆ Michael Hawes, U.S. Department of Education
- ◆ Christopher Warren Chapman, Bureau of Labor Statistics

10:15 a.m. **Floor Discussion**

CC-512c

Contributed Sessions 8:30 a.m.–10:20 a.m.

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Large-Scale Hypothesis Testing—Contributed

Biometrics Section, International Chinese Statistical Association

Chair(s): Paula K. Roberson, University of Arkansas

- 8:35 a.m. **Adaptive Procedures Controlling False Discoveries Under Dependence**—◆ Li He, Merck Research Laboratories; Sanat K. Sarkar, Temple University
- 8:50 a.m. **Clusterwise False Discovery Rate Control in Spatial Data**—◆ Alexandra Chouldechova, Stanford University
- 9:05 a.m. **High-Dimensional Equivalence Testing Using Shrinkage Variance Estimators**—◆ Yue Qi; Jing Qiu, University of Missouri; Xiangqin Cui, The University of Alabama
- 9:20 a.m. **Large-Scale Multiple-Testing Under Dependence with Approximate Posterior-Likelihood**—◆ Sairam Rayaprolu; Zhiyi Chi, University of Connecticut
- 9:35 a.m. **A Two-Step Hierarchical Hypothesis Set Testing Framework, with Applications to Gene Expression Data on Ordered Categories**—◆ Yihan Li, Penn State University; Debashis Ghosh, Penn State University
- 9:50 a.m. **The Projack: A Resampling Approach for Prediction of Ranked Effect Sizes and Estimation of Normal Means**—◆ Yihui Zhou, The University of North Carolina at Chapel Hill; Fred Wright, The University of North Carolina
- 10:05 a.m. **Truncated and Weighted Transformation Methods for Combining P-Values**—◆ Zheyang Wu, WPI; Tiejun Tong, Hong Kong Baptist University

CC-512f

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■ Discriminant Analysis and Prediction—Contributed

Biometrics Section

Chair(s): Bahman Shafii, University of Idaho

- 8:35 a.m. **Estimation of Misclassification Rates in Discriminant Analysis with Normal Populations**—◆ Alice Hinton, The Ohio State University; Haikady Nagaraja, The Ohio State University
- 8:50 a.m. **Impact of Correlation on Predictive Ability of a Biomarker**—◆ Olga Demler, BWH; Michael Pencina, Boston University; Ralph D'Agostino Sr., Boston University
- 9:05 a.m. **Clustering and Classification of Multiple Sequences**—◆ Asif Shams Adnan, Jahangirnagar University; Mian Adnan, Jahangirnagar University; M. Shamsuddin, Dhaka

CC-513b

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ◆ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

- 9:20 a.m. **Random Forest Variable Selection Among Correlated Variables**—◆ Joy Toyama; Christina Kitchen, University of California at Los Angeles
- 9:35 a.m. **Statistical Methods to Assess Heterogeneity Effects in a Randomized Clinical Trial**—◆ Alok Dwivedi, Texas Tech University Health Sciences Center; Luis A. Alvarado, Texas Tech University Health Sciences Center; Patrick Tarwater, Texas Tech University Health Sciences Center; Rakesh Shukla, University of Cincinnati; Sada Nand Dwivedi, All India Institute of Medical Sciences; Rebecca A. Pasillas, Texas Tech University Health Sciences Center
- 9:50 a.m. **Power Comparisons for Testing Nested Models Using Limited-Information Statistics**—◆ Mark Reiser, Arizona State University
- 10:05 a.m. **Flexible Semiparametric Hierarchical Spatial Models**—◆ Aaron Porter, The University of Missouri; Scott H. Holan, University of Missouri; Christopher K. Wikle, University of Missouri

644 CC-512d Nonparametric Methods for Complex Data—Contributed

Section on Nonparametric Statistics

Chair(s): David Matteson, Cornell University

- 8:35 a.m. **Shape-Constrained Nonparametric Maximum Likelihood Estimation for Interval-Censored Data**—◆ Clifford Anderson-Bergman, University of California at Irvine
- 8:50 a.m. **Correcting the Bias of Variable Selections in Cost-Sensitive Learning**—◆ Hongjuan Liu; Bei Zhou, Johnson & Johnson Pharmaceutical R&D
- 9:05 a.m. **Inference for Nonstationary Self-Exciting Point Processes**—◆ Feng Chen, The University of New South Wales; Peter Gavin Hall, University of Melbourne
- 9:20 a.m. **Implementation of Parametric and Nonparametric Models for Genomic-Assisted Selection in Plant Breeding**—◆ Reka Howard, Iowa State University; Alicia Carriquiry, Iowa State University; William Beavis, Iowa State University
- 9:35 a.m. **Breakpoint Detection of Nonstationary Time Series Using Wild Binary Segmentation**—◆ Karolos Korkas; Piotr Fryzlewicz, London School of Economics
- 9:50 a.m. **A Review of Mixture Varying Coefficient Models for Longitudinal Data**—◆ Xianming Tan, MUHC RI BCF
- 10:05 a.m. **An Analysis of Approaches Used in Estimating Age of Children and Adults**—◆ John T. Wulu, ICE Health Service Corps

645 CC-512ab Wildlife and Ecological Abundance Data—Contributed

Section on Statistics and the Environment, SSC, Scientific and Public Affairs Advisory Committee

Chair(s): Keita Eloisu, Yale University

- 8:35 a.m. **A Sequential Fixed-Size Confidence Interval Estimation for Positive Parameters with Applications in Statistical Ecology**—◆ Swarnali Banerjee, University of Connecticut; Nitish Mukhopadhyay, University of Connecticut
- 8:50 a.m. **Modeling Density Dependence in Population Growth Rates**—◆ Quinn Payton
- 9:05 a.m. **Binomial Mixture Models for Urban Ecological Monitoring Studies Using American Community Survey Demographic Covariates**—◆ Guohui Wu, University of Missouri; Scott H. Holan, University of Missouri; Charles Nilon, University of Missouri; Christopher K. Wikle, University of Missouri
- 9:20 a.m. **A Bayesian Hierarchical Population Dynamics Model to Integrate North American Mourning Dove Band-Recovery and Harvest Surveys**—◆ Mark Otto, U.S. Fish and Wildlife Service; Todd Sanders, U.S. Fish and Wildlife Service
- 9:35 a.m. **Estimating the Effect of Groundfish Abundance and Other Spatial Covariates on Northern Fur Seal Behavior**—◆ Ruth Joy, Simon Fraser University; Rick Routledge, Simon Fraser University
- 9:50 a.m. **Mapping the Distribution, Abundance, and Risk Assessment of Marine Birds in the Northwest Atlantic**—◆ Earvin Balderama, North Carolina State University; Beth Gardner, North Carolina State University; Brian J. Reich, North Carolina State University
- 10:05 a.m. **A Bayesian Analysis of Daily Weir Counts for Estimating Chinook Salmon Escapement**—◆ Margaret Short, University of Alaska, Fairbanks; Jim Jasper, Alaska Department of Fish and Game

646 CC-513a Challenges of Endpoint Definitions and Interpretation—Contributed

Biopharmaceutical Section, Mental Health Statistics Section

Chair(s): Christie Clark, Baxter Medical Products

- 8:35 a.m. **Validity of Responder Analysis Using Continuous Endpoints**—◆ Davis Gates, Merck; Tulin Shekar, Merck
- 8:50 a.m. **Assessment of Clinical Meaningfulness Based on Absolute and Relative Measures of Effect**—◆ Qi Jiang, Amgen, Inc.; Steven Snapinn, Amgen, Inc.

- 9:05 a.m. **Patient Year Method for Clinical Outcome in Left Ventricular Assist Device Trial—**
♦ Hong Wang, HeartWare Inc; Wei Xu, HeartWare; Kevin Najarian, HeartWare
- 9:20 a.m. **Application of the FDA's Snapshot Algorithm to the Statistical Review of Etravirine for the Treatment of HIV—**♦ Fraser Smith, U.S. Food and Drug Administration
- 9:35 a.m. **Floor Discussion**

647 **Decisionmaking in Biopharmaceutical Development—Contributed** CC-514a

Biopharmaceutical Section

Chair(s): Maggie Wang, PPD Inc

- 8:35 a.m. **Statistical Methods for Benefit Risk Assessment—**
♦ Lanju Zhang, AbbVie; Bo Yang, AbbVie
- 8:50 a.m. **A Comparison of Sample Size Estimation Procedures Using Cost-Effective Methods—**♦ Sibabrata Banerjee, Allergan, Inc.
- 9:05 a.m. **Evaluating Regression to the Mean of Treatment Effect from Phase II to Phase III—**♦ Jianliang Zhang, Medimmune Inc.
- 9:20 a.m. **A Novel Design for Decision Rules Based on Statistical Testing Strategies in a Definitive Go/No-Go Clinical Study—**♦ Ming Zhou, Amylin Pharma., LLC (a Bristol-Myers Squibb Co.); Larry Z. Shen, Amylin Pharma., LLC (a Bristol-Myers Squibb Co.)
- 9:35 a.m. **Data-Monitoring Committees in China—**Kent Koprowicz, Axio Research LLC; ♦ Tingting Li, Axio Research; Xiaohui Huang, Axio Research; Ping Xu, Axio Research Corporation
- 9:50 a.m. **Building Efficient Comparative Effectiveness Trials Through Adaptive Designs, Utility Functions, and Accrual Rate Optimization: Finding the Sweet Spot—**♦ Byron Gajewski, University of Kansas Medical Center; Scott M. Berry, Berry Consultants; Mamatha Pasnoor, University of Kansas Medical Center; Mazen Dimachkie, University of Kansas Medical Center; Laura Herbelin, University of Kansas Medical Center; Richard Barohn, University of Kansas Medical Center
- 10:05 a.m. **Floor Discussion**

648 **Methods and Applications in Survival Data Analysis—Contributed** CC-514b

Section on Statistics in Epidemiology, Health Policy Statistics Section

Chair(s): Kevin Keen, University of Northern British Columbia

- 8:35 a.m. **Estimating Survival Probabilities Based on Complex Survey Data with Mortality Follow-Up—**Barry Graubard, National Cancer Institute; ♦ Victoria Landsman, Ontario Institute for Cancer Research
- 8:50 a.m. **Nested Frailty Cox Models with Time-Dependent Covariates: Application to Dairy Cow Data—**
♦ Adel Elghafghuf, Henrik Stryhn, University of Prince Edward Island; Simon Dufour, University of Montréal; Kristen Reyher, University of Bristol; Ian Dohoo, University of Prince Edward Island
- 9:05 a.m. **Estimating Survival Functions to Distinguish Health Care--Associated Infection Recurrence Among Hospital ICUs—**♦ Jonathan R. Edwards, Centers for Disease Control and Prevention
- 9:20 a.m. **Modelling Survival After Diagnosis of a Specific Disease Based on Case Surveillance Data—**
♦ Ruiguang Song, Centers for Disease Control and Prevention; Gengsheng Qin, Georgia State University; Kathleen McDavid Harrison, Centers for Disease Control and Prevention; Xinjian Zhang, Centers for Disease Control and Prevention; H. Irene Hall, Centers for Disease Control and Prevention
- 9:35 a.m. **A Spline-Based Flexible Model for Comparing the Cumulative Effects of Time-Dependent Exposures on Survival Outcomes—**
♦ Chenkun Wang, Indiana University
- 9:50 a.m. **Estimating Time-Varying Effects with Penalized Splines for Recurrent Event Data—**♦ Leila Amorim, Universidade Federal da Bahia; Jianwen Cai, The University of North Carolina at Chapel Hill; Donglin Zeng, The University of North Carolina
- 10:05 a.m. **Modeling the Duration of Effects of Antibiotic Exposures on the Risk of Clostridium Difficile Infection (CDI): A Comparison of Methods—**
♦ Kevin Brown; David Fisman, University of Toronto; Rahim Moineddin, University of Toronto; Nick Daneman, University of Toronto



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GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

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Topics in Genomics with Applications to Association Studies—Contributed

ENAR, WNAR

Chair(s): Xiaochen Cai, Columbia University

- 8:35 a.m. **A Randomized MicroRNA Microarray Study and Its Evaluation of Normalization**—♦ Li-Xuan Qin, Memorial Sloan-Kettering Cancer Center; Qin Zhou, Memorial Sloan Kettering Cancer Center
- 8:50 a.m. **Evaluation of Illumina 450K Methylation Chip Using Technical Replicates**—♦ Maitreyee Bose, University of Minnesota; Weihua Guan, University of Minnesota; James Pankow, University of Minnesota
- 9:05 a.m. **Measuring Co-Binding Among Transcription Factors**—♦ Yingying Wei, JHSPH; Hongkai Ji, The Johns Hopkins University
- 9:20 a.m. **Integrative Analysis of -Seq Data Sets for a Comprehensive Understanding of Regulatory Roles of Repetitive Regions**—♦ Xin Zeng, University of Wisconsin-Madison; Sunduz Keles, University of Wisconsin-Madison
- 9:35 a.m. **Integration of Encode Data to Understand the Regulatory Mechanism of Disease-Associated Variants Identified in GWAS**—♦ Dongjun Chung, Yale University; Hongyu Zhao, Yale University
- 9:50 a.m. **Weighted Pseudolikelihood for Analysis of Multiple Secondary Outcomes in Genetic Association Studies**—♦ Elizabeth Schifano, University of Connecticut; Tamar Sofer, Harvard School of Public Health; David C. Christiani, Harvard School of Public Health; Xihong Lin, Harvard School of Public Health
- 10:05 a.m. **A Bayesian Model for Poisson Processes for Power Prediction with ChIP-Seq Data**—♦ Chen Zuo, University of Wisconsin-Madison; Sunduz Keles, University of Wisconsin-Madison

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■ Methods and Applications in Modeling Infectious Diseases—Contributed

Section on Statistics in Epidemiology

Chair(s): Jimmy Efird, East Carolina Heart Institute

- 8:35 a.m. **Agent-Based Models for Combinations of Biomedical and Behavioral Interventions for HIV Prevention**—♦ David Boren, University of California at Los Angeles; Ron Brookmeyer, University of California at Los Angeles
- 8:50 a.m. **Space-Time Models for Aggregated Infectious Disease Data with Different Strains**—♦ Cici Bauer, Brown University
- 9:05 a.m. **Analyzing Spatially Aggregated Infectious Disease Data Using Time-Varying Individual-Level Models**—♦ Lin Zhang, University of Guelph; Rob Deardon, University of Guelph

CC-511b

9:20 a.m.

Models for Hantavirus Incidence in Chile—♦ Elaine O. Nsoesie, Children's Hospital Informatics Program, Children's Hospital Boston; Sumiko R. Mekaru, Children's Hospital Informatics Program, Children's Hospital Boston; John S. Brownstein, Children's Hospital Informatics Program, Children's Hospital Boston

9:35 a.m.

Predictive Models of HIV Survival—♦ Georgiy Bobashev, RTI International; Jacob Norton, North Carolina State University; Olga Tousova, Pavlov Medical University

9:50 a.m.

Estimating Disease Transmission Rates Using Susceptible-Infected-Recovered (SIR) Models—♦ Long H. Ngo, Harvard Medical School; David S. Yassa, Beth Israel Deaconess Medical Center & Harvard Medical School; Sharon Wright, Beth Israel Deaconess Med Center & Harvard Medical School; Baevin Carbery, Beth Israel Deaconess Medical Center

10:05 a.m.

Statistical Prediction for Virginia Lyme Disease Emergence Based on Spatial-Temporal Count Data—♦ Yuanyuan Duan, Virginia Tech; Jie Li, Virginia Tech; Yili Hong, Virginia Tech; Korine N. Kolivras, Virginia Tech; Stephen P. Prisley, Virginia Tech; James B. Campbell, Virginia Tech; David N. Gaines, Virginia Department of Health

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High-Dimensional Modeling—Contributed

IMS

Chair(s): Rui Zhang

- 8:35 a.m. **On Variable Selection Using Additive Conditional Independence**—♦ Kuang-Yao Lee, Yale University; Bing Li, Penn State University; Hongyu Zhao, Yale University
- 8:50 a.m. **Fast Stagewise Algorithms for Approximate Regularization Paths**—♦ Ryan Tibshirani
- 9:05 a.m. **Adaptive Composite M-Estimation for Partially Overlapping Models**—♦ Sunyoung Shin, The University of North Carolina at Chapel Hill; Jason Fine, The University of North Carolina at Chapel Hill; Yufeng Liu, The University of North Carolina
- 9:20 a.m. **Selection of Shrinkage Estimators for Prediction Out-of-Sample**—♦ Nina Huber, Hannes Leeb, University of Vienna
- 9:35 a.m. **UPS Delivers Optimal Phase Diagram in High-Dimensional Variable Selection**—♦ Pengsheng Ji, University of Georgia; Jiashun Jin, Carnegie Mellon University
- 9:50 a.m. **Projective Method for Dimension Reduction with Multivariate Responses**—♦ Armine Bagyan, Penn State University; Arkady Tempelman, Penn State University; Bing Li, Penn State University
- 10:05 a.m. **Residual Variance and the Signal-to-Noise Ratio in High-Dimensional Linear Models**—♦ Lee Dicker, Rutgers University

CC-512h

652 CC-510b Nonparametric and Semiparametric Bayesian Methods—Contributed

Section on Bayesian Statistical Science

Chair(s): Lane Burgette, RAND Corporation

- 8:35 a.m. **Computational Techniques for High-Dimensional Nonparametric Bayes**—◆ Anjishnu Banerjee
- 8:50 a.m. **Detecting Local Two-Sample Differences with Divide-Merge Optional Polya Trees: A Genetic Association Study Application**—◆ Jacopo Soriano, Duke University; Li Ma, Duke University
- 9:05 a.m. **Locally Adaptive Bayes Nonparametric Regression via Nested Gaussian Processes**—◆ Bin Zhu, Biostatistics Branch, DCEG, NCI; David B. Dunson, Duke University
- 9:20 a.m. **A Bayesian Semiparametric Approach to the Instrumental Variables Problem with a Binary Treatment or Outcome**—◆ Jessica Pruszynski, Medical College of Wisconsin; Purushottan Laud, Medical College of Wisconsin; Rodney Sparapani, Medical College of Wisconsin; Robert E. McCulloch, The University of Chicago Booth School of Business
- 9:35 a.m. **Gaussian Process–Based Semiparametric Bayesian QTL Mapping for Longitudinal Data**—◆ Wonil Chung, The University of North Carolina at Chapel Hill; Fei Zou, The University of North Carolina at Chapel Hill
- 9:50 a.m. **A Semiparametric Bayesian Model for Longitudinal Data: The Cluster Memory Dirichlet Process Mixture Model**—◆ Robert E. Weiss, University of California at Los Angeles; Yuda Zhu, Genentech
- 10:05 a.m. **Floor Discussion**

653 CC-510d Bayesian Clinical Trials—Contributed

Section on Bayesian Statistical Science, Biopharmaceutical Section, Korean International Statistical Society

Chair(s): Jeremy Gaskins, University of Florida

- 8:35 a.m. **Microarray Gene Expression of Two Prostate Cancer Cell Lines Using Bayesian Clustering Algorithm**—◆ Jean A. Roayaei, NIH, National Cancer Institute
- 8:50 a.m. **On the Probability of a Successful Trial in Clinical Research**—◆ Adina Soaita, Pfizer Inc; Robb Muirhead, Muirhead Consulting
- 9:05 a.m. **Use of Probability of Success to Improve Study Planning and Forecast Probability of Noninferiority**—◆ Peter Hu, Bristol-Myers Squibb

- 9:20 a.m. **Expediting Clinical and Translational Research via Bayesian Instrument Development**—◆ Yu Jiang, University of Kansas Medical Center; Diane K. Boyle, University of Kansas School of Nursing; Marjorie J. Bott, University of Kansas School of Nursing; Jo A. Wick, University of Kansas Medical Center; Qing Yu, University of Kansas Medical Center; Byron Gajewski, University of Kansas-Medical Center
- 9:35 a.m. **A Test Based on Monte Carlo Simulations for Biomarker-Adaptive Threshold Design**—◆ Yafeng Zhang, University of California at Los Angeles; Glen Laird, Bristol-Myers Squibb
- 9:50 a.m. **Bayesian Inference for Causal Quantities via the Instrumental Variable Approach with a Binary Outcome and a Binary Treatment**—◆ Rodney Sparapani, Medical College of Wisconsin; Purushottan Laud, Medical College of Wisconsin; Jessica Pruszynski, Medical College of Wisconsin; Robert E. McCulloch, The University of Chicago Booth School of Business
- 10:05 a.m. **Bayesian Inference for Longitudinal Mediation Analysis**—◆ Chanmin Kim, University of Florida; Michael Daniels, The University of Texas at Austin; Jason Roy, University of Pennsylvania

654 CC-521ab Health Care and Health Policy Statistics—Contributed

Health Policy Statistics Section, Mental Health Statistics Section

Chair(s): Bassam Dahman, Virginia Commonwealth University

- 8:35 a.m. **Longitudinal Design Options for the Medical Expenditure Panel Survey Insurance Component**—◆ Steven Cohen, AHRQ
- 8:50 a.m. **Estimating Health Care Demand for an Aging Population: A Flexible and Robust Bayesian Joint Model**—◆ Satrajit Roychoudhury, Novartis Pharmaceuticals Corporation; Arnab Mukherjee, Indian Institute of Management Bangalore; Pulak Ghosh, Indian Institute of Management Bangalore; Sarah Brown, University of Sheffield
- 9:05 a.m. **Properties of HCAHPS (Patient Experience) Scores in the Centers for Medicare and Medicaid Services' Hospital Value-Based Purchasing Program**—◆ Marc Elliott, RAND Corporation; William G. Lehrman, CMS; Christopher Cohea, HSAG; Elizabeth Goldstein, CMS; Laura A. Giordano, HSAG
- 9:20 a.m. **Sample Size Determination in Health Care Quality Surveys**—◆ Thao Duong, UCI; Hal S. Stern, University of California
- 9:35 a.m. **Are Provider Communication Constructs and Their Structural Relationships the Same Across English and Spanish?**—◆ Gerald Arnold, American Board of Internal Medicine; Rebecca Baranowski, American Board of Internal Medicine
- 9:50 a.m. **Floor Discussion**

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

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CC-515c

■ Statistical Learning Methods for Complex Data—Contributed

Section on Statistical Learning and Data Mining, Section on Statistical Computing, Health Policy Statistics Section

Chair(s): Clayton Barker, SAS Institute

- 8:35 a.m. **Recent Advances in Claims Data--Based Total Health Care Cost Prediction**—♦ Donghui Wu, Elsevier/MEDai Inc.; Emad El-Sebakhy, Elsevier/MEDai Inc.; Krassimir Latinski, Elsevier/MEDai; Jun Han, Elsevier / MEDai; Ognian Asparouhov, Elsevier/MEDai Inc.
- 8:50 a.m. **Simultaneous Selection of Designs and Models for Optimal Forecasting in Possibly Misspecified Polynomial Regressions**—♦ Hsiang-Ling Hsu, Academia Sinica; Mong-Na Lo Huang, National Sun Yat-sen University; Ching-Kang Ing, Institute of Statistical Science Academia Sinica, Taiwan
- 9:05 a.m. **Quantifying the Decreasing Variability of English Spelling Over Time Using Edit Distances**—♦ Roger Bilisoly, Central Connecticut State University
- 9:20 a.m. **A Statistical Approach for the Recognition of Extended Radio Sources in Large-Area Sky Surveys**—♦ Martin Silerio-Vazquez, Iowa State University; Heinz Andernach, University of Guanajuato; Carlos Rodríguez, University of Guanajuato; Johan Van Horebeek, Center for Research in Mathematics
- 9:35 a.m. **Ranking and Recommending Adwords Opportunities**—♦ Shuohui (Andy) Chen, Google
- 9:50 a.m. **Regression Trees in a Longitudinal Data Setting and Their Application in a Metabolite Expression Neuroimaging Study**—♦ Madan Kundu, Indiana University School of Medicine; Jaroslaw Harezlak, Indiana University Fairbanks School of Public Health
- 10:05 a.m. **ROC-Based Random Forest**—♦ Bowen Song, Stony Brook University; Yang Zhao, Stony Brook University; Wei Zhu, Stony Brook University; Zhengrong Liang, Stony Brook University

Invited Sessions

10:30 a.m.–12:20 p.m.

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CC-520d

■ Computational Advertising: Statistical Learning at SAMSI—Invited

Section on Statistical Learning and Data Mining, Biometrics Section, Section on Statistical Computing, Scientific and Public Affairs Advisory Committee

Organizer(s): David Banks, Duke University

Chair(s): Ilse Ipsen, SAMSI and North Carolina State University

- 10:35 a.m. **Can We Use an Equilibrium Model to Interpret the Auction Data?**—♦ Xiaoming Huo, Georgia Institute of Technology
- 11:00 a.m. **Principled Regularization for Matrix Factorization**—♦ Robert M. Bell, AT&T Labs-Research; Suhrud M. Balakrishnan, AT&T Labs-Research
- 11:25 a.m. **Bid Optimization and Inventory Scoring**—♦ Claudia Perlich, Media6Degrees
- 11:50 a.m. Disc: Deepak Agarwal, LinkedIn
- 12:10 p.m. **Floor Discussion**

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CC-710a

■ ● Long Memory: Foundations and Outlook—Invited

IMS, SSC, International Indian Statistical Association

Organizer(s): Jan Beran, University of Konstanz

Chair(s): Jan Beran, University of Konstanz

- 10:35 a.m. **Goodness-of-Fit Tests for Long Memory Moving-Average Marginal Density**—♦ Hira Lal Koul, Michigan State University; Nao Mimoto, Michigan State University; Donatas Surgailis, Vilnius University
- 10:55 a.m. **Estimation of Fractional Models for Panel Data**—♦ Peter Michael Robinson, London School of Economics
- 11:15 a.m. **Long Memory and Aggregation**—♦ Donatas Surgailis, Vilnius University
- 11:35 a.m. **Summation Theory for Linear Processes Driven by a Martingale Difference Noise**—♦ Liudas Giraitis, Queen Mary, University of London
- 11:55 a.m. **Modeling Financial Data with Heavy Tails and Long Memory**—♦ Rafal Kulik, University of Ottawa
- 12:15 p.m. **Floor Discussion**

658 CC-516d 660 CC-511f

■ ● Statistical Methodologies in Complex Biomedical Data Analysis—Invited

● Frontiers in Longitudinal and Survival Data Analysis—Invited

ENAR, Statistical Learning and Data Mining Section, Biometrics Section
Organizer(s): Peter X.K. Song, University of Michigan
Chair(s): Peter X.K. Song, University of Michigan

Biometrics Section, SSC, Section on Statistics in Epidemiology, Korean International Statistical Society

Organizer(s): Gang Li, University of California at Los Angeles
Chair(s): Haiqun Lin, Yale University

- 10:35 a.m. **Statistical Models for High-Dimensional Compositional Data with Applications to Microbiome Data**—◆ Hongzhe Li, University of Pennsylvania
- 11:00 a.m. **Multiple Change-Point Detection and Analysis of Chromosome Copy Number Variations**—◆ Heping Zhang, Yale University
- 11:25 a.m. **Informing Genome-Wide Association Studies by Incorporating Gene Expression and Network Data**—◆ Li Hsu, Fred Hutchinson Cancer Research Center
- 11:50 a.m. **Ultrahigh Dimensional Time Course Feature Selection**—◆ Yi Li, University of Michigan; Peirong Xu, East China Normal University; Lixing Zhu, Hong Kong Baptist University
- 12:15 p.m. **Floor Discussion**

- 10:35 a.m. **Bayesian Influence Measures for Joint Models of Longitudinal and Survival Data**—◆ Joseph G. Ibrahim, The University of North Carolina; Hongtu Zhu, The University of North Carolina at Chapel Hill; Niansheng Tang, Yunnan University; Yueh-Yun Chi, University of Florida
- 11:00 a.m. **Explained Variation in Nonlinear Models with Applications to Survival Analysis**—Gang Li, University of California at Los Angeles; ◆ Xiaoyan Wang, University of California at Los Angeles
- 11:25 a.m. **Standard Error Estimation for the Joint Analysis of Survival and Longitudinal Data**—◆ Paul David Baines, University of California at Davis; Jane-Ling Wang, University of California at Davis; Cong Xu, University of California at Davis

659 CC-516c

■ ● Estimating the Heritability of Complex Diseases: Recent Developments—Invited

Section on Statistics in Epidemiology, Biometrics Section, Scientific and Public Affairs Advisory Committee
Organizer(s): Malka Gorfine, Technion - Israel Institute of Technology
Chair(s): Tanya Garcia, Texas A&M University

- 11:50 a.m. **Joint Modeling of Survival Time and Longitudinal Outcomes with Flexible Random Effects**—◆ Jianwen Cai, The University of North Carolina at Chapel Hill; Jaewon Choi, Harvard Medical School; Donglin Zeng, The University of North Carolina; Andy Olshan, The University of North Carolina at Chapel Hill
- 12:15 p.m. **Floor Discussion**

- 10:35 a.m. **Estimating the Heritability of Complex Diseases: Recent Developments**—◆ Thomas Scheike, University of Copenhagen
- 11:00 a.m. **Heritability Estimation Based on Survival Data**—◆ Malka Gorfine, Technion - Israel Institute of Technology; Li Hsu, Fred Hutchinson Cancer Research Center
- 11:25 a.m. **The Mystery of Missing Heritability: The Role of Rare Variants**—◆ Or Zuk, The University of Chicago
- 11:50 a.m. **Solving the Missing Heritability Problem: A Whole-Genome Estimation Approach**—◆ Jian Yang, The University of Queensland
- 12:15 p.m. **Floor Discussion**

661 CC-710b

■ ● Patterns and Extremes: Developments and Review of Spatial Data Analysis—Invited

IMS, International Indian Statistical Association, Section on Statistics and the Environment
Organizer(s): Sucharita Ghosh, Swiss Federal Research Institute WSL
Chair(s): Sucharita Ghosh, Swiss Federal Research Institute WSL

- 10:35 a.m. **Multivariate Max-Stable Spatial Processes**—◆ Marc G. Genton, KAUST; Simone Padoan, Bocconi University of Milan; Huiyan Sang, Texas A&M University
- 10:55 a.m. **Approximate Bayesian Computing for Spatial Extremes**—◆ Robert James Erhardt, Wake Forest University; Richard Smith, The University of North Carolina at Chapel Hill
- 11:15 a.m. **Some Recent Developments on the Modeling of Massive Dimensional Nonstationary Data Sets**—◆ Rajarshi Guhaniyogi, Duke University; Andrew Oliver Finley, Michigan State University; Sudipto Banerjee, University of Minnesota; Alan E. Gelfand, Duke University

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

- 11:35 a.m. **Spatial Statistics and Cosmology: Measuring Dark Matter Distortions of the Cosmic Microwave Background**—♦ Ethan Berger Anderes, University of California at Davis
- 11:55 a.m. Disc: Dan Cooley, Colorado State University
- 12:15 p.m. **Floor Discussion**

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CC-510a

■ Recent Advances in the Analysis of Mixed-Mode Survey Data—Invited

Survey Research Methods Section, Mental Health Statistics Section, Section on Statistics in Epidemiology, Korean International Statistical Society

Organizer(s): Jae-Kwang Kim, Iowa State University

Chair(s): Minsun Riddles, Iowa State University and Westat

- 10:35 a.m. **An Imputation Approach for Analyzing Mixed-Mode Surveys**—♦ Jae-Kwang Kim, Iowa State University; Seunghwan Park, Seoul National University; Seo-young Kim, Statistics Korea
- 11:05 a.m. **Estimating Mode Effects Without Bias: A Randomized Experiment to Compare Mode Effects Between Face-to-Face Interviews and Web Surveys**—♦ Douglas Rivers, Stanford University; Lynn Vavreck, University of California at Los Angeles
- 11:35 a.m. **Analyses of a Mixed-Mode ABS Nationwide Survey of Trust and Confidence**—♦ Danna Moore, Washington State University; Danna Moore, Washington State University
- 12:05 p.m. **Floor Discussion**

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CC-512ab

■ ● Big Data, Big Impact When Statistics Matter—Invited

Biometrics Section, Statistical Learning and Data Mining Section, WNAR, International Indian Statistical Association, Section on Statistics in Epidemiology, Scientific and Public Affairs Advisory Committee

Organizer(s): Ching-Ti Liu, Boston University

Chair(s): Ching-Ti Liu, Boston University

- 10:35 a.m. **Linkage Disequilibrium-Based Subset Selection Approach for Rare Variants Analysis in Sequence Data**—♦ Sanjay Shete, The University of Texas MD Anderson Cancer Center; Rajesh Talluri, The University of Texas MD Anderson Cancer Center
- 11:00 a.m. **Multi-Cohort, Network-Guided Regression Approach for Genetic Interaction Detection**—♦ Josee Dupuis, Boston University School of Public Health; Chen Lu, Boston University School of Public Health; Eric Kolaczyk, Boston University

- 11:25 a.m. **Network-Based Integrative Analysis and Marker Selection with Ultrahigh Dimensional Data**—♦ Shuangge Ma, Yale University
- 11:50 a.m. **Comparison of Co-Expression Measures: Mutual Information, Correlation, and Model-Based Indices**—♦ Steve Horvath, University of California at Los Angeles; Lin Song, University of California at Los Angeles
- 12:15 p.m. **Floor Discussion**

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CC-511b

■ Challenges and Opportunities for Combining Data and Rare Variants—Invited

WNAR, Biometrics Section, Section on Statistics in Epidemiology

Organizer(s): Sharon Lutz, University of Colorado

Chair(s): Carl Langefeld, Wake Forest University

- 10:35 a.m. **Combining Rare Variants From Families and Unrelateds**—♦ David Fardo, University of Kentucky; Iuliana Ionita-Laza, Columbia University
- 11:00 a.m. **'Location, Location, Location': A Spatial Approach for Rare-Variant Analysis and an Application to a Study on Nonsyndromic Cleft Lip with or Without Cleft Palate**—Heide Fier, University of Bonn; Sungho Won, Chung-Ang University; Dmitry Prokopenko, University of Bonn; Kerstin Ludwig, University of Bonn, Bonn, Germany; Rolf Fimmers, University of Bonn; Edwin Silverman, Harvard Medical School; Marcello Pagano, Harvard University; Elisabeth Mangold, University of Bonn; ♦ Christoph Lange, Harvard School of Public Health
- 11:25 a.m. **Strategies for Detecting Allele-Specific Imbalance by Modifying Rare Variant Association Methods**—♦ Sharon Lutz, University of Colorado; Tasha E. Fingerlin, University of Colorado Anschutz Medical Campus
- 11:50 a.m. **Integrating Family-Specific Linkage Scores in Case-Control Tests of Association**—♦ Tasha E. Fingerlin, University of Colorado Anschutz Medical Campus; Anna L. Peljto, University of Colorado Anschutz Medical Campus; Sharon Lutz, University of Colorado
- 12:15 p.m. **Floor Discussion**

665 CC-511a Singular Learning: Model Selection for Non-Regular Statistical Models—Invited

Host Chapter-Montreal, SSC, Statistical Learning and Data Mining Section, Council of Chapters

Organizer(s): Russell J. Steele, McGill University

Chair(s): David A Stephens, McGill University

- 10:35 a.m. **A Bayesian Information Criterion for Singular Models**—♦Mathias Drton, University of Washington; Martyn Plummer, International Agency for Research on Cancer
- 11:00 a.m. **Model Selection Criteria of Singular Statistical Models**—♦Sumio Watanabe, Tokyo Institute of Technology
- 11:25 a.m. **Asymptotic Inference for Gaussian Hidden Tree Models**—♦Piotr Zwiernik, University of California at Berkeley
- 11:50 a.m. Disc: Russell J. Steele, McGill University
- 12:10 p.m. **Floor Discussion**

666 CC-519b ● Innovations in Methods and Models Applied to Spatial Environmental Data Sets from Around the World—Invited

Section on Statistics and the Environment, Statistical Learning and Data Mining Section, Section on Statistics in Epidemiology, Scientific and Public Affairs Advisory Committee, Statistics Without Borders

Organizer(s): Daniel A. Griffith, The University of Texas at Dallas

Chair(s): Murali Haran, Penn State University

- 1:00 a.m. **Multivariate Spatial Data Fusion for Global Remote Sensing Data Sets**—♦Hai Minh Nguyen, Jet Propulsion Laboratory; Matthias Katzfuss, Universität Heidelberg; Noel Cressie, National Institute for Applied Statistics Research Australia; Amy Braverman, Jet Propulsion Laboratory
- 2:00 a.m. **Implementing Gaussian Spatial Autoregressive Models for Massive Georeferenced Data Sets: An Example from Peru**—♦Daniel A. Griffith, The University of Texas at Dallas
- 3:00 a.m. **Scalable Maximum Likelihood Calculations for Gaussian Processes**—♦Mihai Anitescu, Argonne National Laboratory; Michael L Stein, The University of Chicago; Jie Chen, Argonne National Laboratory
- 4:00 a.m. **Time-Structured PCA for Describing Modes of Variability in Large Global Climate Data Sets**—♦Cari Kaufman, University of California at Berkeley; Ben Shaby, University of California at Berkeley
- 12:15 p.m. **Floor Discussion**

Invited Panels 10:30 a.m.–12:20 p.m.

667 CC-516b ■ ● Diverse Applications of Statistics: Are We Doing Enough in Creating Visibility?—Invited

Committee on Applied Statisticians, Scientific and Public Affairs Advisory Committee

Organizer(s): Amarjot Kaur, Merck Research Labs

Chair(s): Jennifer Gauvine, Glaxo SmithKline

- Panelists:** ♦Jim Rosenberger, Penn State University
♦Roger Lewis, Harbor University of California at Los Angeles Medical Center
♦Amit Bhattacharyya, GlaxoSmithKline
♦Robert Rodriguez, SAS Institute

12:05 p.m. **Floor Discussion**

Topic-Contributed Sessions 10:30 a.m.–12:20 p.m.

668 CC-511e ■ Recent Methodological Advances in Social Network Analysis—Topic-Contributed

International Chinese Statistical Association, Health Policy Statistics Section, Section on Statistics in Epidemiology

Organizer(s): Sudeshna Paul, Emory University

Chair(s): Sudeshna Paul, Emory University

- 10:35 a.m. **Measuring Homophily in Network Data**—♦Sergiy Nesterko, Harvard University; Joseph Blitzstein, Harvard University
- 10:55 a.m. **Network Construction for Sampled Ego-Centric Data**—♦Ravi Goyal, Harvard University; Victor DeGruttola, Harvard University; Joseph Blitzstein, Harvard University
- 11:15 a.m. **Advances in Model-Assisted Inference from Respondent-Driven Sampling Data**—♦Krista J. Gile, University of Massachusetts, Amherst
- 11:35 a.m. **Intrusion as (Anti)Social Communication: Characterization and Detection**—♦Natallia Katenka, University of Rhode Island
- 11:55 a.m. **Testing of and Modeling Dependencies Between a Network and Nodal Attributes**—♦Bailey Fosdick, University of Washington; Peter David Hoff, University of Washington
- 12:15 p.m. **Floor Discussion**

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

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■ Estimation and Inference Involving Missing Data—Topic-Contributed

Biometrics Section, SSC, Section on Statistics in Epidemiology, Korean International Statistical Society

Organizer(s): Zonghui Hu, National Institutes of Health

Chair(s): Zonghui Hu, National Institutes of Health

10:35 a.m. **Fractional Hot Deck Imputation for Robust Parameter Estimation Under Missing at Random—**♦ Shu Yang, Iowa State University; Jae-Kwang Kim, Iowa State University

10:55 a.m. **A Hidden Markov Model for Nonignorable Non-Monotone Missing Longitudinal Data for Medical Studies of Quality of Life—**♦ Kaijun Liao, Hisun Pharmaceutical Co., Ltd.

11:15 a.m. **Multiple Imputation Methods for Multivariate One-Sided Tests with Missing Data—**♦ Tao Wang; Lang Wu, The University of British Columbia

11:35 a.m. **Estimating Optimal Treatment Regimes from a Classification Perspective—**♦ Baqun Zhang, Northwestern; Anastasios (Butch) Tsiatis, North Carolina State University; Marie Davidian, North Carolina State University; Min Zhang, University of Michigan; Eric Laber, North Carolina State University

11:55 a.m. **Selection of Valid Instruments in Mendelian Randomization—**♦ Hyunseung Kang, The Wharton School; Tony Cai, University of Pennsylvania; Dylan S. Small, University of Pennsylvania

12:15 p.m. **Floor Discussion**

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■ Highlights from the Conference on Data Analysis—Topic-Contributed

Section on Physical and Engineering Sciences, Section on Statistics in Defense and National Security

Organizer(s): Kary Myers, Los Alamos National Laboratory

Chair(s): Sandy Thompson, Pacific Northwest National Laboratory

10:35 a.m. **Inference for the Central Direction of Random Rotations in $SO(3)$ —**♦ Bryan Stanfill, Iowa State University; Ulrike Genschel, Iowa State University; Heike Hofmann, Iowa State University

10:55 a.m. **Data Analysis for Strange Attractors—**♦ Michael Luvalle

11:15 a.m. **Local Structure Graph Models—**♦ Emily Casleton, Iowa State University; Mark Kaiser, Iowa State University; Dan Nordman, Iowa State University

11:35 a.m. **An Approach for Predictive Fault Isolation in High-Performance Computing Systems—**♦ David Robinson, Sandia National Laboratories; Jon Stearley, Sandia National Laboratories

11:55 a.m. **Using Synthetic Tool Marks in a Likelihood Ratio Test for Forensic Comparisons—**♦ Amy Hoeksema

12:15 p.m. **Floor Discussion**

CC-513b

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■ ● Developments in Survey Weight Calibration and Estimation—Topic-Contributed

Survey Research Methods Section, Section on Statistics in Epidemiology

Organizer(s): Michael D. Larsen, The George Washington University

Chair(s): Phil Kott, RTI International

10:35 a.m. **Calibration-Weighting Methods for Complex Surveys—**♦ Changbao Wu, University of Waterloo; Wilson Wen Lu, Acadia University

10:55 a.m. **Longitudinal Survey Weight Calibration with Estimated Totals—**♦ Siyu Qing, George Washington University; Michael D. Larsen, The George Washington University

11:15 a.m. **Some Thinking on Calibration Applications for Multipurpose Estimations—**♦ Yan Liu, Statistics of Income/IRS; Yuqi Liu, The George Washington University

11:35 a.m. **A Design Effect Measure for Calibration Weights in Single-Stage Samples—**♦ Kimberly Henry, Statistics of Income, IRS; Richard Valliant, University of Michigan and University of Maryland

11:55 a.m. **Floor Discussion**

CC-510b

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■ Dynamic Modeling in Tobacco Control Policy—Topic-Contributed

Social Statistics Section, Health Policy Statistics Section, Section on Statistics in Epidemiology, Scientific and Public Affairs Advisory Committee

Organizer(s): Antonio Paredes, FDA

Chair(s): Antonio Paredes, FDA

10:35 a.m. **A Dynamic Population Model for Estimating All-Cause Mortality Due to Lifetime Exposure History—**♦ Annette M. Bachand, Environ; Colorado State University; Sandra Sulsky, Environ

10:55 a.m. **Opinion Dynamics Modeling in Tobacco Control Policy—**♦ Patrick D. Finley, Sandia National Laboratories; Thomas W. Moore, Sandia National Laboratories; Gregory J. Lambert, Sandia National Laboratories; Ryan Hammer, Sandia National Laboratories; Taylor E. Berger, Sandia National Laboratories; Nancy S. Brodsky, Sandia National Laboratories; Ben Apellberg, Center for Tobacco Products; Bridget Ambrose, Center for Tobacco Products/FDA; Danny Lee, Center for Tobacco Products/FDA; Antonio Paredes, FDA; George Rochester, Center for Tobacco Products/FDA; Robert J. Glass, Sandia National Laboratories

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CC-512f

11:15 a.m. **Population Structure Modeling to Evaluate Substitution and Dual Use of Tobacco Products in Response to Changing Policies**—◆Eric Vugrin, Sandia National Laboratories; Steve Verzi, Sandia National Laboratories; Nancy S. Brodsky, Sandia National Laboratories; Ben Apelberg, Center for Tobacco Products; Antonio Paredes, FDA; George Rochester, Center for Tobacco Products/FDA; Brian Rostron, Center for Tobacco Products; Robert J. Glass, Sandia National Laboratories

11:35 a.m. **A Population Dynamic Model for Smoking Prevalence, Mortality Prediction**—◆Tom Lu, FDA/CTP

11:55 a.m. **Population Modeling Framework for Evaluating Tobacco Regulation and Policy**—◆George Rochester, Center for Tobacco Products/FDA

12:15 p.m. **Floor Discussion**

673 **■ Bioequivalence (BE), History, and Developing Ideas—Topic-Contributed**

Biopharmaceutical Section

Organizer(s): Lihui Zhao, Novartis Oncology

Chair(s): Lihui Zhao, Novartis Oncology

10:35 a.m. **Bioequivalence Criteria Applied to Dose Proportionality**—◆Brian Smith, Amgen, Inc.

10:55 a.m. **Reference-Scaled Average Bioequivalence (SABE)**—◆L. Endrenyi, University of Toronto; Laszlo Tothfalusi, Semmelweis University

11:15 a.m. **Multiplicity in Bioequivalence Trials: Multiple Formulation and Multiple Stage Designs**—Lihui Zhao, Novartis Oncology; ◆Cheng Zheng, Novartis Oncology; Jixian (Jason) Wang, Novartis Oncology

11:35 a.m. Disc: Byron Jones, Novartis

11:55 a.m. **Floor Discussion**

674 **■ ● Analyzing Exposure-Adjusted Incident Data in the Clinical Trial Setting—Topic-Contributed**

Biometrics Section, Biopharmaceutical Section

Organizer(s): Jing Xu and Huyuan Yang, Millennium Pharmaceuticals, Inc.

Chair(s): Mingxiu Hu, Millennium: The Takeda Oncology Company

10:35 a.m. **Confidence Intervals for an Exposure-Adjusted Incidence Rate Difference with Applications to Clinical Trials**—◆Junyuan Wang, BMS; G. Frank Liu, Merck Research Labs; Ken Liu, Merck; Snaveley Duane, Merck

10:55 a.m. **Likelihood-Based Methods for Exposure-Adjusted Incidence Data Analysis in Clinical Trials**—◆Jing Xu, Millennium Pharmaceuticals, Inc.

11:15 a.m. **Nonparametric Approaches for Exposure-Adjusted Incidence Data Analysis in Clinical Trials**—◆Huyuan Yang, MPI

11:35 a.m. **Methods in Analyzing Exposure-Adjusted Incidence Rates in Phase III Clinical Trial: Case Study**—◆Serap Sankoh, Millennium Pharmaceuticals, Inc.

11:55 a.m. Disc: Guoxing (Greg) Soon, FDA

12:15 p.m. **Floor Discussion**

675 **■ Advances in Time Series Analysis—Topic-Contributed**

Business and Economic Statistics Section

Organizer(s): Gian Luigi Mazzi, Eurostat - European Commission

Chair(s): Antonio Matas Mir, European Central Bank

10:35 a.m. **State Space Models for Temporal Distribution and Benchmarking**—◆Benoit Quenneville, Statistics Canada; Susie Fortier, Statistics Canada; Frederic Picard, Statistics Canada

10:55 a.m. **Statistical Procedures for Reconciling Time Series of Large Systems of Accounts Subject to Low-Frequency Benchmarks**—◆Baoline Chen, Bureau of Economic Analysis; Tommaso Di Fonzo, The National Institute for Statistics (Istat); Marco Marini, International Monetary Fund

11:15 a.m. **The Distribution of Unit Root Test Statistics After Seasonal Adjustment**—◆Tomás Del Barrio Castro, University of The Balearic Islands

11:35 a.m. **State Space Model for the UK Labour Force Survey**—◆Duncan Elliott, Office for National Statistics; Ping Zong, Office for National Statistics

11:55 a.m. **The First-Order Seasonal Autoregressive Model as a Fundamental Model for Moving Seasonality and Model-Based Seasonal Adjustment**—◆David Findley, U.S. Census Bureau; Demetra Lytras, U.S. Census Bureau

12:15 p.m. **Floor Discussion**

CC-520c

CC-514c

CC-516a

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ◆ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

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CC-518

■ ● Bayesian Approach to Multiple Models: Selection, Networks, Comparisons, and Examples—Topic-Contributed

Section on Bayesian Statistical Science, International Society for Bayesian Analysis (ISBA), Korean International Statistical Society
Organizer(s): Weiwei Cui, National Institute of Statistical Sciences
Chair(s): Weiwei Cui, National Institute of Statistical Sciences

- 10:35 a.m. **Bayesian Inference of Multiple Gaussian Graphical Models**—◆Christine Peterson, Rice University; Francesco Stingo, The University of Texas MD Anderson Cancer Center; Marina Vannucci, Rice University
- 10:55 a.m. **Objective Bayes Variable Selection for Well-Formulated Models**—◆Daniel Taylor Rodriguez, University of Florida; Nikolay Bliznyuk, University of Florida; Linda Young, University of Florida; Andrew Womack, University of Florida
- 11:15 a.m. **Nonparametric Bayesian Modeling for Density Estimation of Sea Turtle Nesting Locations Along Juno Beach in Florida**—◆Ming Wang, Emory; Lance A. Waller, Emory University; Jian Kang, Emory University
- 11:35 a.m. **A Bayesian Test of Independence in a Two-Way Contingency Table Under Two-Stage Cluster Sampling with Covariates**—◆Dilli Bhatta, Worcester Polytechnic Institute
- 11:55 a.m. **Intrinsic Analysis of Gaussian and Latent Gaussian Data**—◆Andrew Womack, University of Florida
- 12:15 p.m. **Floor Discussion**

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CC-520b

■ ● Innovative Applications of Statistics in the Nursing Sciences—Topic-Contributed

Section on Statistical Consulting, Section on Teaching of Statistics in the Health Sciences
Organizer(s): Matthew J. Hayat, Rutgers University
Chair(s): Matthew J. Hayat, Rutgers University

- 10:35 a.m. **Data Management Best Practice Guidelines for Nursing Students and Researcher**—◆Jesse Chittams, University of Pennsylvania; Alexandra L. Hanlon, University of Pennsylvania School of Nursing
- 10:55 a.m. **Dealing with Excess Zeros and Highly Skewed Distributions in Nursing Research**—◆Melinda Higgins, Emory University
- 11:15 a.m. **Using the Inverse Transform to Specify Contrasts in Regression and Latent Curve Structural Equation Models**—◆Thomas Templin, Wayne State University
- 11:35 a.m. **Causal Inference with Observational Data with Regression Discontinuity Design**—◆Patricia Eckardt, Stony Brook University

11:55 a.m.

Hierarchical Generalized Linear Models for Time Trends and Seasonality in Nursing-Sensitive Outcomes—◆Jianghua He, University of Kansas Medical Center; Vincent Staggs, University of Kansas Medical Center; Sandra Bergquist-Beringer, University of Kansas Medical Center; Nancy Dunton, University of Kansas Medical Center

12:15 p.m.

Floor Discussion

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CC-520e

Theory and Applications of Human Interaction in Visual Analytics—Topic-Contributed

Section on Statistical Learning and Data Mining, Section on Statistical Graphics, Section on Statistical Computing
Organizer(s): Matthew R. Williams, USDA - National Agricultural Statistics Service
Chair(s): Wendy Barboza, USDA/NASS

- 10:35 a.m. **Interactive Data Analysis and Model Exploration: A Visual Analytics Approach**—◆Remco Chang, Tufts University
- 10:55 a.m. **Human in the Loop: Iterative, Interactive Visual Model Refinement**—◆Eli T. Brown, Tufts University
- 11:15 a.m. **Visual Analytics for Survey Statistics: Interactive Benchmarking and Calibration**—◆Matthew R. Williams, USDA - National Agricultural Statistics Service
- 11:35 a.m. **Theory and Applications of Human Interaction in Visual Analytics**—◆Scotland Charles Leman, Virginia Tech
- 11:55 a.m. **Visual to Parametric Interaction Algorithm**—◆Xinran Hu, Virginia Tech; Scotland Charles Leman, Virginia Tech; Leanna House, Virginia Tech; Dipanya Maiti, Virginia Tech; Chris North, Virginia Tech; Lauren Bradel, Virginia Tech
- 12:15 p.m. **Floor Discussion**

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CC-512g

■ Joint Modeling of Mixed Outcomes in Health Services Research—Topic-Contributed

Health Policy Statistics Section, International Indian Statistical Association, Mental Health Statistics Section, Scientific and Public Affairs Advisory Committee, Section on Statistics in Epidemiology
Organizer(s): Joseph Gardiner, Michigan State University
Chair(s): Elizabeth Schifano, University of Connecticut

- 10:35 a.m. **Joint Analysis of Repeatedly Observed Mixed Discrete and Continuous Outcomes via Copula Models**—◆Beilei Wu, University of Calgary; Alex de Leon, University of Calgary
- 10:55 a.m. **A Test for Constancy of Incremental Incidence Rates in a Long-Term Retrospective or Prospective Safety Study**—◆Girish Aras, Amgen, Inc.; Jingyuan Yang, Amgen, Inc.

- 11:15 a.m. **Bivariate Copula Random-Effects Model for Loss and Cost**—◆Xiaoqin Tang, Geisinger Health System; Zhehui Luo, Michigan State University; Joseph Gardiner, Michigan State University
- 11:35 a.m. **Shrinkage Nonparametric Estimation of Median Survival Time from Censored Data with Applications to Multicenter Studies**—◆Mohammad Rahbar, The University of Texas Health Science Center; Xuan Zhang, The University of Texas Health Science Center at Houston; Sangchoon Jeon, Yale School of Nursing
- 11:55 a.m. **Analysis of Joint Models for Mixed Outcomes: Some Capabilities with SAS Software**—◆Joseph Gardiner, Michigan State University
- 12:15 p.m. **Floor Discussion**

680 CC-515b ■ Methods for Assessing Environmental Factors on Reproductive Outcomes—Topic-Contributed

Section on Statistics in Epidemiology, Section on Statistics and the Environment, Scientific and Public Affairs Advisory Committee
Organizer(s): Alexander C. McLain, University of South Carolina
Chair(s): Vanda Lourenco, CMA, FCT - Universidade Nova de Lisboa

- 10:35 a.m. **The Current Duration Approach to Analysing Time-to-Pregnancy: Direct Validation Using an Imbedded Prevalent Cohort Study**—◆Niels Keiding, University of Copenhagen; Ditte Norbo Sorensen, University of Copenhagen; Remy Slama, Inserm, Institut Albert Bonniot (U 823); Beatrice Ducot, Inserm U1018; Jean Bouyer, Inserm U1018
- 10:55 a.m. **Semiparametric Models for Clustered Survival Data with Random Cluster Size**—Amita Manatunga, Emory University; ◆Shuling Liu, Emory University; Limin Peng, Emory University
- 11:15 a.m. **Semiparametric Grouped Backward Recurrence Cox Model for the Analysis of Current Duration Data with Preferential Reporting**—◆Alexander C. McLain, University of South Carolina; Marie Thoma, Centers for Disease Control and Prevention; Rajeshwari Sundaram, National Institute of Child Health and Human Development; Germaine M. Buck Louis, National Institute of Child Health and Human Development

- 11:35 a.m. **Assessing the Association Between Time-to-Pregnancy and Woman-Specific Menstrual Cycle Length Mean and Variability Using a Bayesian Hierarchical Model**—◆Kirsten Lum, Johns Hopkins Bloomberg School of Public Health; Germaine M. Buck Louis, National Institute of Child Health and Human Development; Thomas A. Louis, Johns Hopkins Bloomberg School of Public Health; Rajeshwari Sundaram, National Institute of Child Health and Human Development
- 11:55 a.m. **Accounting for Biological Variability in Assessing Human Fecundity**—◆Rajeshwari Sundaram, National Institute of Child Health and Human Development
- 12:15 p.m. **Floor Discussion**

681 CC-522bc Smoothing Splines and Applications—Topic-Contributed

Section on Nonparametric Statistics, Korean International Statistical Society
Organizer(s): Shawn Ni, University of Missouri-Columbia
Chair(s): Dongchu Sun, University of Missouri

- 10:35 a.m. **A Bayesian Spatio-Functional Clustering Model Based on Wavelet Smoothing, with Application to Climate Change Study**—Zhen Zhang, Michigan State University; ◆Chae Young Lim, Michigan State; Tapabrata Maiti, Michigan State University
- 10:55 a.m. **Smoothing with Cauchy Process Priors and Cauchy Errors**—◆Paul Speckman, University of Missouri-Columbia
- 11:15 a.m. **Smoothing Splines for Multivariate Time Series Data**—◆Shawn Ni, University of Missouri-Columbia; Dongchu Sun, University of Missouri
- 11:35 a.m. **Partial Informative Normal and Bayesian Smoothing Splines**—◆Sifan Liu, University of Missouri-Columbia; Dongchu Sun, University of Missouri
- 11:55 a.m. **Applying Fully Bayesian Spline Smoothing to Estimate Yield Curves**—◆Xiaojun Tong, University of Missouri-Columbia; Zhuoqiong He, University of Missouri-Columbia; Dongchu Sun, University of Missouri; Shawn Ni, University of Missouri-Columbia
- 12:15 p.m. **Floor Discussion**

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

Topic-Contributed Panels 10:30 a.m.–12:20 p.m.

682 CC-516e

■ Teaching Clinical Trials to Nonstatisticians— Topic-Contributed

Section on Teaching of Statistics in the Health Sciences

Organizer(s): Susan Elizabeth Telke, University of Minnesota-Twin Cities

Chair(s): Lynn Eberly, University of Minnesota-Twin Cities

Panelists: ♦ Richard Holubkov, University of Utah Pediatrics
♦ Susan Elizabeth Telke, University of Minnesota-Twin Cities
♦ Marianne Bertolet, University of Pittsburgh
♦ Christopher Assaid, Merck

12:15 p.m. **Floor Discussion**

Contributed Sessions 10:30 a.m.–12:20 p.m.

683 CC-513a

■ Advances in Methods for Biological Data— Contributed

Biometrics Section

Chair(s): Jasmin Divers, Wake Forest University

10:35 a.m. **Comparisons of Normalization Methods for Relative Quantification in Real-Time Polymerase Chain Reaction**—♦ Yi-Ting Hwang, National Taipei University; Yu-Hui Su, National Taipei University; Harn-Jing Terng, Advpharma Inc.; Hsun-Chih Kuo, Department of Statistics, National Chengchi University

10:50 a.m. **Inferring History of Evolution Using Massive Data of Single-Nucleotide Polymorphism**—♦ Yongliang Zhai, University of British Columbia; Alexandre Bouchard-Côté, University of British Columbia

11:05 a.m. **Estimation of an Index of Phylogenetic Correlation Using Bootstrap Simulation Technique**—♦ Bahman Shafii, University of Idaho; William James Price, University of Idaho

11:20 a.m. **Gene-Association Studies with Fewer Model Specifications: Application to Study of HIV/AIDS Pharmacogenomics**—♦ Valentine Wanga, Vanderbilt University

11:35 a.m. **Admixture Analysis of Human Eye Color**—♦ Kaustubh Adhikari, University College London; Andres Ruiz-Linares, University College London

11:50 a.m. **A Dirichlet Process Gaussian Mixture Model--Based Genotype Calling Method for Illumina Beadarray Data**—♦ Gengxin Li, Wright State University; Hongyu Zhao, Yale University; Joel Gelernter, Yale University

12:05 p.m. **Integrated Method Leveraging Across Omics Data Sets for Uncovering Functional Mechanisms in the Post-GWAS Era**—♦ Yian Chen, Moffitt Cancer Center & Research Institute

684 CC-512e

Hypothesis Testing—Contributed

Biometrics Section

Chair(s): Trent L. Lalonde, University of Northern Colorado

10:35 a.m. **Sequential Testing of the Empirical Positive and Negative Predictive Value Curves with Unknown Prevalence**—♦ Joseph S. Koopmeiners, University of Minnesota; Ziding Feng, Fred Hutchinson Cancer Research Center

10:50 a.m. **Estimation and Evaluation of Optimal Thresholds for the Believe the Positive Sequential Testing Strategy**—Amber Wilk, Virginia Commonwealth University; ♦ Donna McClish, Virginia Commonwealth University

11:05 a.m. **Unbiased Small Sample Size Determination for Major Statistical Parameters**—♦ Eugene Demidenko, Dartmouth Medical School

11:20 a.m. **Testing and Sample Size for Polygonal One-Sided Hypotheses on Bivariate Binary Outcomes**—♦ Menggang Yu, University of Wisconsin; Ziyue Liu, Indiana University-Purdue University Indianapolis

11:35 a.m. **Simultaneous Inference of Method Agreement and Rater Reliability Through General Clustered Repeated-Measures Data**—♦ Shasha Bai, The Ohio State University; Abigail Shoben, The Ohio State University; Haikady Nagaraja, The Ohio State University

11:50 a.m. **Two Group Comparisons Using Mean-Based Tests Derived from Zero-Inflated Gamma and Zero-Inflated Log-Normal Models**—♦ Elizabeth Mills, University of Iowa; Jeffrey D. Dawson, The University of Iowa

12:05 p.m. **Floor Discussion**

685 CC-521ab Nonparametric Methods for Complex Models—Contributed

Section on Nonparametric Statistics

Chair(s): Ursula U. Mueller, Texas A&M University

- 10:35 a.m. **A Nonparametric Estimator for the Kolmogorov Canonical Measure via the Empirical Characteristic Function**—◆ Guillermo Basulto-Elias, Iowa State University; Miguel Nakamura-Savoy, Center for Research in Mathematics; Víctor Manuel Pérez-Abreu, Center for Research in Mathematics
- 10:50 a.m. **Small Sample Properties of JR Estimators**—◆ John Kloeke, University of Wisconsin; Joseph McKean, Western Michigan University
- 11:05 a.m. **Effect of Kurtosis on Efficiency of Multivariate Medians**—◆ Jin Wang, Northern Arizona University
- 11:20 a.m. **Semi-Stable Non-Gaussian Laws Arising in Sampling of Finite Point Processes**—◆ Ritwik Chaudhuri, The University of North Carolina at Chapel Hill; Vladas Pipiras, The University of North Carolina at Chapel Hill
- 11:35 a.m. **Nonparametric Empirical Bayes and Variance Estimation**—◆ Marc Coram, Stanford University
- 11:50 a.m. **Nonparametric Estimation in a Bandit Problem with Covariates**—◆ Wei Qian, University of Minnesota; Yuhong Yang, University of Minnesota
- 12:05 p.m. **2-Stage Semiparametric Estimation of Target Locations**—◆ Nirupam Chakrabarty, University of Michigan, Ann Arbor; Moulinath Banerjee, University of Michigan; George Michailidis, University of Michigan

686 CC-511c Statistical Methods for Adaptive Designs—Contributed

Biopharmaceutical Section, Biometrics Section

Chair(s): Olga Marchenko, Quintiles

- 10:35 a.m. **Adaptive Designs for Dose-Ranging Studies Based on Group-Sequential Methods**—◆ Yevgen Tymofyeyev, Janssen Research & Development of Johnson & Johnson; Jose Carlos Pinheiro, Janssen Research & Development
- 10:50 a.m. **Stage-Wise Optimal Adaptive Dose Study Design**—◆ Gang Jia, Merck
- 11:05 a.m. **Futility Analysis in a Phase II Clinical Trial**—◆ Bo Jin, Pfizer Inc.
- 11:20 a.m. **Strategies Considered in Designing an FTIH Trial**—◆ Yu Lou, GlaxoSmithKline; Jianjun Gan, GlaxoSmithKline
- 11:35 a.m. **An Adaptive Approach: Seamless Phase IIa/IIb and Enhanced Dose-Finding Study**—◆ Jiacheng Yuan, Novartis; Herbert Pang, DU School of Medicine; Tiejun Tong, Hong Kong Baptist University

- 11:50 a.m. **Optimal Timing for Interim Analysis in Phase 2 Drug Development: A Real Options Approach**—◆ Ouhong Wang, Amgen, Inc.
- 12:05 p.m. **Multi-Stage Clinical Trial Design with Multidimensional Mixed Endpoints**—◆ Peng Huang, The Johns Hopkins University; Ming Tan, Georgetown University Medical Center

687 CC-514b Methods for Evaluating Diagnostic Tests and/or Agreement—Contributed

Biopharmaceutical Section

Chair(s): Beimar Iriarte, Abbott Diagnostics

- 10:35 a.m. **Quantifying an Agreement Study**—◆ Jason Liao, Novartis Pharmaceuticals Corporation
- 10:50 a.m. **Two-Phase Study Design: Weighting Considerations**—◆ Shoshana Daniel, Covance
- 11:05 a.m. **Study Design Considerations for Estimation of Agreement with Contributions of Variability to Establish Reliability in a Medical Device Pivotal Study**—◆ Mat D. Davis, Theorem Clinical Research; Jeffrey L. Joseph, Theorem Clinical Research
- 11:20 a.m. **Confidence Interval Estimation for Sensitivity to the Early Disease Stage Based on Empirical Likelihood**—◆ Tuochuan Dong, State University of New York at Buffalo; Lili Tian, University at Buffalo
- 11:35 a.m. **A Robust Bayesian Estimate of the Concordance Correlation Coefficient**—◆ Dai Feng, Merck; Richard Baumgartner, Merck; Vladimir Svetnik, Merck
- 11:50 a.m. **Mixtures of Normal Distributions, Revisited**—◆ Spencer Lourens, University of Iowa; Ying J. Zhang, University of Iowa
- 12:05 p.m. **Assessing Intra- and Inter-Rater Device Reliability in a Rare Disease**—◆ Avital Cnaan, Children's National Medical Center; Tina Duong, Children's National Medical Center; Fengming Hu, Children's National Medical Center

688 CC-514a Novel Regression Methods—Contributed

Biopharmaceutical Section

Chair(s): Jeff Maca, Quintiles

- 10:35 a.m. **Optimal Designs for Bivariate Dose: Response Experiments**—◆ Manel Wijesinha, Penn State University
- 10:50 a.m. **Testing Effect of a Drug Using Multiple Models for the Dose-Response**—◆ Corine Baayen, H. Lundbeck A/S; Philip Hougaard, Lundbeck
- 11:05 a.m. **A Surprising Bias in Functional Data Analysis and Its Solution**—◆ Junshui Ma, Merck; Vladimir Svetnik, Merck

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ◆ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

- 11:20 a.m. **A New Sigmoid-Shaped Regression Model with Bounded Responses**—◆ Nancy Flournoy, University of Missouri-Columbia; HaiYing Wang, IMS
- 11:35 a.m. **A Cox Regression Model with Isotonic Regressors with Change-Point Problems: Addressing a Clinical Question**—◆ D. Das Purkayastha, Novartis
- 11:50 a.m. **Dose-Response Modeling in Phase II Dose-Finding Studies**—◆ Jiahui Li, Janssen Research & Development; Ming-Chun Hsu, Janssen Research & Development
- 12:05 p.m. **Evaluating Surrogate Endpoints: A New Trial-Level Surrogacy Metric Based on Concordance of Significance of Treatment Effects**—◆ Qian Shi; Lindsay A. Renfro, Mayo Clinic; Daniel J. Sargent, Mayo Clinic

689 CC-525b

■ Evaluating Robustness and Instrumentation in Economic Problems—Contributed

Business and Economic Statistics Section, Scientific and Public Affairs Advisory Committee

Chair(s): Zhou Zhou, University of Toronto

- 10:35 a.m. **Estimation and Evaluating of Right Tail Risk**—◆ Min Deng, University of Maryville of St. Louis
- 10:50 a.m. **The Continuous Hidden Threshold Mixed Skew-Symmetric Distribution**—◆ Rachid Belhachemi, American University in Cairo; Mohammed Bouaddi, American University in Cairo
- 11:05 a.m. **Reality Checks for a Distributional Assumption: The Case of Benford's Law**—◆ William Goodman, University of Ontario Institute of Technology
- 11:20 a.m. **A Further Look at Multiple Comparisons with Normal Mixtures**—◆ Mary Whiteside, The University of Texas at Arlington; Mark Eakin, The University of Texas at Arlington
- 11:35 a.m. **Robust Inference in Sample-Selection Models**—◆ Mikhail Zhelonkin; Marc G. Genton, KAUST; Elvezio Ronchetti, University of Geneva
- 11:50 a.m. **Linear Instrumental Variables Model Averaging Estimation**—◆ Luis Filipe Martins, ISCTE-LUI; Vasco Gabriel, University of Surrey
- 12:05 p.m. **Maximum Likelihood Estimation and Inference in DSGE Model with Possible Weak Identification**—◆ Linchun Chen, University of California at San Diego

690 CC-520f

Topics in Statistical Computing—Contributed

Section on Statistical Computing, Korean International Statistical Society

Chair(s): Georges Monette, York University

- 10:35 a.m. **Parametric Test of Equality of Several Frequency Distributions or Contingency Tables/Matrices or Markov Chains**—◆ Mian Adnan, Jahangirnagar University; M. Shamsuddin, Dhaka; Asif Shams Adnan, Jahangirnagar University
- 10:50 a.m. **Assessing Variability of RNA Molecule Crystallizations**—◆ Ryan Rahrig, Ohio Northern University
- 11:05 a.m. **Robust Fitting of a Three-Parameter Weibull Model for Contaminated Survival Data with Optional Censoring**—◆ Jingjing Yang, Rice University; David Scott, Rice University
- 11:20 a.m. **The Computation of Bivariate Normal and T Probabilities, with Application to Comparisons of Three Normal Means**—◆ Jongphil Kim, H. Lee Moffitt Cancer Center & Research Institute
- 11:35 a.m. **A Test for Skewness Within the Univariate and Multivariate Epsilon Skew Laplace Distributions**—◆ Jose Guardiola, Texas A&M University at Corpus Christi; Hassan Elsalloukh, University of Arkansas at Little Rock; Howraa Al Mousawi, Arkansas Department of Health
- 11:50 a.m. **Hypothesis Testing for Coefficient of Variation in an Inverse Gaussian Population**—◆ Debaraj Sen, Concordia University; Yogendra P. Chaubey, Concordia University; Krishna K. Saha, Central Connecticut State University
- 12:05 p.m. **Floor Discussion**

691 CC-525a

Probability and Statistical Theory—Contributed

IMS

Chair(s): Ryan Tibshirani

- 10:35 a.m. **Strong Consistency of Set-Valued Frechet Sample Mean in Metric Spaces**—◆ Cedric Ginestet, Boston University
- 10:50 a.m. **Weak Law of Large Number and the Central Limit Theorem in Lorentz-Bochner Spaces**—◆ Eddy Kwessi, Trinity University
- 11:05 a.m. **A Family of Circular Distributions Related to Wrapped Cauchy Distributions via Brownian Motion**—◆ Shogo Kato, Institute of Statistical Mathematics; M.C. Jones, The Open University

- 11:20 a.m. **Memory Depth Identification for Real-Valued Processes**—◆ Zsolt Talata, University of Kansas; Roberto Oliveira, IMPA
- 11:35 a.m. **On the Nile Problem by Sir Ronald Fisher**—◆ Yaakov Malinovsky, University of Maryland, Baltimore County; Abram M. Kagan, University of Maryland
- 11:50 a.m. **The Limit Distribution of the Supremum-Error of Grenander-Type Estimators**—◆ Hendrik Lopuhaa, Delft University of Technology; Cecile Durot, University of Nanterre; Vladimir Kulikov, ASR Nederland
- 12:05 p.m. **A New Family of Unimodal Skew-Symmetric Distributions with Mode-Invariance**—◆ Toshihiro Abe, Tokyo University of Science; Hironori Fujisawa, The Institute of Statistical Mathematics

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■ Meta-Analysis and Clustered Data Analysis—Contributed

Section on Statistics in Epidemiology
Chair(s): Li Qin, Yale University

- 10:35 a.m. **Handling Both-Armed Zero-Events Studies in Meta-Analysis: A Simulation Study**—◆ Ji Cheng, St. Joseph's Healthcare Hamilton /McMaster University; Eleanor Pullenayegum, McMaster University; John K. Marshall, McMaster University, Department of Medicine; Lehana Thabane, St Joseph's Healthcare Hamilton
- 10:50 a.m. **Likelihood-Based Meta-Analysis: Conditional vs. Unconditional Approaches**—◆ Jingjing Yan, The Ohio State University; Eloise E. Kaizar, The Ohio State University; Steven MacEachern, The Ohio State University
- 11:05 a.m. **An Alternative Pseudolikelihood Method for Multivariate Random-Effects Meta-Analysis When the Within-Study Correlations Are Unknown**—◆ Chuan Hong, The University of Texas School of Public Health; Yong Chen, The University of Texas School of Public Health; Richard Riley, University of Birmingham
- 11:20 a.m. **Design Effects in Three-Level Studies**—◆ Tina Cunningham, Eastern Virginia Medical School; Robert E. Johnson, Vanderbilt University
- 11:35 a.m. **State-Space Time-Series Clustering and Inference Using Discrepancies Based on the Kullback-Leibler Information and the Mahalanobis Distance**—◆ Eric Foster, University of Iowa; Joseph Cavanaugh, University of Iowa

CC-515c

- 11:50 a.m. **Vertically Shifted Mixture Models for Clustering Longitudinal Data**—◆ Brianna Heggeseth, Williams College; Nicholas Jewell, University of California at Berkeley
- 12:05 p.m. **Piecewise Spline to Compare Weight Gain Pattern Before and After Diagnosis of Asthma of Children Ages Less Than 5 Years**—Md Jobayer Hossain, Nemours Biomedical Research A.I. DuPont Children Hospital; ◆ Li Xie, Johns Hopkins Bloomberg School of Public Health; Weili Lai, University of Delaware; Iman Sharif, A.I. DuPont Children Hospital; H Timothy Bunnell, Nemours Biomedical Research; Timothy T. Wysocki, Nemours Biomedical Research A.I. DuPont Children Hospital

693

Recent Advances in Image Analysis—Contributed

Section on Statistics in Imaging
Chair(s): Ivor Cribben, University of Alberta School of Business

CC-512d

- 10:35 a.m. **OASIS Is Automated Statistical Inference for Segmentation with Applications to Multiple Sclerosis Lesion Segmentation in MRI**—◆ Elizabeth Sweeney, The Johns Hopkins University; Russell Shinohara, University of Pennsylvania; Navid Shiee, Henry M. Jackson Foundation; Farrah Mateen, The Johns Hopkins University; Avni Chudgar, Harvard Medical School; Jennifer Cuzzocreo, Johns Hopkins; Peter Calabresi, Johns Hopkins; Dzung Pham, Henry M. Jackson Foundation; Daniel Reich, National Institute of Neurological Disorders & Stroke; Ciprian M. Crainiceanu, The Johns Hopkins University
- 10:50 a.m. **Clustering Tree-Structured Data on Manifold**—◆ Hongyu Miao, University of Rochester
- 11:05 a.m. **Statistical Modeling and Analysis of the Echo Envelope Distributions in Medical Ultrasound Imaging**—◆ Kaisheng Song, University of North Texas
- 11:20 a.m. **Separation of Several Aliased Images to Increase Volume Speed**—◆ Daniel Rowe, Marquette University
- 11:35 a.m. **On the Optimality of Extended Maximal Length Linear Feedback Shift Register Sequences**—◆ Ming-Hung Kao, Arizona State University
- 11:50 a.m. **Processing Blurred Images with Random Data**—◆ Walid Sharabati, KFUPM; Mohamed Al-Gebeily, King Fahd University of Petroleum and Minerals
- 12:05 p.m. **Floor Discussion**

GENERAL PROGRAM SCHEDULE

● Themed Session ■ Applied Session ♦ Presenter CC-Palais des congrès de Montréal W-Le Westin Montréal I-International Montréal

694 Bayesian Genomics and Genetics—Contributed

Section on Bayesian Statistical Science, International Chinese Statistical Association, WNAR

Chair(s): Naveen Naidu Narisetty, University of Michigan

- 10:35 a.m. **Biological Pathway Selection Through Bayesian Integrative Modeling**—♦Lingling Zheng, Duke University; Joseph Lucas, Duke University
- 10:50 a.m. **A Latent Factor Model with a Mixture of Sparse and Dense Components for Gene Expression Data with Confounders**—♦Chuan Gao, Institute for Genome Sciences and Policy; Barbara Engelhardt, Duke University
- 11:05 a.m. **Poisson Mixture Models for Next-Generation RNA Sequencing Data**—♦Qiwei Li, Rice University; Marina Vannucci, Rice University; Heng Lian, Nanyang Technological University
- 11:20 a.m. **Hidden Markov Random Field Models for Genome-Wide Analyses**—♦Jie Shen, University of California at Irvine; Hal S. Stern, University of California; Fabio Macciardi, University of California at Irvine
- 11:35 a.m. **Bayesian Kernel-Based Modeling and Selection of Genetic Pathways and Genes for Cancer**—♦Zhenyu Wang, University of Missouri-Columbia; Sounak Chakraborty, University of Missouri-Columbia; Jianguo Sun, University of Missouri-Columbia
- 11:50 a.m. **A Bayesian Model for the Identification of Obesity-Associated Gut Microbial Compositions**—♦Fan Xia, The University of Hong Kong; Wing Kam Fung, The University of Hong Kong; Hongzhe Li, University of Pennsylvania
- 12:05 p.m. **Floor Discussion**

695 Nonresponse and Total Survey Error—Contributed

Survey Research Methods Section, Social Statistics Section, Statistics Without Borders, Korean International Statistical Society

Chair(s): Sylvia Dohrmann, Westat

- 10:35 a.m. **Assessment of Total Survey Error for the 2011 National Immunization Survey**—♦Wei Zeng, NORC at the University of Chicago; Kirk Wolter, NORC at the University of Chicago; Benjamin Skalland, NORC at the University of Chicago; Vicki Pineau, NORC at the University of Chicago; Carla Black, Centers for Disease Control and Prevention; Christina Dorell, Centers for Disease Control and Prevention; Meena Khare, NCHS/CDC
- 10:50 a.m. **Exploring Organizational Characteristics and Design Features Affecting Nonresponse in Surveys of Nonprofit Organizations**—♦Ashley Bowers, Indiana University; Beth Gazley, Indiana University; Chelsea Killam, ASAE Foundation; Sharon Moss, ASAE Foundation

- 11:05 a.m. **Reducing Survey Nonresponse Through Enhanced Administrative Cooperation: An Experience in Korea**—♦Eun Hee Choi, Dongguk University; Sun-Woong Kim, Dongguk University; Sung Jun Hong, Dongguk University; Sun Young Lee, Dongguk University

- 11:20 a.m. **Simulation Approach for Determining Use of Mahalanobis Distance to Reduce Nonresponse Bias**—♦Jennifer Cooney, RTI International; Peter Siegel, RTI International; Melissa Cominole, RTI International; Bryan Shepherd, RTI International

- 11:35 a.m. **Predicting Proxy Status in Nonresponse Follow-Up Workload**—♦Andrew Keller, U.S. Census Bureau

- 11:50 a.m. **Will They Answer the Phone if They Know It Is Us? Using Caller ID to Improve Response Rates**—♦Nancy Dickey, USDA/NASS; Heather Ridolfo, USDA/NASS; Jeff Boone, USDA/NASS

- 12:05 p.m. **Treatment of Outcome-Related Nonresponse in an International Literacy Survey**—♦Wendy Van de Kerckhove, Westat; Leyla Mohadjer, Westat; Tom Krenzke, Westat

696 Analysis of Social Networks—Contributed

Social Statistics Section, International Chinese Statistical Association, Section on Statistics in Marketing, Section on Statistics in Epidemiology, Scientific and Public Affairs Advisory Committee, Korean International Statistical Society

Chair(s): James Treat, U.S. Census Bureau

- 10:35 a.m. **Link Prediction and the Effect of Missing Data on Social Networks**—♦Taniecea Arceneaux, U.S. Census Bureau; Burton H. Singer, University of Florida, Emerging Pathogens Institute
- 10:50 a.m. **Dynamic Social Network Analysis Using Separable Temporal Exponential Random Graph Models**—♦Gregory J. Lambert, Sandia National Laboratories; Patrick D. Finley, Sandia National Laboratories; Thomas W. Moore, Sandia National Laboratories
- 11:05 a.m. **Using Egocentric Data to Explore Size and Diversity of Social Networks Among Lesbian, Gay, Bisexual, and Transgender (LGBT) Older Adults**—♦Elena Erosheva, University of Washington; Hyun-Jun Kim, University of Washington; Charles A. Emlet, University of Washington; Karen I. Fredriksen-Goldsen, University of Washington
- 11:20 a.m. **Partnership Duration Analysis with Dynamic Social Network Using Separable Temporal Exponential Random Graph Model**—♦Ke Li, University of Washington; Martina Morris, University of Washington
- 11:35 a.m. **A Social Network Analysis of Alcohol-Impaired Drivers in Maryland—An Egocentric Approach: Applications of Logistic Regression and Poisson Regression**—♦Ashraf Ahmed, Morgan State University; Andrew Farkas, Morgan State University; Kenneth Beck, University of Maryland

- 11:50 a.m. **Statistical Models for Networks Resilient to Targeted Attacks**—◆Jingfei Zhang, University of Illinois; Yuguo Chen, University of Illinois at Urbana-Champaign
- 12:05 p.m. **Use of General Transit Feed Specification (GTFs) Data in Analyzing Transportation Barriers Faced by Housing Voucher Holders**—◆Peter K. Kwok, NORC at the University of Chicago; Julia Rotondo, NORC at the University of Chicago

697 CC-510d Collection and Linkage Challenges in Data Acquisition—Contributed

Government Statistics Section, Social Statistics Section

Chair(s): Kennon Copeland, NORC

- 10:35 a.m. **Evaluation and Comparison of Probabilistic Linkage Procedures for the Quarterly Census of Employment and Wages**—◆Mark Kaminski, Bureau of Labor Statistics
- 10:50 a.m. **Self-Assessed Housing Values in the American Community Survey: An Exploratory Evaluation Using Linked Real Estate Records**—◆W. Kingkade, U.S. Census Bureau
- 11:05 a.m. **Testing Record Linkage Production Data Quality**—◆K. Bradley Paxton, ADI, LLC
- 11:20 a.m. **Testing the Collection of Occupational Requirements Data**—◆Gwyn R. Ferguson, Bureau of Labor Statistics
- 11:35 a.m. **Shared Understanding and Data Quality in the SCF**—◆Jesse Bricker, Federal Reserve Board; Arthur Kennickell, Federal Reserve Board
- 11:50 a.m. **Comparing Nonresponses in SIPP and SIPP-EHC Data: Participation in Government Social Safety Net Programs**—◆Jeongsoo Kim, U.S. Census Bureau
- 12:05 p.m. **The NCS Data Linkage Program: Linkage of Household Environmental Lab Results to Environmental Extant Data**—◆Michael Sinclair, NORC; Ned English, NORC; Christina Park, Eunice Kennedy Shriver National Institute of Child Health and Human Development

698 CC-512h Advances in Measurement, Modeling, and Inferences—Contributed

SSC, Korean International Statistical Society

Chair(s): Yogendra P. Chaubey, Concordia University

- 10:35 a.m. **Shrinkage Estimation and Lasso in Linear Model with Unknown Change-Points**—◆Fuqi Chen, University of Windsor; Séverien Nkurunziza, The University of Windsor
- 10:50 a.m. **Average Width Optimality of Simultaneous Confidence Bands in Simple Linear Regression**—◆Jianan Peng, Acadia University

- 11:05 a.m. **Techniques for the Construction of Robust Regression Designs**—◆Maryam Daemi, University of Alberta; Douglas P. Wiens, University of Alberta
- 11:20 a.m. **A Goodness of Fit Test for Measurement Systems Analysis**—◆Vahid Partovi Nia, École Polytechnique Montréal; Masoud Asgharian, McGill University; Samuel Basetto, École Polytechnique de Montréal
- 11:35 a.m. **Bayesian Clustering Using MCMC Sampling**—◆Mahroo Vahidpour, École Polytechnique de Montréal; Vahid Partovi Nia, École Polytechnique de Montréal
- 11:50 a.m. **Imprecise Truncated Poisson Regression for Predictive Inference**—◆Chel Hee Lee, University of Saskatchewan; Mikelis Bickis, University of Saskatchewan
- 12:05 p.m. **The Skew Generalized Secant Hyperbolic Extension (SGSHE): An Introduction**—◆David Vaughan, Wilfrid Laurier University

699 CC-520a ■ Teaching the Fundamentals—Contributed

Section on Statistical Education

Chair(s): Jamis J. Perrett, Monsanto Company

- 10:35 a.m. **Teaching Statistics as Art and Science Involves Asking the Right Questions**—◆Peter Van Ness, Yale University School of Medicine
- 10:50 a.m. **Significance Testing and Measures of Belief**—◆Andrew Neath, SIU Edwardsville
- 11:05 a.m. **Teaching Data Analysis in R Through the Lens of Reproducibility**—◆Mine Cetinkaya-Rundel, Duke University
- 11:20 a.m. **Classroom Participation for Subliminal Impact in Surveys**—◆Edward Mansfield, The University of Alabama
- 11:35 a.m. **Diversity, Variability, and the Probable Error: Building Intuition**—◆Robert Jernigan, American University
- 11:50 a.m. **Assessing the Effectiveness of Normal Probability Plots**—◆John Walker, Cal Poly at San Luis Obispo
- 12:05 p.m. **Alternative Approaches to Demonstrate Regression Diagnostics in an Introductory Regression Class**—◆Robert Pavur, University of North Texas; Kellie Keeling, University of Denver