

April/May 2020

CONTENTS

- 1 **Tweedie Award, Hall Prize; World Congress delayed**
- 2 **Members' news:** Arnaud Doucet, Tom Berrett, Judea Pearl, Ewain Gwynne
- 3 **COPSS Fisher Award:** Kathryn Roeder
- 4 **COPSS Scott Award**
- 5 **Recent papers:** *Stochastic Systems; Probability Surveys*
- 6 **XL-Files:** COVID Coping and The Law of Most People
- 7 **Previews:** Martin Barlow, Adel Javanmard, Laurent Saloff-Coste, Daniela Witten, Yuqi Gu
- 11 **Current Index to Statistics finds new home**
- 12 **Obituary:** David John Finney, Sue Wilson
- 15 **IMS Elections 2020:** Candidate profiles
- 21 **Meetings**
- 27 **Employment Opportunities**
- 28 **International Calendar of Meetings**
- 31 **Information for Advertisers**

Tweedie Award, Hall Prize

We are pleased to announce the recipients of the Richard Lewis Tweedie New Researcher Award, and of the inaugural Peter Gavin Hall IMS Early Career Prize.

The Tweedie Award provides funds for travel to present the Tweedie New Researcher Invited Lecture at the IMS New Researchers

Conference. The recipient of the 2020 Tweedie New Researcher Award is **Adel Javanmard**. Adel is an Assistant Professor in the department of Data Sciences and Operations, Marshall School of Business at the University of Southern California. He was selected by the IMS Committee on Travel Awards *"for novel contributions in high-dimensional statistical inference, iterative estimation methods, non-convex optimization, and network*

clustering." Adel describes himself as being "broadly interested in design and analysis of statistical methods for large-scale data." In his research, he says, he uses and improves on techniques from various areas such as optimization, graphical models, statistics and machine learning. You can read a preview of his lecture on page 8.



Adel Javanmard



Rina Foygel Barber

The Peter Gavin Hall Early Career Prize recognizes early career research accomplishments and research promise in statistics, broadly construed. The inaugural recipient of the 2020 Peter Hall Prize is **Rina Foygel Barber**, Associate Professor in the Department of Statistics at the University of Chicago. Rina was selected *"for outstanding contributions to the development of methodology and theory for structured high-dimensional data problems such as sparse regression, sparse nonparametric models, and low-rank models, as well as scalable optimization techniques for nonconvex problems."* Rina says her research interests are in "developing and analyzing estimation, inference, and optimization tools for structured high-dimensional data problems such as sparse regression, sparse nonparametric models, and low-rank models."

These awards were created by the IMS to honor the memories of Richard Tweedie and Peter Hall, both of whom spent significant time in their careers mentoring young colleagues, and taking part in professional society activities.

COVID-19 POSTPONES WORLD CONGRESS

Susan Murphy, IMS President, says, "With regret, we announce that our **2020 World Congress in Seoul will be delayed**. After extensive discussions with the local organizing committee and program committee, both IMS and the Bernoulli Society leadership have determined that it must be postponed to ensure the safety of everyone in our community. This, combined with the travel restrictions imposed by countries around the world, make this delay necessary. We plan to hold the World Congress next summer, in 2021." We'll bring you updates as soon as we can.

Obviously, as circumstances are changing so quickly, **please check meeting websites for updates**, as by the time you read this, plans may have been updated.



Read it online:
imstat.org/news



Contact information

IMS Bulletin Editor: Tati Howell
bulletin@imstat.org

Managing Editor: Bob Keener

Contributing Editors:
Radu Craiu, Anirban DasGupta, Yoram Gat, David Hand, Takis Konstantopoulos, Xiao-Li Meng, Regina Nuzzo, Kavita Ramanan and Terry Speed

w <https://imstat.org/news>

f <https://www.facebook.com/IMSTATI>

t <https://twitter.com/InstMathStat>

IMS Dues and Subscriptions Office

Contact the IMS regarding your dues, membership, subscriptions, orders or change of address:

t 877-557-4674 [toll-free in USA]

t +1 216 295 2340 [international]

f +1 216 295 5661

e dues.subs@imstat.org

IMS Business Office

Executive Director, Elyse Gustafson

Contact the IMS regarding any other matter, including advertising, copyright permission, offprint orders, copyright transfer, societal matters, meetings, fellows nominations and content of publications:

t 877-557-4674 [toll-free in USA]

t +1 216 295 2340 [international]

f +1 216 295 5661

e erg@imstat.org

Executive Committee

President: Susan Murphy
president@imstat.org

President-Elect: Regina Liu
president-elect@imstat.org

Past President: Xiao-Li Meng
president-past@imstat.org

Treasurer: Zhengjun Zhang
zjz@stat.wisc.edu

Program Secretary: Ming Yuan
ming.yuan@columbia.edu

Executive Secretary: Edsel Peña
pena@stat.sc.edu

IMS Members' News

Royal Statistical Society awards

The UK's Royal Statistical Society has announced its 2020 awards. Among these, the **Guy Medal in Silver** is awarded to **Arnaud Doucet** for his numerous ground-breaking contributions to the development of theory and methodology in Bayesian inference and computational statistics. These include two influential papers in *JRSSB*: "Sequential Monte Carlo samplers" (with P. Del Moral and A. Jasra) published in 2006, and "Particle Markov chain Monte Carlo methods" (with C. Andrieu and R. Holenstein) which was read to the society in 2009. These, together with recent work on the Bouncy Particle Sampler, have each established new sub-areas of computational statistics and provided new ideas and algorithms that are widely used across a range of application domains.

Professor Deborah Ashby, RSS president, said, "Professor Doucet is a more than worthy recipient of the Guy Medal in Silver. He has been a trailblazer in his field, having made extensive contributions to both computational statistics and the development of theory and methodology in Bayesian inference."

The **Guy Medal in Gold** is awarded to David Spiegelhalter, for his contributions to the methodology, application and public understanding of statistical science, probability and risk. The **Guy Medal in Bronze** is awarded to Rachel McCrea for her innovative and novel work in statistical ecology, with particular reference to the development of goodness-of-fit tests and model selection strategies for complex ecological data.

The **RSS Research Prize** is awarded to **Thomas B. Berrett** for outstanding contributions to understanding and developing nearest neighbour methods for classification, entropy and related functional estimation, and for highly original work on independence and conditional independence testing. Of particular note is Tom's paper, "The conditional permutation test for independence while controlling for confounders" (with Y. Wang, R.F. Barber and R.J. Samworth, *JRSSB*, to appear).

Deborah Ashby commented: "Dr Berrett's work on independence and conditional independence testing has been incredibly innovative, and a significant achievement for someone early on in their career."

Judea Pearl is elected as an **Honorary Fellow of RSS**, for his foundational contributions to causal and counterfactual inference based on structural models. In particular, his development of a calculus for causal reasoning has had a profound impact on statistics and artificial intelligence.

Deborah Ashby said: "Professor Pearl's impact on statistics has been groundbreaking. In particular, he is to be commended for his development of a calculus for causal reasoning which has been momentous for both statistics and artificial intelligence."

Rollo Davidson Prize

The Rollo Davidson Trustees have awarded the 2020 Rollo Davidson Prizes to IMS member **Ewain Gwynne** and also to Roland Bauerschmidt. Ewain Gwynne is a Clay research fellow in the Department of Pure Mathematics and Mathematical Statistics at the University of Cambridge. Roland is a University Lecturer (equivalent of Assistant Professor) in the Statistical Laboratory, also at the University of Cambridge.

The Rollo Davidson Trust has awarded an annual prize to young probabilists since 1976, in memory of Rollo, a Fellow-elect of Churchill College, Cambridge, who died aged 25, in a mountain climbing accident in Switzerland.

More Members' News

Kathryn Roeder to deliver 2020 R.A. Fisher Lecture

Sharon-Lise Normand (Chair of the 2020 Fisher Lecture Committee) and Joel Greenhouse (Carnegie Mellon University), write: The Committee of Presidents of Statistical Societies (COPSS) has selected **Kathryn Roeder**, UPMC Professor of Statistics and Life Sciences in the Department of Statistics and Data Science at Carnegie Mellon University, to give the R.A. Fisher Lecture at the 2020 Joint Statistical Meetings in Philadelphia. Her lecture will be titled: "Statistics and Genetics Offer a Window into Autism"



Kathryn Roeder

Kathryn Roeder, a former Vice Provost for Faculty at Carnegie Mellon University, is a Professor in the Department of Statistics and Data Science as well as in the Department of Computational Biology. Roeder's research contributions are wide and deep in both statistical theory and applications. Her influences on the design and analysis of genetic studies are substantial. As one of her supporters wrote, "She is an authoritative and articulate spokesperson on statistical genetics and the central role that statistics plays in the associated scientific and policy issues." Another stated that "Kathryn's work has left indelible footprints in statistics, genetics, and computational biology."

Roeder received a BS degree in biology from the University of Idaho and a PhD in statistics from Penn State University. Prior to joining Carnegie Mellon University, she held appointments of Assistant and Associate Professor of Statistics at Yale University. She has served in editorial roles for *JASA*, *Biometrics* and *Genetics*. Roeder has supervised 19 PhD students, and has been an outstanding mentor for numerous faculty members, particularly through her work on the IMS New Researchers Committee.

Roeder has developed statistical approaches to exploiting and adjusting for heterogeneity in samples from populations using ideas of mixture modeling. Her elegant solution to adjusting for confounding in genome-wide association studies—genomic control—is now the standard, making the "intellectual impact of this discovery enormous." Roeder has also developed a framework to integrate information gathered from multiple types of study designs using Bayesian principles for gene discovery, a particularly valuable approach for high-dimensional data. Her development of an approach to identify discrete clusters whose membership may belong to two clusters, denoted semi-soft clustering, continues to make a profound impact on single-cell RNA sequencing analyses.

Roeder's collaborative work focuses on identification of the genetic basis of complex disease. She is one of the leaders of the Autism Sequencing Consortium, an international organization dedicated to discovering the genetic etiology of autism in which her Bayesian model for integrated data is a "cornerstone of gene discovery." Her collaborative work has been published in *Scientific American*, *Cell*, *PLOS Genetics*, and *Nature*.

Roeder is an elected member of the National Academies of Sciences, a Fellow of the ASA, IMS, and AAAS, and an elected member of the International Statistical Institute. Her awards include the NSF Young Investigator Award, COPSS Snedecor Award, COPSS Presidents' Award, IMS Medallion Lecture Award, Janet L. Norwood Award, Myrto Lefkopoulou Lecture Award, and several distinguished lecture awards. Kathryn Roeder's impactful contributions to the theory and practice of statistics embodies what the statistics profession values most highly. She is most deserving of the R.A. Fisher Lecture Award.

The COPSS E.L. Scott Lecturer is Amita Manatunga: see next page.

= access published papers online

IMS Journals and Publications

Annals of Statistics: Ming Yuan, Richard Samworth

<http://imstat.org/aos>

<http://projecteuclid.org/aos>

Annals of Applied Statistics: Karen Kafadar

<http://imstat.org/aoas>

<http://projecteuclid.org/aoas>

Annals of Probability: Amir Dembo

<http://imstat.org/aop>

<http://projecteuclid.org/aop>

Annals of Applied Probability: Francois Delarue, Peter Friz

<http://imstat.org/aap>

<http://projecteuclid.org/aoap>

Statistical Science: Sonia Petrone

<http://imstat.org/sts>

<http://projecteuclid.org/ss>

IMS Collections

<http://projecteuclid.org/imsc>

IMS Monographs and *IMS Textbooks*: Nancy Reid

<https://www.imstat.org/journals-and-publications/ims-monographs/>

IMS Co-sponsored Journals and Publications

Electronic Journal of Statistics: Domenico Marinucci

<http://imstat.org/ejs>

<http://projecteuclid.org/ejs>

Electronic Journal of Probability: Andreas Kyprianou

<https://projecteuclid.org/euclid.ejp>

Electronic Communications in Probability:

Giambattista Giacomini

<https://projecteuclid.org/euclid.ecp>

Journal of Computational and Graphical Statistics:

Tyler McCormick

<http://www.amstat.org/publications/jcgs>

log into members' area at imstat.org

Statistics Surveys: David Banks

<http://imstat.org/ss>

<http://projecteuclid.org/ssu>

Probability Surveys: Ben Hambly

<http://imstat.org/ps>

<http://www.i-journals.org/ps/>

IMS-Supported Journals

ALEA: Latin American Journal of Probability and Statistics: Roberto Imbuzeiro Oliveira

<http://alea.impa.br/english>

Annales de l'Institut Henri Poincaré (B): Gregory Miermont, Christophe Sabot

<http://imstat.org/aih>

<http://projecteuclid.org/aih>

Bayesian Analysis: Michele Guindani

<https://projecteuclid.org/euclid.ba>

Bernoulli: Mark Podolskij, Markus Reiß

<http://www.bernoulli-society.org/>

<http://projecteuclid.org/bj>

Brazilian Journal of Probability and Statistics:

Enrico Colosimo

<http://imstat.org/bjps>

<http://projecteuclid.org/bjps>

IMS-Affiliated Journals

Observational Studies: Dylan Small

<https://obsstudies.org/>

Probability and Mathematical Statistics: K. Bogdan, M. Musielak, J. Rosiński, W. Szcotka, & W.A. Woyczyński

<http://www.math.uni.wroc.pl/~pms>

Stochastic Systems: Shane Henderson

<https://pubsonline.informs.org/journal/stsy>

COPSS Awards: E.L Scott Lecture

Amita Manatunga to deliver the 2020 E.L. Scott Lecture

Liza Levina (University of Michigan, Chair of the Award Committee) and Lance Waller (Emory University) write:

The COPSS Elizabeth L. Scott Award committee has awarded the 2020 award to Professor Amita Manatunga of Emory University. She was selected as this year's recipient for her dedicated mentoring of the next generation of statisticians; committed leadership in expanding statistical opportunities for women and minorities at the individual, institutional, and professional society levels; and for excellence in biostatistical research.

The award will be presented at the 2020 JSM in Philadelphia, where Dr. Manatunga will also deliver the inaugural Scott Lecture: "Statistical Methods for Diagnosis of Complex Diseases with Complex Data."

Dr. Manatunga is the Donna Jean Brogan Professor of Biostatistics and Bioinformatics in the Rollins School of Public Health at Emory University. She was born and raised in Sri Lanka and received her BS degree in physics and mathematics, with first class honors, from the University of Colombo, Sri Lanka. She earned her Master's in statistics from Purdue University, and her PhD in statistics from the University of Rochester in 1990. Dr. Manatunga was an Assistant Professor of Biostatistics at Indiana University before joining Emory in 1994.

Dr. Manatunga's research is inspired by the need for innovative statistical methods in important and complex public health problems. Three primary areas of application she has worked on include mental health, epidemiology, and nuclear medicine. She has made substantial methodological contributions in multiple areas including survival analysis, interpretation of diagnostic markers, agreement studies, and functional data. She has published over 125 peer-reviewed papers and been funded by numerous methodological and collaborative grants from the NIH. Dr. Manatunga is a recipient of many awards, including a FIRST award from NIH in 1996, and she was elected fellow of the ASA in 2004.

Throughout her career, Dr. Manatunga has served as a devoted mentor to many graduate students, junior faculty, and other researchers in biostatistics and the health sciences, with a special focus on helping early-career women. She has chaired the ASA Committee on Women in Statistics and the Gertrude Cox Scholarship for Women Award Committee, and is deeply involved in multiple diversity initiatives. She is a co-founder (in 2010) and consistent supporter of ENAR's Diversity Caucus, and a frequent invited speaker at workshops aimed at increasing diversity. Her contributions to ENAR's annual Fostering Diversity in Biostatistics

Workshop, continuously since its inception, have had a lasting impact on the participants and many others who see her as a role model. Many of her former students are now in leadership positions in academia, government, and professional societies.

Dr. Manatunga's Scott lecture, titled "Statistical Methods for Diagnosis of Complex Diseases with Complex Data," will cover innovative statistical methods that address challenging problems in the diagnosis of complex diseases and characterization of their underlying mechanisms, in two specific contexts. One is mental disorders, complex and multifactorial conditions often lacking reliable tools for diagnosis. Multiple instruments are often used to quantify the same mental health trait, and combining them is a challenge. A statistical framework will be proposed for creating new scales and interpreting new instruments on different types of measurements. In a different setting, nuclear medicine practitioners collect and analyze diverse and complex clinical data to characterize kidney obstruction, including renal images, renogram curves and pharmacokinetic parameters. Due to lack of well-established and objective guidelines for analyzing these data, clinical judgment of kidney obstruction heavily depends on the experience of the radiologist and typically has poor inter-rater agreement. A statistical model will be presented to effectively integrate information from different modalities and produce accurate interpretations and stable predictions of kidney obstruction.



Amita Manatunga is the inaugural Scott Lecturer

The COPSS Scott Lecture, and the Fisher Lecture and Awards session, can be found in the JSM program: <https://www2.amstat.org/meetings/jsm/2020/program.cfm>

Philadelphia
JSM 2020
Philadelphia, Pennsylvania, August 1-6, 2020

Recent papers: Two Open Access journals

Stochastic Systems

Focusing on the interface of applied probability and operations research, *Stochastic Systems* is the flagship journal of the INFORMS Applied Probability Society and is published through a cooperative agreement between INFORMS/APS and IMS. This open-access journal seeks to publish high-quality papers that substantively contribute to the modeling, analysis, and control of stochastic systems. The contribution may lie in the formulation of new mathematical models, in the development of new mathematical methods, or in the innovative application of existing methods. A partial list of applications domains that are germane to this journal include: service operations; logistics, transportation and communications networks (including the Internet); computer systems; finance and risk management; manufacturing operations and supply chains; and revenue management.

Read it at <https://pubsonline.informs.org/toc/stsy/current>

Volume 10: Issue 1, March 2020

Heavy-Traffic Analysis of Sojourn Time Under the Foreground–Background Scheduling Policy	BART KAMPHORST, BERT ZWART; 1–28
Dynamic Matching for Real-Time Ride Sharing	ERHUN ÖZKAN, AMY R. WARD; 29–70
Polynomial Jump-Diffusion Models	DAMIR FILIPOVIĆ, MARTIN LARSSON; 71–97

Probability Surveys

Probability Surveys is a peer-reviewed electronic journal which publishes survey articles in theoretical and applied probability. The style of articles may range from reviews of recent research to graduate textbook exposition. Articles may be broad or narrow in scope. The essential requirements are a well specified topic and target audience, together with clear exposition. The journal is sponsored by the Institute of Mathematical Statistics and by the Bernoulli Society. *Probability Surveys* is an Open Access journal. The full text of each article published is freely available to all readers.

Read it at <https://projecteuclid.org/euclid.ps>

Volume 17, 2020 (to date)

Random self-similar trees: A mathematical theory of Horton laws.	YEVGENIY KOVCHegov AND ILYA ZALIAPIN; 1 – 213
--	---

Volume 16, 2019

Size bias for one and all	RICHARD ARRATIA, LARRY GOLDSTEIN, AND FRED KOCHMAN; 1–61
Necessary and sufficient conditions for limit theorems for quadratic variations of Gaussian sequences	LAURI VIITASARI; 62 – 98
Equivalences and counterexamples between several definitions of the uniform large deviations principle	MICHAEL SALINS; 99 – 142
Metastable Markov chains	CLAUDIO LANDIM; 143 – 227
Poisson approximation	S. Y. NOVAK; 228 – 276
Mathematical models of gene expression.	PHILIPPE ROBERT; 277 – 332

***Probability Surveys* is among the range of Open Access journals that IMS offers (the others are *Electronic Communications in Probability*, *Electronic Journal of Probability* and *Statistics Surveys*). Donations are welcome to the IMS Open Access Fund: <https://www.imstat.org/shop/donation/>**



Statistical Science has a new editor, **Sonia Petrone**, from April 1, 2020. Thanks to **Cun-Hui Zhang**, editor from January 1, 2017.

XL-Files: COVID Coping and The Law of Most People



Xiao-Li Meng writes: The arrival of COVID-19 has ignited global anxiety about how we deal with uncertainty and risk. Uncertainty blurs our collective vision, and risk takes our breath away—alas, sometimes literally. Since we statisticians and probabilists have always been proud of being at the forefront of studying uncertainty and risk, two questions naturally arise. First, in our daily lives, are we coping with uncertainty and risk better, on average, than are people in other professions? Second, how can we use our knowledge and expertise to help others during these unprecedentedly unsettling times?

Regarding the first question, I am unaware of any study. But being a statistician, I can offer my $n=1$. You can then add yours, so we will have a chance to claim replicability. I suffered from aviophobia for a while. Any turbulence or unexpected noise during a flight would immediately wet my palms (thank God, only my palms). I am now cured (almost surely) thanks to (A) a psychologist's suggestion to listen to music, (B) some poorly written theses, and (C) my statistical sanity. I gather (A) requires no elaboration, other than that its essence is to distract my fearful mind; (B) then comes in handy, especially for very long flights. I still recall how I wished desperately for a 14-hour flight to China not to land while I was still “red-inking” the final chapter. The ultimate cure, however, came from (C), when I finally internalized the fact that flying is far safer than any

other means of transportation that I take, yet none of the others had triggered any fear. Therefore, it would be insane for me as a (reputable) statistician to fail to reason myself out of aviophobia.

Each of us lives in fear during some periods of our lives—fear of losing a loved one, of a terrible diagnosis, of major financial or reputational loss, not to mention the fear of rejection in its various guises. Humans seem to be biologically wired to give irrationally high weighting to extreme outcomes when we contemplate decisions under uncertainties, whether those outcomes are desirable (winning lotteries) or disastrous (plane crash). In the current crisis, fear of the worst outcome may motivate some of us to wash our hands and practice social distancing with more seriousness. But it can also put excessive strain on others, depriving them of their sleep and weakening their immune systems. A healthy mental state is always about moderation and balance: be prudent but not frightened.

Since I overcame my aviophobia by drawing upon the resource of statistical sanity, reflecting upon “The Law of Most People” has been therapeutic whenever I fear my fear is going to consume me. This law stipulates that *the worst fears (or best dreams) of most people cannot be realized*. This simply restates that extreme tails of a distribution have far less mass than the middle portion. (When tails have more masses than the middle portion, then the phrase “extreme” loses its meaning.) The thought that I am most likely to be one of the “most people” provides the firewall I need to keep my anxiety at bay, permitting me to live without excessive fear. Please help to spread this free self-help pep talk faster than any virus can, as you, my fellow uncertainty experts, know far better than others that it will apply to most of the people you talk to (except you won't know to which

ones). And that suggests a partial answer to the second question.

The other part of the answer comes from a mix-up that may have already irritated you: I have mixed population frequency with personal probability. But this is an unavoidable mix. All numbers reported about COVID-19 are for measuring *population risks*, from infection percentages to the risk of death. But as individuals, we tend to focus on *individual risks*. What's the chance that I will get infected? What's the chance that a loved one will die from COVID-19? Whereas population percentages and risks are easy to define—but not easy to estimate, especially given all kinds of dark data [*see the previous XL-Files*—individual risks are a much more nuanced concept. What does it mean that my chance of infection is 5%? Does it mean that I will get it if I shake hands with 20 virus carriers? Or by taking 20 flights?

We, the uncertainty experts, can help others understand the concept of their individual risk, and that this can be quite different from what they read online, depending on which sub-population they judge themselves as belonging to. Careful consideration of individual risk can control extreme thoughts that may lead to reckless behavior or excessive fear. Dealing with uncertainty and fear is never easy, but having an informed and rational internal dialogue can tame our ill-considered impulses or catastrophizing tendencies. We can all help others to conduct such internal dialogs. The process of helping others is also therapeutic in and of itself. The more our minds are engaged in helping others, the more easily we will get through this most stressful time of our lives. May our community of statisticians and probabilists draw strength from the inherent sanity of our discipline, and energy from the opportunities we have to help others.

Previews of Special IMS Lectures

IMS Wald Lectures: Martin Barlow



Martin Barlow

Martin Barlow is Emeritus Professor of Mathematics at the University of British Columbia. He received his BA from Cambridge in 1975, and his PhD from the University of Wales in 1979. Prior to his move to UBC in 1992, he held postdoctoral and faculty positions at Liverpool University, Trinity College Cambridge, and the University of Cambridge. In 1998 he was elected as a Fellow of the Royal Society of Canada, and in 2006 of the [UK] Royal Society. Martin's main research contributions have been on random walks and diffusions.

In 1988, with Ed Perkins, he wrote one of the founding papers in the field of diffusions on fractals, on Brownian motion on the Sierpinski gasket. Subsequent research with Richard Bass developed more general techniques to study processes of this kind. Following his 2004 paper on random walks on supercritical percolation clusters, his research has extended on random walks on random graphs.

Random walks on graphs with fractal structure

This series of talks will study random walks on graphs with irregular, random or fractal structure. The motivation goes back to a 1976 article by the physicist Pierre de Gennes on percolation in *La Recherche*. He discussed the wide applicability of this model, and suggested that our understanding of percolation clusters would be assisted by looking at random walks on these objects: he called these random walks “the ant in the labyrinth.” It was conjectured in 1976, and has been proved in a number of cases since, that critical models in statistical physics have fractal properties. For example, for such a graph embedded in d -dimensional Euclidean space, one may find that the number of points within a graph distance R of the origin grows as R^α , with $\alpha < d$. If this happens, α can be called the “fractal dimension” of the graph.

Wald lecture I. Random walks and fractal graphs

This lecture will begin with a review of percolation, and of the questions raised by de Gennes in 1976. Since random fractals are hard, initial research in this area looked at deterministic exact fractals, and the graphs that can be associated naturally with them. Of these, the simplest is the

Sierpinski gasket (SG), and I will review the properties of random walk on the associated infinite graph. Similar properties hold for some other families of graphs. Most of the initial work on these spaces used direct probabilistic methods, often very specific to the particular space. The search for a more robust theory leads one to look for more flexible tools: the first is given by the connection between random walks and electrical networks noted by Doyle and Snell; I will conclude with a review of this.

Wald lecture II. Low dimensional random fractals

In many circumstances, the behaviour of the random walk and its transition probabilities can be described by two indices, called by physicists the “fractal” and “walk” dimensions, and denoted by d_f and d_w . This lecture will look at the tools that enable us to calculate these and obtain the associated transition probability or heat kernel bounds. Pioneering work by Grigoryan and Telcs established that three kinds of estimate are needed: [1] control of the size of balls, [2] control of the resistance across annuli, and [3] a smoothness result (a Harnack inequality). In the “low-dimensional case” the Harnack inequality is not

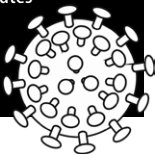
needed, and [2] can be replaced by easier bounds on the resistance between points. Fortunately, it turns out that many random fractals of interest in statistical physics are low-dimensional, and one can therefore calculate random walk indices. Examples are critical branching processes, the incipient infinite cluster (IIC) for percolation in high dimensions, and the uniform spanning tree in dimensions $d=2$ and $d \geq 5$. The IIC in $d=2$ remains a challenge: while SLE allows one to calculate many indices associated with critical percolation in two dimensions, it does not provide enough information to give us d_f or d_w .

Wald lecture III. Higher dimensional spaces

The final lecture will look spaces where the low dimensional methods do not apply. I will begin by discussing supercritical percolation clusters, where the random walk has Gaussian-type bounds, and also satisfies an invariance principle. I will then discuss the challenge posed by fractal graphs with high dimension. I will conclude by reviewing models in the plane, such as the uniform infinite planar triangulation, a topic with connections to the Gaussian free field and Liouville quantum gravity.

COVID-19

With the postponement of the 2020 World Congress in Seoul, the IMS special lecturers who were due to present there will be given a variety of options for presenting their lectures. We'll bring you updates as plans unfold.



IMS Tweedie Award Lecture: Adel Javanmard



Adel Javanmard

Adel Javanmard is an Assistant Professor in the Department of Data Sciences and Operations, at the University of Southern California's Marshall School of Business. Prior to joining USC in 2015, he was a postdoctoral research fellow at the Center for Science of Information, working at UC Berkeley and Stanford University. He completed his PhD in electrical engineering at Stanford, advised by Andrea Montanari; and BSc degrees in electrical engineering and pure math at Sharif University of Technology, Iran. His research interests are in the area of high-dimensional statistics, machine learning, optimization, and personalized decision-making. Adel is the recipient of several awards and fellowships, including the NSF CAREER award, Google Faculty Research award, and the

Thomas Cover Dissertation Award from IEEE society. He was a silver medalist in the International Mathematical Olympiad.

This Tweedie Award Lecture will be given at the IMS New Researchers Conference, in Philadelphia, July 29–August 1, 2020.

Statistical Inference for High-Dimensional Models

The past two decades have witnessed a rapidly growing literature on high-dimensional statistics, where the sample size n can be smaller than p , the number of covariates. High-dimensional models are *de rigueur* nowadays, as they lend themselves well to modern high-volume and fine-grained datasets. In particular, remarkable progress has been achieved on optimal point estimation and efficient computation for such models. However, the fundamental problem of statistical inference, in terms of frequentist confidence intervals and hypothesis testing, is much less developed. This problem is of crucial importance in modern data analysis; on the one hand, statistical learning methods help researchers discover unexpected patterns from data and to make better decisions impacting everyday life.

On the other hand, the size of datasets as well as the complexity of the methods used has made statistical models less transparent. Employing the derived models without a proper understanding of their validity can lead to many false discoveries, incorrect predictions and massive costs when they are used as the basis for policy design and decision making. This is also intimately related to reproducibility of the discoveries and results. Practitioners would like to know if the findings in a study can be replicated in another study under the same conditions, not exactly but up to statistical error.

In the past couple years, significant progress has been made in performing valid statistical inference on low-dimensional components of high-dimensional models, such as testing the significance of each individual model parameter. A formidable challenge along this way is that fitting high-dimensional complex models often requires the use of non-linear and non-explicit parameter estimation procedures (such as neural networks) and despite the classical regime, it is notoriously hard to characterize the probability distribution of such estimates. Furthermore, point estimators in high-dimensions are necessarily biased, since they are produced from data in lower dimensions.

A popular approach to tackle this problem is via a novel method called *debiasing* [1,2,3]. The idea is to start with a regularized

estimator that enjoys a low estimation error rate, and then move it in a direction that compensates for its bias, of course at the cost of adding noise. The debiasing approach aims at finding the optimal debiasing direction and controls variance and bias of the resulting estimator at the same time [1]. In this lecture, I will discuss some of the major extensions and methodological developments that rely on the debiasing approach. In particular, (i) a flexible framework for general hypothesis regarding model parameters [4]: this encompasses testing whether the parameter lies in a convex cone, testing the signal strength, and testing functionals of the parameter, as examples. (ii) online debiasing [5]: Adaptive collection of data is increasingly commonplace in various applications. This adaptive data collection induces correlation in samples and bias in the estimates, posing additional obstacles to statistical inference. I will introduce “online debiasing” to overcome these problems and discuss its applications in time series analysis.

References:

1. Adel Javanmard and Andrea Montanari, 2014. “Confidence Intervals and Hypothesis Testing for High Dimensional Regression,” *J. Machine Learning Research*, 15(1): 2869–2909,
2. Cun-Hui Zhang and Stephanie S Zhang, 2014. “Confidence intervals for low dimensional parameters in high dimensional linear models”, *J. Royal Statistical Society, Series B* 76 (1): 217–242
3. Sara van de Geer, Peter Bühlmann, Ya’acov Ritov, and Ruben Dezeure, 2014. “On asymptotically optimal confidence regions and tests for high-dimensional models”, *Annals of Statistics* 42(3): 1166–1202
4. Adel Javanmard and Jason D. Lee, 2020. “A Flexible Framework for Hypothesis Testing in High-dimensions,” *J. Royal Statistical Society, Series B*, forthcoming
5. Yash Deshpande, Adel Javanmard and Mohammad Mehrabi, “Online Debiasing for Adaptively Collected High-dimensional Data”, Preprint arXiv: 1911.01040.

IMS Medallion Lecture: Laurent Saloff-Coste

Laurent Saloff-Coste received his PhD in 1983 at Université Pierre et Marie Curie (now, Sorbonne University) under the supervision of Nicholas Varopoulos. In 1992, he became Directeur de Recherche for the Centre National de la Recherche Scientifique at the Université Paul Sabatier, in Toulouse. In 1998, he moved to Cornell University, where he is the Abram Rogers Bullis Professor of Mathematics. Laurent's research interests revolve around the interactions of probability theory with analysis and geometry. This includes card shuffling problems, random walks on all kinds of groups, heat diffusion on Riemannian and sub-Riemannian manifolds, potential theory, and Dirichlet forms on metric measure spaces. He received the Rollo Davidson Prize in 1994 and was a Guggenheim research fellow in 2006. He is a Fellow of the IMS, of the American Mathematical Society and of the American Academy of Arts and Sciences.



Laurent Saloff-Coste

Gambler's ruin problems and behavior before absorption in inner-uniform domains

The classical gambler's ruin problem asks for the probability that player A wins all the money in a fair game between two players, A and B, when a total of N tokens are in play and player A starts with n of them (hence B starts with $N-n$). Our starting point is a fair game of this sort involving three players, A, B, and C, holding a total of N tokens. At each stage of the game, two players are selected; they play a fair game, at the end of which they exchange one token. This simple problem raises many questions such as: Given that each player still holds some tokens, what is the distribution of the players' holdings? And, when one of the players loses all of her/his tokens, what is the distribution of the holdings of the remaining two players? What if there were four players in the game?

One way to abstract these problems is to consider an infinite, locally finite graph (think of the d -dimensional grid, or some variation of it). Given a finite domain U (a subset of vertices which

forms a connected sub-graph), we can perform simple random walk in U until the walk hits the boundary. In the gambler's ruin problem with three players, the random walk follows the number of tokens (a, b) held by players A and B. It involves the usual unit moves along each of the two axes of the square grid as well as the diagonal moves from (a, b) to either $(a+1, b-1)$ or $(a-1, b+1)$. The domain U and its boundary are given by the equations $a=0$, $b=0$ or $a+b=N$. In the general case which covers many problems of interest, we can ask the same questions: What is the distribution of the random walk at time t , given it has not yet exited U ? What is the distribution of the exit point (the so-called harmonic measure)? For what kind of domains can we give some sort of answer to these questions?

This talk is based on joint work with Persi Diaconis and Kelsey Houston-Edwards.

IMS Medallion Lecture: Daniela Witten



Daniela Witten

Daniela Witten is a professor of Statistics and Biostatistics at University of Washington, and the Dorothy Gilford Endowed Chair in Mathematical Statistics. She develops statistical machine learning methods for high-dimensional data, with a focus on unsupervised learning. Daniela is the recipient of an NIH Director's Early Independence Award, a Sloan Research Fellowship, an NSF CAREER Award, a Simons Investigator Award in Mathematical Modeling of Living Systems, and a Mortimer Spiegelman Award. She is also a co-author of the popular textbook *Introduction to Statistical Learning*. Daniela completed a BS in Math and Biology with Honors and Distinction at Stanford University in 2005 and a PhD in Statistics at Stanford University in 2010.

Testing a hypothesis after unsupervised learning

In recent years, a number of techniques have been proposed for performing selective inference, also known as post-selection inference, in a wide variety of settings. For instance, approaches are available to test the null hypothesis that a particular coefficient in a regression model equals zero, *given that the coefficient was selected based on the data at hand*, using (for instance) the lasso or forward

stepwise regression.

In this talk, I will discuss the application of the selective inference framework to some well-studied problems in unsupervised learning. The selective inference framework is particularly well-suited to unsupervised learning, since unsupervised learning can be viewed as a way to conduct hypothesis generation. Once these

Continues on page 10

Daniela Witten continued

hypotheses are generated, testing them typically requires an independent data set. However, the selective inference framework allows us to conduct both hypothesis generation and hypothesis testing on the same dataset.

First, I will consider the task of changepoint detection. Given a sequence of observations in \mathbb{R} , suppose we apply (for instance) binary segmentation or ℓ_0 segmentation to detect a changepoint. We can then ask the question: is the mean to the left of this estimated changepoint equal to the mean to the right of this estimated changepoint? Of course, a p -value for this null hypothesis computed via naïve application of a z -test or t -test would fail to account for the fact that the changepoint was estimated from the data, and thus would not control Type I error. Therefore, in order to conduct valid inference, we must instead ask a more refined question that accounts for the process by which we estimated the changepoint from the data. In particular, we ask: is the mean to the left of this estimated changepoint equal to the mean to the right of this estimated changepoint, *given that we estimated a changepoint at this position?*

We develop a computationally-efficient approach to answer this question for changepoints estimated via binary segmentation and ℓ_0 segmentation. In contrast to recent proposals in the literature, we are able to avoid conditioning on unnecessary information; we see a clear benefit in terms of the power of our approach.

Next, we show that related ideas can be used to improve upon recently-published proposals for testing hypotheses that are based upon the output of the fused lasso. This applies both to hypotheses that involve changepoints estimated via the one-dimensional fused lasso, as well as hypotheses that are based on the output of the fused lasso applied to an arbitrary graph.

Finally, suppose that we cluster n observations using hierarchical clustering, and then we cut the dendrogram at a particular height in order to obtain (say) K clusters. We can then ask the question: is the mean of the observations in one particular cluster equal to the mean of the observations in another cluster? Once again, this question has a selective inference flavor, since we must somehow account for the fact that these clusters were estimated from the data. It turns out that in the special cases of average, single, and centroid linkage, we can efficiently compute p -values that account for the clustering process and that control Type I error. This means that it is possible to assign a p -value to each split on a hierarchical clustering dendrogram. We demonstrate the performances of our proposed approaches on a number of applications, including DNA sequence data and calcium imaging data.

This is joint work with Jacob Bien (University of Southern California), Yiqun Chen (University of Washington), Paul Fearnhead (Lancaster University), Lucy Gao (University of Washington), and Sean Jewell (University of Washington).

IMS Lawrence Brown PhD Student Award: Yuqi Gu

Yuqi Gu is a fifth-year PhD student in the Department of Statistics at the University of Michigan, advised by Gongjun Xu. Her research interests include statistical machine learning, latent variable models, and psychometrics. Yuqi is passionate about developing theoretically principled and computationally efficient methods to solve problems of scientific interests. She has been working to provide rigorous theory and methods that guide scientific practices in education and psychology, and she hopes to bridge psychometrics and modern statistical machine learning in her future research endeavors. Yuqi received a BS in Mathematics from Tsinghua University in 2015. She will join the Department of Statistics at Columbia University in 2021 as an assistant professor.



Yuqi Gu

Uncovering Hidden Fine-Grained Scientific Information: Structured and Hierarchical Latent Attribute Models

In the era of data science, latent variable models have witnessed a tremendous surge of interest from a wide range of scientific applications and machine learning problems. Under this background, in modern psychological and biomedical research with diagnostic purposes, researchers often formulate the key task as inferring the fine-grained latent information under structural constraints. These structural constraints usually come from the domain experts' prior

knowledge or insight. The emerging family of *structured latent attribute models* (SLAMs) accommodates these modeling needs; SLAMs have received substantial attention in psychology, education, and epidemiology. These models bring exciting opportunities and unique challenges. In particular, with high-dimensional latent attributes and structural constraints encoded by a structural matrix, one needs to balance the gain in the model's explanatory power and

Continues on **page 11**

Yuqi Gu continued

interpretability, against the difficulty of understanding and handling the complex model structure.

Specifically, a SLAM models how multivariate discrete observations depend on certain multivariate discrete latent attributes. This dependence takes a highly structured fashion and is summarized by a structural matrix of binary entries. A hierarchical latent attribute model (HLAM) further builds upon this and additionally models the attribute hierarchy: the hierarchical constraints on which configurations of the latent attributes are allowed. In the educational context, such hierarchy is crucial for practitioners to understand the psychological ordering of cognitive competencies. For example, this can reveal the information that mastering certain skill attributes serves as the prerequisite for mastering some others.

One challenge in modern applications of latent attribute models is the high dimensionality of the latent patterns that result from combinations of a large number of discrete attributes. The number of potential latent patterns can be much larger than the sample size. Another challenge is that the structural matrix and the attribute hierarchy often suffer from potential misspecification, or they are even completely unknown in some applications. A key question is then how to efficiently estimate both the structural matrix and the attribute hierarchy from noisy observations. More fundamentally, it is an important yet open theoretical question whether and when the latent structural matrix and the attribute hierarchy are identifiable and uniquely recoverable. Establishing identifiability without assuming any knowledge of the structural matrix and the attribute hierarchy is a technically very challenging task. Moreover, computationally, there is no existing method to simultaneously and efficiently estimate both the structural matrix and the attribute hierarchy.

This talk focuses on hierarchical latent attribute models from theoretical, methodological, and computational perspectives. Theoretically, I present sufficient and almost necessary conditions for identifying the attribute hierarchy, the structural matrix, and all the related model parameters in an HLAM. The derived identifiability conditions advance the theoretical knowledge and provide insights into real designs of diagnostic tests. Methodologically, I develop a statistically consistent method to select significant latent patterns in high dimensions. Computationally, I propose a scalable algorithm to simultaneously recover both the structural matrix and the attribute hierarchy. The application of the proposed methodology to the data from an international educational assessment uncovers meaningful knowledge structures of the student population.

References

1. Y. Gu and G. Xu, Identification and Estimation of Hierarchical Latent Attribute Models, *arXiv:1906.07869*, 2020+.
2. Y. Gu and G. Xu, Partial Identifiability of Restricted Latent Class Models, *Annals of Statistics*, to appear, 2020+.
3. Y. Gu and G. Xu, Sufficient and Necessary Conditions for the Identifiability of the Q-matrix, *Statistica Sinica*, to appear, 2020+.
4. Y. Gu and G. Xu, Learning Attribute Patterns in High-Dimensional Structured Latent Attribute Models, *Journal of Machine Learning Research*, 20(115):1–58, 2019.
5. Y. Gu and G. Xu, The Sufficient and Necessary Condition for the Identifiability and Estimability of the DINA Model, *Psychometrika*, 84(2), 468–483, 2019.

Current Index to Statistics finds a new home

Edward Dunne, the Executive Editor of the American Mathematical Society (AMS) Mathematical Reviews, writes:

The *Current Index to Statistics* (CIS) is now hosted by the AMS. It is available on the MathSciNet servers: <https://mathscinet.ams.org/cis>. The database is openly available and uses a brand new search interface.

CIS was initiated in 1975 as a bibliographic tool for statistics and probability. It has passed through several incarnations, first as a paper volume, then as a database distributed on CD-ROM, and since 1999 as an online database with a query interface. CIS was a product of the community of research statisticians, in particular the IMS and the ASA.

In the data we received from the CIS, there are 549,840 articles and 11,143 book entries, for a total of 560,983 items. Items in the CIS are tagged with keywords. Many, but not all, have a summary or abstract attached. In the coming year, we will be matching the CIS items against the Mathematical Reviews database, to provide cross-linking, as well as to enhance MathSciNet by adding the articles and books that are not in our database already.

Want to take a look? Some user tips appear in Edward's blog post at <https://blogs.ams.org/beyondreviews/2020/02/07/current-index-to-statistics/>

OBITUARY: David John Finney

1917–2018

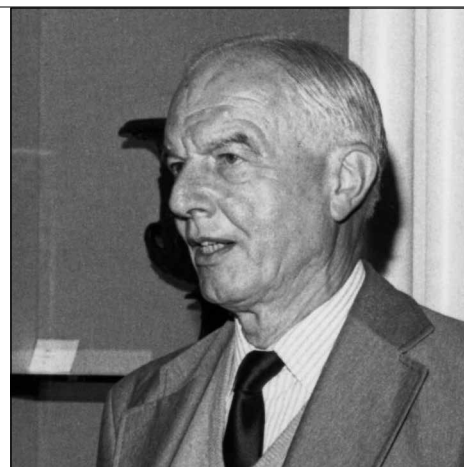
DAVID JOHN FINNEY was born in Warrington, UK, on January 3, 1917. His mathematical abilities were recognized by the local school and his parents were advised to transfer him to Manchester Grammar School. From there he won a scholarship to Clare College, Cambridge, to study mathematics, until a health scare interrupted his studies: statistics lectures from John Wishart stimulated his interest in the subject. He then worked for a postgraduate year with Wishart, before being awarded a Ministry of Agriculture scholarship to work with Ronald Fisher on human genetics—a stream of papers on the detection of linkage appeared over the next six years. Just before the start of the Second World War, he was invited by Frank Yates to go to Rothamsted to replace Bill Cochran who was moving to Iowa. David always said it was his good fortune to spend the war years in a research station in the countryside. There was nothing to do except work and play tennis. The variety of work was exceptional, working closely with a variety of scientists. Yates and Fisher were always at hand. He developed research in sampling, in experimental design (notably on Latin squares, fractional replication and split plots), and in bioassay. The research on bioassay arose from insecticide studies, which were urgent because of the UK's need to feed itself in wartime.

The two books *Probit Analysis* (1947) and *Statistical Method in Biological Assay* (1952) redefined that subject and are the works by which he is most widely known. To overcome computational problems with likelihood equations, he developed elegant iterative algorithms for hand calculation on Brunsviga calculators. He was still calculating mechanically, using a Curta calculator on the bus to and from work 20 years later.

When radioimmunoassays were introduced he developed important new methodologies that were appropriate for the new types of data.

In 1945, Oxford University founded a lectureship in the design and analysis of scientific experiment, for which Fisher encouraged him to apply. At that point, London was the only university with an undergraduate degree in statistics, and David wanted to institute such a degree in Oxford. To gain approval would have required years of involvement in university politics, so, as an easier compromise, he set up in 1947 the first postgraduate taught diploma course in the UK, supported by statisticians in other departments in the university. He always sought to encourage non-mathematicians, particularly biologists with some numerical skills, to become statisticians, and he created a preliminary Certificate year—repeating this structure at his two later university posts in Aberdeen and Edinburgh. His ideal teaching structures to create practical statisticians were published in *Biometrics* in 1968, and his advice to the consultant biometrician in *Statistics in Medicine* in 1982.

In 1949, he was invited by Gertrude Cox to teach at her summer school in Chapel Hill, the first of many trips combining statistics and travel. It was a fruitful trip: the lectures that he gave formed the basis of the book on Bioassay, and on the return voyage he met Betty; they married in 1950. In 1952 he was invited by the UN Food and Agriculture Organisation to spend a year in India with the research group equivalent to the statistics group at Rothamsted. He returned to find that Fisher and Yates had persuaded the UK Agricultural Research Council that Rothamsted could no longer cope with the



David Finney

geographical spread of research stations and that they should invite David to set up an Agricultural Research Council Unit of Statistics for Scotland in Aberdeen. The University simultaneously, under pressure from the gynaecologist and epidemiologist Sir Dugald Baird, set up an academic department with David as Reader (becoming Professor in 1964). He took with him to the Unit one of his lecturers, Michael Sampford, and one of his non-mathematical Certificate students, Andrew Rutherford, to run the vast national surveys that were required. His main research interest at the time concentrated on the design of sequential selection procedures to find the best of a large number of candidates, whether plant varieties or drugs or educational achievement, formulating the problem as that of maximizing the expected worth.

A sabbatical year at Harvard University in 1962–63 changed his future in two ways. Firstly it showed him limitations in Aberdeen life so that, when the Agricultural Research Council decided that their Statistics Unit would be better situated in Edinburgh, he supported the move. Simultaneously in 1966 the University of Edinburgh, which was keen to redevelop statistics after the retirement of A.C. Aitken, created a Chair and a new Department for him. He remained head of both entities until his retirement in 1984. Secondly, his American medical colleagues were discussing the recent thalidomide

David Finney: 1917–2018

Continued from page 12

tragedies and encouraged him to consider what statistics could do to identify adverse reactions to new drugs early in their use. In 1963, he became one of the founding members of the Adverse Reactions Subcommittee of the UK Committee on the Safety of Medicines, remaining involved for over 30 years.

His thoughts developed into a series of reports and papers which greatly influenced the monitoring system now set in place by the World Health Organization in more than 130 countries. For this work he was awarded the Paul Martini Prize (for clinical pharmacology) in 1971.

From then on, public service became an increasing part of his life. In 1966, he was invited to be a member of the Flowers Committee determining the way in which computing should develop in UK universities and research institutes, becoming Chairman for a further four years when Lord Flowers retired in 1970. He was highly impressed by the then Minister for Education, Margaret Thatcher, who quickly grasped the urgency and the problems of setting up a national provision. He also served as President of the International Biometric Society (1964–65) and of the Royal Statistical Society (1973–74). After retirement he was Director of the ISI Research Institute in 1987–88. He served for many years on other advisory committees, including the Food and Agriculture Organisation (becoming Chairman in 1975), the World Health Organization, the Cotton Growing Corporation, the International Rice Research Institute, the Building Research Station, the Wildfowl and Wetlands Trust and the BBC. In most cases his work ranged from policy advice to the detail of design of specific research and analysis of the resulting data.

Recognition and honours followed—Fellowship of the Royal Society and of the Royal Society of Edinburgh in 1955, the Weldon Memorial Prize in 1956, Commander of the British Empire in 1978, four Honorary Doctorates (City, Gembloux, Heriot-Watt and Waterloo), Honorary Fellowship (or equivalent) of three societies (Biometric, Eugenetic and Adolphe Quetelet).

He recognized that he was not a good teacher of undergraduate mathematicians, expecting too much knowledge and maturity (his own first paper, in *Biometrika*, was published while he was an undergraduate). He supervised few research students, believing that, as he described his own time with Wishart, “an introduction to research in an unstructured manner [is] far better for statisticians than the narrow road of a PhD.”

His staff benefited enormously from his commitment to careful scientific thought and clear verbal and numerical presentation. Draft papers submitted for comment would be returned the next day covered with substantive and presentational improvements. His irritation at misuse of logic, inference, nomenclature or language remained throughout his whole life and he continued advising and publishing comments into his 90s, becoming more polemical with age. Yet, while castigating imprecise thought, he intensely disliked formal, inflexible rules, whether in statistical practice—e.g. multiple comparisons, outlier rejection and significance stars—or in bureaucratic administration or societies’ constitutions, arguing that local detailed knowledge of a particular case had to be able to be incorporated.

His greatest skills lay in the assessment and interpretation of data, the inferences that could validly be drawn and the planning of efficient programmes to improve

their quality, coupled with the ability to discuss such issues in a convincing way with the scientists or administrators involved. Junior staff were actively helped to develop in the same way. I watched him look for half a minute at 60 rows of 30 columns of hand-written six-figure numbers and say that three looked wrong—an assertion that was supported later by more detailed analysis. Numbers were interesting, but always to be seen in context. His credo, as expressed in 1956, was that: “*The aim of statistical science must always be to aid the research worker in making the best possible use of his efforts and his results.*”

His declared leisure interests were travel (active), music (passive) and the “three Rs”. Holiday travel ranged from a month’s cycle trip in 1947 across Scandinavia with David Kendall, up to visits to Petra and to Chile in the new millennium. (I can visualize his red pen through that phrase—to him, 50, 100 or 1000 were no more interesting than any other numbers.)

David Finney died peacefully on November 12th, 2018, aged 101 years. His wife Betty had predeceased him; he leaves their three children, Deborah, Robert and Katharine, six grandchildren and two step-grandchildren. Colleagues and their families will remember David and Betty with respect and affection, for their warm interest in our interests, and their help and compassion when we needed them.

*Richard Cormack, Emeritus Professor,
University of St Andrews, UK*

This obituary is condensed, and reproduced with permission, from one that appeared in *Journal of the Royal Statistical Society (Series A)*, June 2019, 182(3):1097–1099:
<https://doi.org/10.1111/rssa.12450>

OBITUARY: Susan Ruth Wilson

1948–2020

SUSAN (SUE) WILSON was born in Sydney on March 19, 1948. She was an undergraduate at the University of Sydney from 1965–1968, completing a BSc with First Class Honours, and she completed her PhD at the Australian National University (ANU) under the supervision of P.A.P. (Pat) Moran. The title of her dissertation, for which she was awarded the 1975 Peter William Stroud Prize by the ANU, was *Some Statistical Results in Genetics* (1972).

Sue took up a lectureship in the Department of Probability and Statistics at the University of Sheffield in 1972 but returned to ANU in 1974 when she took up a position as Research Fellow in Pat Moran's Department of Statistics in the ANU Institute of Advanced Studies. She became a Fellow in 1976 and a Senior Fellow in 1984. Between 1988 and 1996, Sue held various appointments jointly with the National Centre for Epidemiology and Population Health (NCEPH) at ANU and the Statistics Research Section in the School of Mathematical Sciences at ANU. This latter group became the Statistical Science Program in the Centre for Mathematics and its Applications (CMA), which Sue joined in 1991. She was promoted to Professor in 1994. She was co-founder and Director of the Centre for Bioinformation Science, which was set up as a joint research centre between the School of Mathematical Sciences and the John Curtin School of Medical Research in 2001. Sue became a Professor Emeritus of Bioinformation Science and Statistical Science at ANU and an Honorary Professor in the School of Mathematics and Statistics at the University of New South Wales in 2008.

Sue was an elected member of the International Statistical Institute (ISI, 1979), elected Fellow of the American

Statistical Association (ASA, 1991) and elected Fellow of the IMS (1995). She was the Editor of the *Institute of Mathematical Statistics Bulletin* from 1993–1997 and the President of the International Biometric Society (IBS, 1998–1999). During her tenure, the IBS established the Sub-Saharan Network (SUSAN). Sue was awarded the inaugural E.A. (Alf) Cornish Award by the Australasian Region of the International Biometric Society for her contributions to Biometrics (2011), and Honorary Life Membership of IBS “for outstanding contributions to the development and promotion of the discipline of Biometry,” in 2012. Sue was made an inaugural Senior Fellow of the Australian Bioinformatics and Computational Biology Society (2017).

Sue's early research interests were in statistical genetics and from there, they spread into biostatistics, population health and bioinformatics. She had important research collaborations with J.G. Oakeshott (measuring selection on *Drosophila* populations), A. Thorne (physical anthropology), G.K. Ward (radiocarbon dating), J. Cavanaugh (mapping human disease susceptibility genes), P.J. Solomon (modelling and predicting the spread of AIDS in Australia) and C.J. Burden (Bioinformatics). Her later interest in bioinformatics was driven by a passion for developing rigorous statistical techniques for analysing and interpreting the large-scale genomic data that has become the basis of modern biology. She published over 200 refereed publications in applied statistics and bioinformatics. Many of these papers were motivated by substantive research questions she met when consulting in the biological and medical sciences.

Sue was the Section Editor for Computation for the *Encyclopedia of*



Susan "Sue" Wilson

Mathematical Sciences Institute (ANU)

Biostatistics (Wiley, 1995–2004), and Editor for the theme Biometrics in the *Encyclopedia of Life Support Systems* (UNESCO, 2000–2007).

For much of her career, Sue held research appointments. She was, however, always cognizant of the importance of educating younger researchers and passing on knowledge. Before the teaching of bioinformatics had become established in Australia, Sue was instrumental in setting up the annual BioInfoSummer Summer Symposia in Bioinformatics in 2003. BioInfoSummer is now established as Australia's major annual educational meeting for graduate students and early-career researchers in bioinformatics. Sue was particularly kind to, and supportive of, early career researchers, still proofreading and assisting to the end with Discovery Early Career Research Award (DECRA) applications. Indicative of her generosity towards young researchers was her endowment of a scholarship for honours students in mathematical biology in memory of her close friend and colleague Hilary Booth, and travel awards to enable undergraduate students to attend conferences in statistical science.

Sue is survived by her son, Jonathan.

Alan Welsh and Conrad Burden,
Australian National University

This obituary was first published on the website of the Mathematical Sciences Institute at ANU College of Science.

2020 IMS Elections: Meet the candidates

It's time to think about who you would like to represent you on the IMS Council, and vote in the IMS elections. This year, the nominee for President-Elect is Krzysztof (Chris) Burdzy. There are 10 candidates standing for the five available places on Council: Tony Cai, Richard Davis, Pablo A Ferrari, Alice Guionnet, Samuel Kou, Philippe Rigollet, Martin Wainwright, Anita Winter, Fang Yao and Ilze Ziedins. Read all about them here or on the IMS website, at <https://imstat.org/elections/candidates/>. **Voting closes July 1, 2020.**

President-Elect Nominee (one candidate)

Krzysztof (Chris) Burdzy

Professor, Department of Mathematics

University of Washington

<https://sites.math.washington.edu/~burdzy/>



Education

- MA in mathematics (1979) Maria Curie-Skłodowska University (UMCS), Lublin, Poland
- MA in statistics (1981) University of California, Berkeley
- PhD in statistics (1984) University of California, Berkeley

Research Interests

- Probability: Brownian motion, couplings, branching processes
- Mathematical analysis: potential theory, spectral theory, PDE
- Mathematical physics: billiards, statistical mechanics, lattice models
- Philosophical foundations of probability

Previous Service to the Profession

- 1997–1999, Member of the IMS Publications Committee
- 1997–1999, Associate IMS Program Secretary for Probability and its Applications
- 1999–2001, American Statistical Association Task Force on Electronic Publications, a representative of the IMS
- 1999, Chair of the Publications Committee of the IMS
- 2000–2004, Member of the IMS Electronic Issues Committee
- 2000–2002, IMS representative with Project Euclid
- 2003–2009, Associate editor of *Annals of Probability*
- 2006–2009, Institute of Mathematical Statistics Web Editor

- 2006–2009, Council of the Institute of Mathematical Statistics, ex officio member (as the IMS Web Editor)
- 2009–2011, Associate editor of *Annals of Applied Probability*
- 2010–2013, Member of the Council of the IMS (elected)
- 2010–2013, Representative of the IMS on the *Current Index to Statistics* Management Committee
- 2011–2012, Member of the Special IMS–BS Nomination Committee for the Doob Lecture
- 2012–2014, Member of the Schramm Lecture Committee (representative of the IMS)
- 2012–2014, Editor, *Annals of Probability*
- 2012–2014, Member of the Council of the IMS (ex officio)
- 2012–2014, Member of the Committee on Publications of the IMS (ex officio)
- 2012–2014, Member of the Committee on Special Lectures of the IMS (ex officio)

Brief Statement

I am greatly honored by being nominated for the IMS President. Big Data presents both challenges for and opportunities to statistics. In my opinion, it also presents new opportunities for the statistical and probabilistic communities to get closer via the focus on the common scientific models. Electronic publishing went through a revolution in the last 30 years or so. It is a good time to reflect on how we are doing and try to anticipate how scientific publishing may evolve next. The IMS is widely known for publishing some of the best journals in the field. To retain this status, it is important to maintain (and increase, if possible) support for its activities among both junior statisticians and junior probabilists.

You can read about the Council Nominees (10 candidates this year, for five places on Council) on the following pages...

Council Nominees (10 candidates for five places on Council)

Tony Cai

Daniel H. Silberberg Professor of Statistics,
Department of Statistics,
University of Pennsylvania
<http://www-stat.wharton.upenn.edu/~tcai>



Education

- PhD in Statistics, 1996, Cornell

Research Interests

- High-dimensional statistics & large-scale inference
- Statistical machine learning
- Applications to genomics, chemical identification, and medical imaging

Previous Service to the Profession

- President, International Chinese Statistical Association, 2017
- Program Chair, IMS Annual Meetings (2017 & 2007)
- COPSS Presidents' Award Committee, 2009–12, 2014; Chair, 2012
- Co-Editor, *The Annals of Statistics*, 2010–12
- Associate Editor, *JRSSB*, *JASA*, *Annals of Statistics*, *Statistica Sinica*
- Publications Committee, Bernoulli Society, 2011–14
- Director of the Board of International Chinese Statistical Association, 2009–11
- Committee on Special Lectures, Committee on Nominations, Committee to Select Editors, IMS

Brief Statement

The emergence of data science presents unprecedented opportunities and challenges to statisticians and also to IMS as a learned society. If elected, I will help promote the IMS as the foremost scientific society for researchers in statistics, machine learning, and probability, as well as a platform for interactions with data science researchers in applied sciences, high tech and financial industries.

Richard A. Davis

Howard Levene Professor of Statistics,
Department of Statistics,
Columbia University
<https://www.stat.columbia.edu/~rdavis>



Education

- 1974: BA Mathematics, University of California at San Diego
- 1979: PhD Mathematics, University of California at San Diego

Research Interests

- Time series analysis
- Extreme value for stationary sequences and space–time processes
- Spatial statistics with application to environmental data
- Applied probability

Previous Service to the Profession

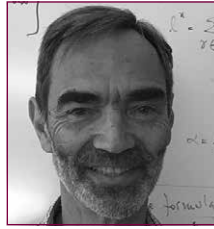
- IMS: Council (2013–15); Carver Award Committee (2017–present); Memorials Committee (2017–present)
- Foundation Committee for International Prize in Statistics, IMS rep (2018–present)
- IMS President (2015–16)
- Joint IMS/Bernoulli Society Publications Management Committee (Jan 2014–present)
- Editor-in-Chief, *Bernoulli* (2010–12)
- Associate Editor for: *Annals of Applied Probability* (1994–2000); *Extremes* (2007–present); *Bernoulli* (2007–08); *Stochastic Processes and Their Applications* (1993–96, 2008–10)
- Editor, *Statistical Science* (2008–10)
- Business and Economics Statistics Section, Chair-elect (2009), Chair (2010)

Brief Statement

It is an honor to stand for election to the IMS council. The strength of IMS is its engaged and dedicated membership of whom so many are willing to commit their time and expertise to the betterment of the society and the profession. As an IMS council member, I would hope to follow in this tradition and provide sensible guidance and advice to the society. I am especially keen for IMS to expand its support, via activities and opportunities, of early career researchers and under-represented groups. This is an important component for the long-term health of both the society and our field.

Pablo A Ferrari

Emeritus Professor, Department of Mathematics, Universidad de Buenos Aires
<http://mate.dm.uba.ar/~pferrari/index.html>



Education

Doutor em Estatística, Universidade de São Paulo, 1982

Research Interests

- Interacting particle systems,
- Statistical mechanics,
- Random permutations,
- Cellular automata

Previous Service to the Profession

- President of the SLAPEM (Sociedad Latinoamericana de Probabilidad y Estadística Matemática)
- Member of Committee for Conferences on Stochastic Processes of the Bernoulli Society;
- Organizer and member of several Brazilian Probability Schools
- Organizer of SPA Conference in Buenos Aires 2014
- Organizer of CLAPEM (Latin American Congress in Probability and Mathematical Statistics) in São Paulo and Lima
- Member of scientific committee of several CLAPEMs
- Fellow of IMS and ISI
- Associate Editor of *Annals of Probability*, *Probability Theory and Related Fields*, *Electronic Journal of Probability*, *Journal of Statistical Physics*, *Annales de L'Institut Henry Poincaré*, *Revista de Matemática Aplicada (Chile)*, *Revista de la Unión Matemática Argentina*, *ALEA – Latin American Journal of Probability and Mathematical Statistics*, *Bernoulli*, *Brazilian Journal of Probability and Statistics*, *São Paulo Journal of Mathematical Sciences*.

Brief Statement

I am a probabilist working on interacting particle systems and statistical mechanics models. Collaboration between mathematical statisticians and probabilists is a crucial ingredient of modern research in both areas; one of the most important IMS goals is to foster this interaction. I intend to help strength the links between IMS and the Latin America Society for Probability and Mathematical Statistics, which is the Latin American Regional Committee of the Bernoulli Society.

Alice Guionnet

Directrice de recherche, Unite de Mathématiques Pures et Appliquées, CNRS-ENS de Lyon
<http://perso.ens-lyon.fr/aguionne/>



Education

- PhD, 1995, Université d'Orsay
- Habilitation, 2005, ENS de Lyon

Research Interests

- Probability
- Statistical physics
- Large random matrices
- Large deviations

Previous Service to the Profession

- Editor of the *Annales de l'IHP*, 2006–11
- Associate Editor, *Annals of Probability*, 2011–17
- Associate Editor, *SPA*, 1998–2001
- Associate Editor, *JAMS*, 2015–
- Associate Editor, *Annales de l'Institut Fourier*, 2019–
- Associate Editor, *Compte Rendu de l'Academie*, 2020–

Brief Statement

I believe that the IMS plays a central role to promote probability and statistics as a central field of mathematics. It is crucial that IMS maintains the high level of its publications and continues to make them affordable, being a role model for affordable journals. This means developing novel ways of publishing and assessing research, providing support to junior researchers, and guaranteeing an inclusive approach to research and dissemination.

Samuel Kou

Professor of Statistics, Department of Statistics, Harvard University
<http://www.people.fas.harvard.edu/~skou/>



Education

- PhD in statistics, received from Stanford University in 2001

Research Interests

- Stochastic inference in single molecule biophysics, chemistry and biology
- Bayesian inference of stochastic models
- Big data and big data analytics

Continues on page 18

Samuel Kou continued

- Nonparametric methods, model selection and empirical Bayes
- Monte Carlo methods
- Economic and financial modeling

Previous Service to the Profession

- 2015. IMS Committee on Nominations
- 2008–11. IMS Committee on Publications (served as committee chair: 2009–10)
- 2018. COPSS Presidents' Award Committee
- 2017, 2016, 2014, 2013, 2012, and 2009. US National Science Foundation grant review panel
- 2010–12. Member, Board of Directors, International Chinese Statistical Association
- 2019, 2018, 2015, and 2010. Guest Editor, *Proceedings of the National Academy of Sciences of the USA*
- 2017–present. Associate Editor, *Journal of the American Statistical Association, Theory and Methods*
- 2013–19. Associate Editor, *Annals of Statistics*
- 2010–12. Editor, *Annals of Applied Statistics*
- 2013–17. Editor, *STAT*
- 2011–13. Associate Editor, *Statistical Science*
- 2010–14. Associate Editor, *Bernoulli*
- 2009–12. Associate Editor, *Journal of the American Statistical Association, Applications and Case Studies*
- 2008–13. Editor, *Chance Magazine*
- 2007–09 and 2012–15. Associate Editor, *Annals of Applied Statistics*
- 2005–11 and 2014–17. Associate Editor, *Statistica Sinica*
- 2006–09. Associate Editor, *Journal of Multivariate Analysis*

Brief Statement

It is my great honor to be nominated for membership in the IMS Council. The IMS has an extraordinary tradition of bringing probabilists and statisticians together, with a united focus on scientific excellence, evidenced by its outstanding reputation on publications, meetings, promoting collaboration, and mentoring young researchers. The inclusive culture of the IMS is particularly well suited for shaping the discipline and fostering cross-fertilization in the era of data science, where a concerted effort (from statisticians and probabilists) is needed for important scientific applications as well as deep understanding of new technical advances. It will be my privilege to contribute to this effort.

Philippe Rigollet

Associate Professor, Department of Mathematics & Statistics and Data Science Center, Massachusetts Institute of Technology

<http://www-math.mit.edu/~rigollet/>

**Education**

- PhD in Mathematics, University of Paris 6 (2006)
- BSc in Statistics, University of Paris 6 (2002)

Research Interests

- Nonparametric and high-dimensional statistics
- Algorithmic aspects of statistical methods
- Geometric data analysis
- Statistical optimal transport
- Minimax optimality

Previous Service to the Profession

- Associate editor for: *Mathematical Statistics and Learning* (2018–21); *SIAM Journal on Mathematics of Data Science* (2018–21); *Bernoulli* (2013–19); *Electronic Journal of Statistics* (2016–19); *Statistical Inference for Stochastic Processes* (2015–16); *Journal of Statistical Planning and Inference* (2012–15)
- Conference on Learning Theory (COLT) steering committee (elected), 2013–16
- Program committees: COLT co-Chair (2018); COLT program committee member (2012–present); Algorithmic Learning Theory (ALT) program committee member (2015)
- Scientific committees: Testing and learning workshop, Simons Institute; MIFODS workshop on learning under complex structure; Oberwolfach workshop on Statistical and computational aspects of learning; Skoltech conference on Statistical Optimal Transport; MIFODS workshop on Sublinear Algorithms, MIT; Stochastic Methods in Game Theory workshop, Singapore; Optimization and Statistical Learning workshop, France; Meeting on Mathematical Statistics workshop, France; Conference on Learning Theory (COLT) (held at Princeton); International Workshop on Statistical Learning, Moscow
- Webmaster: Association for Computational Learning (runs COLT)

Brief Statement

The IMS is the premier society in statistics and probability, and I am honored to be nominated for membership of its council. The information era has witnessed an explosion in the size and

diversity of data collected in a wide range of applications. Along with this expansion come new challenges and opportunities, in particular concerning the computational aspects of our methods. The IMS has already started an interdisciplinary agenda with statistics and probability at its core and I aim to reinforce it by supporting interdisciplinary meetings and opportunities for training new generations of researchers and teachers at this interface.

Martin Wainwright

Chancellor's Professor, UC Berkeley,
Department of Statistics, and Department
of EECS, UC Berkeley
<http://people.eecs.berkeley.edu/~wainwrig/>



Education

- B. Math, U. Waterloo (1994)
- Master's, Harvard (1999)
- PhD, MIT (2002)

Research Interests

- High-dimensional statistics
- Non-parametric statistics
- Information theory and statistics
- Statistical optimization
- Graphical models

Previous Service to the Profession

- IMS Committees: Special Committee on Publications, Awards Committee, President Committee
- Associate Editorships: *Annals of Statistics* (2008–2016), *Journal of Machine Learning Research* (2007–2013), *Journal of the American Statistical Association* (2013–2015)

Brief Statement

The advent of data science has provided Statistics with both tremendous opportunities and challenges moving forward. We need to ensure that Statistics grows through engagement with other disciplines, while simultaneously preserving its rich intellectual history and scholarly traditions. I am confident that my own background, which combines statistics with computer science, will provide useful perspective to the IMS Council in addressing these issues.

Anita Winter

Professor, University Duisburg-Essen,
Germany
https://www.uni-due.de/mathematik/ag_winter/winter



Education

- Diploma, Mathematics, 1995, Humboldt University Berlin
- PhD, Mathematics, 1999, University Erlangen–Nuremberg

Research Interests

- Branching models and its connections with population genetics and mathematical ecology
- Random trees
- Geometry of tree spaces and metric measure spaces
- Stochastic analysis on metric measure spaces

Previous Service to the Profession

- Board of the Probability and Statistics Section, German Mathematical Society (Member since 2016, speaker since 2018)
- Member of the Scientific Committee of the German Open Probability and Statistics Days, Freiburg 2018 and Dresden 2020
- Member of the Local Organization Committee of the Bernoulli-IMS World Congress 2024

Brief Statement

It is a great honor to be nominated to the IMS Council. The institute has a united focus on probability and statistics, and an excellent reputation for its publications and its meetings. If elected, I will keep and strongly promote its efforts towards diversity in gender, career stage, geography, background and research areas.

Fang Yao

Chair Professor, Department of Probability
and Statistics, Peking University
<http://www.math.pku.edu.cn/teachers/yaof/index.html>



Education

- PhD, 2003, University of California at Davis

Research Interests

- Functional and longitudinal data analysis

Continues on page 20

Fang Yao continued

- Statistical modeling of high-dimensional and complex structured data
- Nonparametric and semiparametric statistical methods
- Applications involving functional, high-dimensional and complex objects, e.g., clinical studies, evolutionary biology, human genetics, brain imaging, finance and e-commerce, chemical engineering, etc.

Previous Service to the Profession

- IMS Nominations Committee (2017–18)
- IMS Committee on Electronic Issues (2013–16)
- Program Committee for 2012 JSM (IMS contributed sessions)
- ASA Noether Awards Committee (2014–19)
- Chair for Student Paper Awards of ASA Section on Nonparametric Statistics (2011, 2012)
- Editor, *Canadian Journal of Statistics* (2019–present)
- Associate Editor, *Statistica Sinica* (2011–2014, 2017–present)
- Associate Editor, *Journal of the American Statistical Association* (2014–present)
- Associate Editor, *Journal of Computational and Graphical Statistics* (2012–present)
- Associate Editor, *Canadian Journal of Statistics* (2010–18)
- Associate Editor, *Journal of Multivariate Analysis* (2016–18)
- Associate Editor, *The Annals of Statistics* (2008–09, 2013–15)
- Associate Editor, *Bernoulli Journal* (2013–15)
- Associate Editor, *Journal of Statistical Planning and Inference* (2012–14)
- Associate Editor, *Electronic Journal of Statistics* (2010–12)

Brief Statement

Fang Yao is a Chair Professor at Peking University, and has been a tenured Full Professor at University of Toronto. As an accomplished statistician, Fang Yao has received several awards, including the 2014 CRM-SSC Prize, which is considered the Canadian COPSS Award (recognition of a statistical scientist's professional accomplishments in research primarily conducted in Canada during the first 15 years after having received a doctorate). In 2017 and 2018, he was elected the Fellow of the IMS, the Fellow of the ASA, and the Elected Member of ISI, respectively. He has been an excellent citizen of the statistical community by serving on key committees for IMS, ASA and other organizations, and serving on editorial boards for many statistical journals. He is a member of IMS, ASA, ICSA and SSC. Being in Peking University, one of the most reputable institutions in China/Asia, he will help increase the visibility and impact of IMS in Asia-Pacific region.

Ilze Ziedins

Associate Professor, Department of Statistics, The University of Auckland
<https://unidirectory.auckland.ac.nz/people/profile/i-ziedins>

**Education**

- BA Waikato University 1980
- Diploma in Mathematical Statistics, University of Cambridge 1983
- PhD University of Cambridge 1989

Research Interests

- Stochastic networks, queueing networks.
- Selfish routing, priority assignment in networks.
- Applications of stochastic networks to healthcare delivery, communications and traffic networks

Previous Service to the Profession

- 2019 New Zealand Mathematical Society Accreditation Committee
- 2017–18 IMS Committee on Nominations
- 2013–15 Vice-President, Operations Research Society of New Zealand
- 2011–present Associate Editor, *Queueing Systems*
- 2002–07 Associate Editor, *Stochastic Models*
- 2002–2006 Associate Editor, *Australian and New Zealand Journal of Statistics*

Brief Statement

It is a great honour to be nominated for the Council of the IMS, and to have the opportunity to contribute to this wonderful community of probabilists and statisticians. One of the strengths of the IMS is its very rich programme of sponsored meetings. If elected, one of my particular interests would be to enhance the participation of members who have fewer opportunities to attend meetings, whether due to remoteness or for other reasons.

Elections close on July 1, 2020.
Don't forget to vote!

IMS meetings around the world

Joint Statistical Meetings: 2020–2025

IMS sponsored meeting

JSM 2020

August 1–6, 2020. Philadelphia, PA, USA.

<http://ww2.amstat.org/meetings/jsm/2020/>

JSM (the Joint Statistical Meetings) is the largest gathering of statisticians and data scientists held in North America. It is also one of the broadest, with topics ranging from statistical applications to methodology and theory to the expanding boundaries of statistics, such as analytics and data science. JSM also offers a unique opportunity for statisticians in academia, industry, and government to exchange ideas and explore opportunities for collaboration.



IMS sponsored meetings: JSM dates for 2020–2024

IMS Annual Meeting @ JSM 2021 August 7–12, 2021, Seattle, WA	2022 Joint Statistical Meetings August 6–11, 2022 Washington DC	IMS Annual Meeting @ JSM 2023 August 5–10, 2023 Toronto, ON, Canada
---	--	--

JSM 2024
August 3–8, 2024
Portland, Oregon

IMS Annual Meeting
@ JSM 2025
August 2–7, 2025
Nashville, TN, USA

IMS sponsored meeting

Bernoulli/IMS 10th World Congress in Probability and Statistics
August 17–21, 2020. Seoul, South Korea

<http://www.wc2020.org>

THE WORLD CONGRESS IS POSTPONED, PROBABLY UNTIL SUMMER 2021

Program chair: Siva Athreya; Local chair: Hee-Seok Oh.

The 10th World Congress in Probability and Statistics (WC2020), jointly organized by the Bernoulli Society and IMS, will be hosted by Seoul National University. We are expecting to attract more than 900 experts from over 40 countries.

This upcoming World Congress will take a comprehensive look at the latest developments in statistics and probability as well as the current trends emerging from all associated fields. A special lecture series will document a variety of modern research topics with in-depth uses and applications of these disciplines as they relate to science, industrial innovation, and society as a whole.

IMS sponsored meeting

WNAR/IMS/JR 2020 Meeting

June 14–17, 2020. Anchorage, Alaska.

<http://www.wnar.org/event-3603109>

Due to the health concerns associated with the ongoing pandemic and complying with the government's guidance, WNAR committee has decided to cancel the 2020 meeting in Anchorage, Alaska. Registration fees will be fully refunded. WNAR is planning to hold its 2021 Annual Conference in Anchorage, Alaska.

Student Paper Competition is still ON! We will continue to run our popular Student Paper Competition remotely. The best student paper awards will be selected from the student papers submitted. See website for details.

At a glance:

*forthcoming
IMS Annual
Meeting and
JSM dates*

2020

JSM: Philadelphia,
August 1–6, 2020

**IMS Annual Meeting/
10th World Congress:**

Seoul, South
Korea, August
17–21, 2020

2021

IMS Annual Meeting @

JSM: Seattle, August
7–12, 2021

2022

IMS Annual Meeting:
TBC

JSM: Washington
DC, August 6–11,
2022

2023

IMS Annual Meeting
@ JSM: Toronto,
August 5–10,
2023

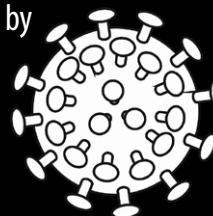
2024

**IMS Annual Meeting/
11th World Congress:**
Bochum, Germany,
August 12–16,
2024

JSM: Portland, OR,
August 3–8, 2024

COVID-19: CHECK FIRST

As the situation with the coronavirus is rapidly changing, please check for updates on the websites of any meetings you are planning to attend in the coming months. The information here may be out of date by the time you read this! Let us know any updates: email bulletin@imstat.org.



POSTPONED

More IMS meetings around the world

IMS-sponsored meeting

FODS-2020: ACM–IMS Foundations of Data Science Conference

October 18–20, 2020. Seattle, WA, USA

[w https://fods.acm.org](https://fods.acm.org)

Submission deadline EXTENDED TO May 15, 2020.

The Association for Computing Machinery (ACM) and the Institute of Mathematical Statistics (IMS) have come together to launch a conference series on the Foundations of Data Science. Our inaugural event, the ACM–IMS Interdisciplinary Summit on the Foundations of Data Science, took place in San Francisco in 2019. Starting in 2020 we will have an annual conference with refereed conference proceedings. This interdisciplinary event will bring together researchers and practitioners to address foundational data science challenges in prediction, inference, fairness, ethics and the future of data science.

IMS sponsored meeting

2020 IMS/ASA Spring Research Conference

May 20–22, 2020

Oakland University, Rochester, MI, USA

[w https://files.oakland.edu/users/qu/web/SRC2020.html](https://files.oakland.edu/users/qu/web/SRC2020.html)

The 2020 Spring Research Conference (SRC) of the IMS and the ASA's Section on Physical and Engineering Sciences (SPES) features keynote speakers Alfred O. Hero (University of Michigan), Roshan Joseph (Georgia Institute of Technology), Agus Sudjianto (Wells Fargo) and Jeff Wu (Georgia Institute of Technology). **We invite you to submit contributed papers and posters.** Partial funding for students may be available.

IMS co-sponsored meeting

Statistics in the Big Data Era

May 27–29, 2020. Berkeley, CA, USA

[w https://simons.berkeley.edu/workshops/statistics-big-data-era](https://simons.berkeley.edu/workshops/statistics-big-data-era)

This workshop has been postponed to June, 2021. Other updates will be posted soon.

This conference is focused on the changing role and nature of the discipline of statistics in the time of a data deluge in many applications, and increasing success of artificial intelligence at performing many data analysis tasks. The conference aims to bring together experts in statistical methodology and theory for complex and big data with researchers focused on a range of applications, from genomics to social networks, and to provide opportunities for new researchers to learn about both emerging methods and applications. The conference will also be an occasion to celebrate Professor Peter Bickel's 80th birthday.

IMS co-sponsored meeting

Southeast Probability Conference

May 11–12, 2020

Duke University, NC, USA

[w https://services.math.duke.edu/~rtd/SEPC2020/SEPC2020.html](https://services.math.duke.edu/~rtd/SEPC2020/SEPC2020.html)

This small regional conference has been held at the Duke mathematics department seven times in the last nine years. The seven speakers are: Erik Bates (Berkeley), Julia Gaudio (MIT), Jack Hanson (City College), Jeff Kuan (Texas A&M), Oanh Nguyen (Princeton), Soledad Villar (NYU) and Matt Wascher (Wisconsin).

There will be a reception/poster session on Monday night. The meeting is supported by NSF grant DMS 2011385. **Graduate students and postdocs can apply for partial support.**

Like the Midwest and Northeast Probability Conferences, our goal to serve the probabilists in our region — though unlike those meetings, which attract a large number of participants from a wide area, ours is a small meeting, with a leisurely schedule that allows ample opportunity for speakers and other participants to interact. Graduate students and postdocs have a chance to learn about recent developments from experts. A poster session at the end of the first day will allow young researchers to present their work. Slides of the main lectures will be made available after the meeting on the conference web page to more broadly disseminate their content.

IMS co-sponsored meeting

Mathematical Statistics and Learning

June 2–5, 2020. Barcelona, Spain.

[w https://www.msl2020.org](https://www.msl2020.org)

The meeting aims to bring together leading experts from diverse areas of mathematical statistics and machine learning who are interested in the mathematical foundations of our fields. The common theme of the meeting is modelling and statistical analysis of data from large complex systems, which leads to high-dimensional and structured problems. There will be four special morning lectures: Francis Bach (INRIA), Liza Levina (Michigan), Luc Devroye (McGill), and Judith Rousseau (Oxford).

IMS sponsored meeting

Bernoulli–IMS 11th World Congress in Probability and Statistics (including the 2024 IMS Annual Meeting)

August 12–16, 2024. Ruhr-University Bochum, Germany

[w TBC](#)

The Bernoulli–IMS World Congress in Probability and Statistics is held every four years. Details to follow, but for now, please save the date!



IMS sponsored meeting

ENAR dates, 2021–2022**March 14–17, 2021. Baltimore, MD, USA****w** www.enar.org/meetings/future.cfm

The 2021 ENAR/IMS meeting will be in Baltimore, Maryland (and in Houston, Texas, in 2022). Featuring a *Fostering Diversity in Biostatistics* workshop, connecting underrepresented minority students interested in biostatistics with professional biostatisticians in academia, government and industry.

IMS sponsored meetings

ENAR/IMS 2022**March 27–30, 2022. Houston, TX, USA****w** www.enar.org/meetings/future.cfm

IMS co-sponsored meeting

Second Workshop: Emerging Data Science Methods for Complex Biomedical and Cyber Data**POSTPONED FROM March 26–27, 2020****Augusta, USA****w** <https://www.augusta.edu/mcg/dphs/workshop2/index.php>

The workshop features several eminent speakers who are pioneers in the fields of data science including big data analytics. The workshop aims to foster the collaborative research between data science/statistics and other disciplinary science for the purpose of meeting the very hardest and most important data and model-driven scientific challenges, and for enhancing the much needed skills of the next generation workforce. We have witnessed the explosion of complex and big data from various disciplines, social media, cyber traffic, and environment surrounding us in the recent decade. Data scientists and statisticians are blessed with such variety of data that they have never seen before, yet are also facing many challenges because of the complexity and massiveness of such data. The goal of this workshop fits into the society's demand of fostering collaborative research between data science/statistics and other disciplines in science for the purpose of meeting the very hardest and most important data and model-driven scientific challenges. The Workshop participants will learn statistical and data science methods to handle the enormously complex biomedical and cyber science data, and help them develop analytical thinking, statistical reasoning, communication skills and creativity.

IMS co-sponsored meeting

ABC in Svalbard**April 12–13, 2021****Longyearbyen, Svalbard, Norway****w** <https://sites.google.com/view/abcinsvalbard/home>

ABC in Svalbard is the next edition of a successful ISBA/IMS workshop series around ABC (approximate Bayesian computing) methods. It aims to attract researchers at the forefront of research on approximate Bayesian computing methods and promote original research in that field among various disciplines.

The workshop will take place at the Radisson Blu Polar Hotel, Spitsbergen (Svalbard, Norway).

IMS Reps on Program Committees:

Antonietta Mira, Kerrie Mengersen, Judith Rousseau, Christian Robert.

NEW

IMS co-sponsored meeting

The 8th Workshop on Biostatistics and Bioinformatics**May 8–10, 2020. Atlanta, GA, USA****w** <https://math.gsu.edu/yichuan/2020Workshop/>

Biostatistics and Bioinformatics have played important roles in scientific research fields in recent years. The workshop will provide the opportunity for faculty and graduate students to meet top researchers, identify important directions for future research and facilitate research collaborations. The keynote speaker is Nilanjan Chatterjee (Johns Hopkins University Bloomberg School of Public Health and Johns Hopkins School of Medicine). There will be invited talks by distinguished researchers, and a poster session by young researchers and graduate students. Partial travel awards available.

POSTPONED

IMS co-sponsored meeting

Conference on New Developments in Probability**May 18–20, 2020****New Orleans, USA****w** <https://sse.tulane.edu/math/conferences-workshops/cndp2020>

This is the second in a conference series hosted by Women in Probability. These conferences are devoted to current significant research in probability theory.

POSTPONED

IMS co-sponsored meeting

Frontier Probability Days**May 8–10, 2020. Las Vegas, Nevada, USA****w** <http://lechen.faculty.unlv.edu/FPD20/>

Frontier Probability Days 2020 (FPD'20) is a regional workshop, taking place at the University of Nevada, Las Vegas.

POSTPONED

IMS sponsored meeting

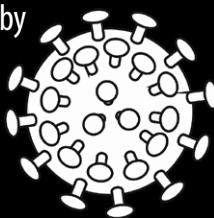
IMS Asia Pacific Rim Meeting 2021**January 5–8, 2021****Melbourne, Australia****w** <http://ims-aprm2021.com/>

The sixth meeting of the Institute of Mathematical Statistics Asia Pacific Rim Meeting (IMS-APRM) will provide an excellent world-wide forum for scientific communications and collaborations for researchers in Asia and the Pacific Rim, and promote collaborations between researchers in this area and other parts of the world.

Other meetings and events around the world

COVID-19: CHECK FIRST

As the situation with the coronavirus is rapidly changing, please check for updates on the websites of any meetings you are planning to attend in the coming months. The information here may be out of date by the time you read this! Let us know any updates: email bulletin@imstat.org.



2020 PIMS–CRM Summer School in Probability

June 1–26, 2020

Vancouver, BC, Canada

[w](http://www.math.ubc.ca/Links/ssprob20/) <http://www.math.ubc.ca/Links/ssprob20/>

The school features four-week courses by **Ivan Corwin** (Interacting particle systems, growth models, stochastic PDEs and directed polymers through the lens of the stochastic six vertex model) and **Frank den Hollander** (Metastability for interacting particle systems). Short courses will be given by **Paul Bourgade** (Branching processes in random matrix theory and number theory), **Jean-Francois Le Gall** (Brownian geometry on the sphere), and **Nike Sun** (Statistical physics of random constraint satisfaction problems).

First-Passage Percolation and Related Models

July 27–August 14, 2020

ICTS Bangalore, India

[w](https://www.icts.res.in/program/fpp2020) <https://www.icts.res.in/program/fpp2020>

ICTS (the International Centre for Theoretical Sciences) Bengaluru will host a program on first- and last-passage percolation and other growth/polymer models, from July 27 through August 14, 2020. This workshop will primarily focus on general techniques beyond integrable probability or exact solvability. The first week of the program will consist of mini-courses giving a broad overview of the topics. All those selected to participate will be provided with room and board at ICTS Bengaluru, and transportation to and from the airport. We have international travel support from the NSF for participants from US universities. We especially encourage applications from junior participants (students, postdocs, new faculty), women, and members of underrepresented groups.

The program will focus on the model of first-passage percolation (FPP)—a stochastic growth model—and its close relatives. Stochastic growth models arise from physics and biology, and have been studied since the 1960s. Such systems address the behavior of growing interfaces, the spread of bacterial colonies, and the fluctuations of long chemical chains in a random potential.

Physicists have made numerous predictions about the common behavior of models in the FPP class. One among them say that these models should have fluctuations of smaller order than is accessible with classical mathematical methods (exhibiting “super-concentration”) and limiting laws that deviate from the standard Gaussian. In fact, the limiting fluctuations of models in the FPP class are thought to be universal, and appear in seemingly different contexts like random matrix theory, the zeros of the Riemann zeta function, and the representation theory of the symmetric group.

Much progress has been made in a few “exactly solvable” or “integrable” versions of such models. However, many of the original questions do not seem to be within the reach of the methods afforded by the integrable framework. Instead, researchers have had more success recently with more general methods of a functional analytic or geometric nature. This program will focus on such general methods, including Busemann function and concentration-of-measure techniques, while keeping an eye on methods that may be carried over from the exactly solvable setting.

SaNDAL Summer School in Mathematical Statistics

June 29–July 3, 2020

Luxembourg University

[w](https://sandalschool.uni.lu) <https://sandalschool.uni.lu>

The SaNDAL Summer School in Mathematical Statistics is aimed young researchers and practitioners alike and offers an excellent opportunity to learn about latest developments directly from leading experts. There will be courses by Zakhar Kablucho (University of Münster), Karim Lounici (CMAP–École Polytechnique) and Stéphane Robin (AgroParisTech/INRA/Univ. Paris Saclay & Muséum National d’Histoire Naturelle). Participation is free but registration is mandatory (deadline June 15). We also have limited travel support for PhD students available (application deadline May 15). For more information, please visit the summer school website above.

NEW

NEW

6th Stochastic Modeling Techniques and Data Analysis (SMTDA2020)

June 2–5, 2020

Now ONLINE only 

<http://www.smta.net/>

The 6th Stochastic Modeling Techniques and Data Analysis International Conference, SMTDA2020, will take place June 2–5, 2020, ONLINE only, at <http://www.smta.net/>. On behalf of the Conference Committee, Prof. Christos H Skiadas, the Conference Chair, writes: In these conditions, and following many requests and after consulting the committee, we have turned the conference into a **Virtual Conference** in order, on the one hand, to follow the international instructions about the pandemic, and, on the other hand, to turn the SMTDA2020 International Conference and Demographics2020 Workshop into a successful virtual international event.

So far the basis of the SMTDA and ASMDA Conference series will remain unchanged including the Proceedings and Publications in Books and Journals.

The web interactions, after the appropriate adaptations, will join better the groups of colleagues forming streams and workshops. A new challenge to open the international travel barriers set to stop the coronavirus spread.

While the Conference dates remain unchanged, the early registration deadline extended to 25 April including the corresponding reduced fees for the virtual participation (to be announced in the website soon).

If you have already paid for the conference fees, you will be issuing a refund for the difference between the early bird registration and virtual conference fee.

The technical details will be announced later on, especially for the Special, Invited Sessions and Workshop organizers and Session Chairs.

Note that the power point of your presentation is important for the Virtual Conference schedule. It should be send to the secretariat for the session/s chair at secretariat@smta.net

Note that in SMTDA2020 we celebrate the 80th birthday of Professor **Robert Elliott** in honour of his contributions to Statistics, Stochastic Processes in Finance and Engineering and his support to ASMDA and SMTDA activities (see: <http://www.smta.net/committeesplenarytalks.html>).

The Stochastic Modeling Techniques and Data Analysis International Conference (SMTDA) main objective is to welcome papers, both theoretical or practical, presenting new techniques and methodologies in the broad area of stochastic modeling and data analysis. An objective is to use the methods proposed for solving real life problems by analysing the relevant data. Also, the use of recent advances in different fields will be promoted such as for example, new optimization and statistical methods, data warehouse, data mining and knowledge systems, computing-aided decision supports, neural computing and artificial intelligence.

Particular attention will be given to interesting applications in engineering, productions and services (maintenance, reliability, planning and control, quality control, finance, insurance, management and administration, inventory and logistics, marketing, environment, human resources, biotechnology, medicine, ...).

For Abstract submission and special session proposals please visit the conference website at: www.smta.net or send email to Secretariat@smta.net.



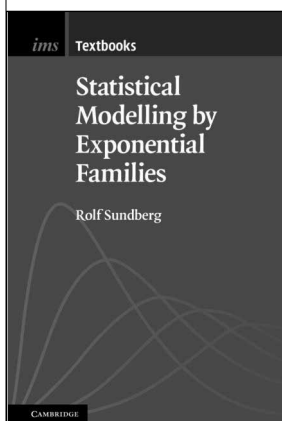
The Data Analysis Book from ASMDA2017 Conference in London (De Morgan House of the London Mathematical Society) is ready in two volumes published by ISTE-Wiley. An excellent introductory chapter by Gilbert Saporta honorary speech is also included. Download the books from the Wiley website at: <https://www.wiley.com/en-us/Data+Analysis+and+Applications+%3A+New+and+Classical+Approaches-p-9781119597681>

The SMTDA2020 event will host the Demographics2020 International Workshop. The main focus is on Health State and the optimal retirement age.: More information is related to a recent work on estimating the “Health Expenditure per Age Group”. To join the ongoing international study just send me a message that you intent to contribute in a Demography publication.



The Institute of Mathematical Statistics presents

IMS TEXTBOOKS



Statistical Modelling by Exponential Families

Rolf Sundberg, Stockholm University

This book is a readable, digestible introduction to exponential families, encompassing statistical models based on the most useful distributions in statistical theory, including the normal, gamma, binomial, Poisson, and negative binomial. Strongly motivated by applications, it presents the essential theory and then demonstrates the theory's practical potential by connecting it with developments in areas like item response analysis, social network models, conditional independence and latent variable structures, and point process models. Extensions to incomplete data models and generalized linear models are also included. In addition, the author gives a concise account of the philosophy of Per Martin-Löf in order to connect statistical modelling with ideas in statistical physics, including Boltzmann's law. Written for graduate students and researchers with a background in basic statistical inference, the book includes a vast set of examples demonstrating models for applications and exercises embedded within the text as well as at the ends of chapters.

"Rolf Sundberg's book gives attractive properties of the exponential family and illustrates them for a wide variety of applications. Definitions are concise and most propositions look directly appealing. The writing reflects the author's experience in deriving results that are essential for good modelling and convincing inference. Thus, this book is indispensable for all data scientists, be they graduate students or experienced researchers."
Nanny Wermuth, Chalmers University of Technology, Sweden

Hardback \$105.00

Paperback \$39.99

IMS members
are entitled to a 40%
discount: email
ims@imstat.org
to request
your code

www.imstat.org/cup

Cambridge University Press, with the Institute of Mathematical Statistics, established the *IMS Monographs* and *IMS Textbooks* series of high-quality books. The series editors are Nancy Reid (Coordinating Editor, 2018–2021), Ramon van Handel (Probability, 2018–2021), Arnaud Doucet (Algorithms, 2020–2023) and Xuming He (Statistics, 2017–2020).

Employment Opportunities around the world

China: Shenzhen, Guangdong

Southern University of Science and Technology

Faculty Positions in the Department of Statistics and Data Science

<https://jobs.imstat.org/job//53420257>

China: Beijing

Academy of Mathematics and Systems Science, Chinese Academy of Sciences

Chair Professor Position in Statistics

<https://jobs.imstat.org/job//53542035>

China: Guangzhou

The Hong Kong University of Science and Technology (Guangzhou)

Founding Faculty in the Information Hub (Data Science and Analytics, DSA)

<https://jobs.imstat.org/job//53522098>

France: Cergy Pontoise

ESSEC Business School

Junior Professor of Statistics (Assistant or Associate)

<https://jobs.imstat.org/job//53391195>

United Kingdom: London

London School of Economics, Department of Statistics

Assistant Professorial Lectureships in Data Science

<https://jobs.imstat.org/job//53340847>

United States: Berkeley, CA

University of California, Berkeley Department of Statistics

Lecturer

<https://jobs.imstat.org/job//53159515>

United States: Storrs, CT

University of Connecticut

Visiting Assistant Professor

<https://jobs.imstat.org/job//53460394>

United States: Grinnell, IA

Grinnell College, Department of Mathematics and Statistics

Assistant Professor of Statistics, two-year term (start Fall 2020)

<https://jobs.imstat.org/job//52997753>

United States: Champaign, IL

University of Illinois at Urbana-Champaign, Department of Statistics

Instructor, Lecturer, Teaching, Clinical or Visiting Assistant,

Associate and Full Professors

<https://jobs.imstat.org/job//53430084>

United States: Chicago, IL

University of Chicago

Instructional Professor

<https://jobs.imstat.org/job//52998195>

United States: College Park, MD

Epidemiology and Biostatistics, University of Maryland

Assistant Professor

<https://jobs.imstat.org/job//53368584>

United States: Durham, NC

Duke University, Statistical Science

Instructors in Statistical Science

<https://jobs.imstat.org/job//53241949>

United States: Corvallis, OR

Oregon State University

Postdoctoral Scholar

<https://jobs.imstat.org/job//51351598>

United States: Memphis, TN

The University of Memphis

Assistant Professor of Mathematical Sciences

<https://jobs.imstat.org/job//53354221>

United States: Madison, WI

University of Wisconsin–Madison

Director of the Math Learning Center

<https://jobs.imstat.org/job//53283724>


International Calendar of Statistical Events

IMS meetings are highlighted in maroon with the  logo, and new or updated entries have the  or  symbol.


Please submit your meeting details and any corrections to Elyse Gustafson: erg@imstat.org

At the time of writing, some meetings are known to be **POSTPONED** or canceled. Please check meeting websites for updates.


April 2020


April 6–9: Warsaw, Poland. **Statistical Methods and Artificial Intelligence**  [w](https://sites.google.com/view/iwsmmai) <https://sites.google.com/view/iwsmmai>



POSTPONED **April 15–17:** Geneva, Switzerland. **Workshop on Statistical Data Editing**  [w](https://reg.unog.ch/event/31130/) <https://reg.unog.ch/event/31130/>



POSTPONED **April 26–28:** Gainesville, FL, USA. **Conference on Applied Statistics in Agriculture and Natural Resources**  [w](https://conference.ifas.ufl.edu/applied-stats/) <https://conference.ifas.ufl.edu/applied-stats/>

May 2020



POSTPONED **May 6–8:** Toronto, Canada. **BFF7: The 7th Bayes, Fiducial and Frequentist Statistics Conference**  [w](http://www.fields.utoronto.ca/activities/19-20/BFF7) <http://www.fields.utoronto.ca/activities/19-20/BFF7>



POSTPONED  **May 8–10:** Las Vegas, NV, USA. **Frontier Probability Days**  [w](http://lechen.faculty.unlv.edu/FPD20/) <http://lechen.faculty.unlv.edu/FPD20/>


POSTPONED  **May 8–10:** Atlanta, GA, USA. **8th Workshop on Biostatistics and Bioinformatics**  [w](https://math.gsu.edu/yichuan/2020Workshop/) <https://math.gsu.edu/yichuan/2020Workshop/>


POSTPONED  **May 11–12:** Duke University, USA. **Southeast Probability Conference**  [w](https://services.math.duke.edu/~rtd/SEPC2020/SEPC2020.html) <https://services.math.duke.edu/~rtd/SEPC2020/SEPC2020.html>

POSTPONED  **May 18–20:** New Orleans, USA. **Conference on New Developments in Probability**  [w](https://sse.tulane.edu/math/conferences-workshops/cndp2020) <https://sse.tulane.edu/math/conferences-workshops/cndp2020>

POSTPONED  **May 20–22:** Rochester, MI, USA. **2020 IMS/ASA Spring Research Conference**  [w](https://files.oakland.edu/users/qu/web/SRC2020.html) <https://files.oakland.edu/users/qu/web/SRC2020.html>


POSTPONED  **May 27–29:** Berkeley, CA, USA. **Statistics in the Big Data Era**  [w](https://simons.berkeley.edu/workshops/statistics-big-data-era) <https://simons.berkeley.edu/workshops/statistics-big-data-era>

POSTPONED **May 27–29:** Irvine, USA. **SLDS 2020**  [w](https://asaslds.github.io/SLDS2020/) <https://asaslds.github.io/SLDS2020/>

POSTPONED **May 31–June 3:** Ottawa, Canada. **SSC Meeting**  [w](https://ssc.ca/en/meetings/2020-annual-meeting-ottawa) <https://ssc.ca/en/meetings/2020-annual-meeting-ottawa>


June 2020


June 1–26: Vancouver, Canada. **2020 PIMS-CRM Probability Summer School**  [w](http://www.math.ubc.ca/Links/ssprob20/) <http://www.math.ubc.ca/Links/ssprob20/>


June 2–3: The Netherlands. **Dimensionality Reduction and Inference in High-Dimensional Time Series**  [w](http://sbe.maastrichtuniversity.nl/hdts2020/) <http://sbe.maastrichtuniversity.nl/hdts2020/>


June 2–5: Barcelona, Spain. **Mathematical Statistics and Learning**  [w](https://www.msl2020.org) <https://www.msl2020.org>


 **June 2–5:** *NOW ONLINE ONLY.* **6th Stochastic Modeling Techniques and Data Analysis International Conference (SMTDA2020).**  [w](http://www.smta.net) www.smta.net


June 3–6: Pittsburgh, PA, USA. **Symposium on Data Science and Statistics**  [w](https://ww2.amstat.org/meetings/sdss/2020/) <https://ww2.amstat.org/meetings/sdss/2020/>


POSTPONED **June 14–17:** Anchorage, Alaska, USA. **WNAR/IMS/JR Meeting**  [w](https://www.wnar.org/page-18098) <https://www.wnar.org/page-18098>


June 15–18: New Orleans, LA, USA. **Sixth International Conference on Establishment Statistics (ICES-VI)**  [w](http://ww2.amstat.org/meetings/ices/2020/) <http://ww2.amstat.org/meetings/ices/2020/>


June 15–18: Thessaloniki, Greece. **IWAP 2020 (10th International Workshop on Applied Probability)**  [w](http://iwap2020.web.auth.gr) <http://iwap2020.web.auth.gr>

June 15–19: Paphos, Cyprus. **International Symposium on Nonparametric Statistics 2020**  [w](http://cyprusconferences.org/isnps2020/) <http://cyprusconferences.org/isnps2020/>

June 17–19: Paris Orsay, France. **Mixtures, Hidden Markov Models and Clustering**  [w](https://www.math.u-psud.fr/~mhc2020/) <https://www.math.u-psud.fr/~mhc2020/>

POSTPONED  **June 21–24:** Anchorage, Alaska, USA. **2020 WNAR/IMS/JR (Japanese Region) meeting**  [w](http://wnar.org/page-18098) <http://wnar.org/page-18098>

June 22–26: Sydney, Australia. **International Statistical Ecology Conference (ISEC2020)**  [w](http://www.isec2020.org/) <http://www.isec2020.org/>

June 24–26: Birmingham, UK. **7th IMA Conference on Numerical Linear Algebra and Optimization**  [w](https://ima.org.uk/12530/7th-ima-conference-on-numerical-linear-algebra-and-optimization/) <https://ima.org.uk/12530/7th-ima-conference-on-numerical-linear-algebra-and-optimization/>

June 24–27: Brno, Czech Republic. Fifth International Workshop on Functional and Operatorial Statistics (IWFOS 2020)

w <https://iwfos2020.sci.muni.cz/>

June 28–July 3: Kunming, China. ISBA 2020: World Meeting of the International Society for Bayesian Analysis **w** <https://bayesian.org/isba2020-home/>

NEW **June 29–July 3:** Luxembourg. SanDAL Summer School in Mathematical Statistics **w** <https://sandalschool.uni.lu>

June 29–July 3: Nový Smokovec, Slovakia. LinStat 2020

w <https://linstat2020.science.upjs.sk/>

June 29–July 10: Montreal, Canada. SMS: Discrete Probability, Physics and Algorithms **w** http://www.msri.org/summer_schools/925

July 2020

July 1–8: Erice, Italy. 7th Workshop on Stochastic Methods in Game Theory **w** <https://sites.google.com/view/erice-smgt2020/the-workshop>

July 5–8: Rio de Janeiro, Brazil. 40th International Symposium on Forecasting **w** <https://isf.forecasters.org/>

July 5–11: Portoroz, Slovenia. 8th European Congress of Mathematics. **w** <http://www.8ecm.si/>

July 6–10: Gold Coast, QLD, Australia. 2020 Australian and New Zealand Statistical Conference **w** <https://anzsc2020.com.au>


July 6–10: Seoul, South Korea. 30th International Biometric Conference (IBC2020) **w** <https://www.biometricsociety.org/2018/07/ibc-2020-seoul-preview/>


July 6–17: Lake Como, Italy. Reproducibility in Data Science: Statistical Methods and Applications **w** <http://bocconi2020.lakecomoschool.org>

July 14–16: Nottingham, UK. 11th IMA International Conference on Modelling in Industrial Maintenance and Reliability (MIMAR) **w** <https://tinyurl.com/IMAMIMAR>

July 27–August 14: Bangalore, India. First-Passage Percolation and Related Models **w** <https://www.icts.res.in/program/fpp2020>

August 2020

 **August 1–6:** Philadelphia, PA, USA. JSM 2020 **w** <https://ww2.amstat.org/meetings/jsm/2020/index.cfm>

POSTPONED  **August 17–21:** Seoul, Korea. Bernoulli/IMS World Congress in Probability and Statistics **w** <http://www.wc2020.org>

NEW **August 19–21:** Prague, Czech Republic. 2nd International Conference on Statistics: Theory and Applications (ICSTA'20) **w** <https://icsta.net/>

August 23–27: Krakow, Poland. 41st Annual Conference of the ISCB **w** www.iscb2020.info

September 2020

September 9–11: Manchester, UK. 2nd IMA Conference on the Mathematics of Robotics **w** <https://ima.org.uk/11468/ima-conference-on-mathematics-of-robotics/>

NEW **September 20–23:** Ribno (Bled), Slovenia. Applied Statistics 2020 (AS2020) **w** <http://conferences.nib.si/AS2020>

NEW **September 23–25:** Rockville, MD, USA. 2020 ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop (Biopharm 2020) **w** <https://ww2.amstat.org/meetings/biop/2020/>

October 2020

October 1–3: Pittsburgh, PA, USA. Women in Statistics and Data Science Conference **w** <https://ww2.amstat.org/meetings/wds/2020/>

NEW  **October 18–20:** Seattle, WA, USA. ACM–IMS Foundations of Data Science Conference **w** <https://fods.acm.org>

November 2020

November 4–6: Utrecht, The Netherlands. Big Data Meets Survey Science (BigSurv20) **w** <https://www.bigsurv20.org/>

December 2020


NEW **December 7–11:** Atlantic City, USA. 76th Annual Deming Conference on Applied Statistics **w** <https://demingconference.org>

International Calendar *continued*


December 2020 continued

December 15–17: Manipal, India. 28th International Workshop on Matrices and Statistics (IWMS 2020) **w** <https://carams.in/events/international-workshop-on-matrices-and-statistics/>

January 2021

 January 5–8: Melbourne, Australia. IMS Asia Pacific Rim Meeting (IMS-APRM2021) **w** <http://ims-aprm2021.com/>

March 2021

 March 14–17: Baltimore, MD, USA. ENAR Spring Meeting **w** <http://www.enar.org/meetings/future.cfm>

April 2021

  April 12–13: Svalbard, Norway. ABC in Svalbard **w** <https://sites.google.com/view/abcinsvalbard/home>

July 2021

July 11–15: The Hague, The Netherlands. 63rd ISI World Statistics Congress 2021 **w** <http://www.isi2021.org/>

July 15–18: Montreal, Canada. Statistics 2021 Canada **w** <https://www.concordia.ca/artsci/events/statistics-2021.html>

August 2021

 August 7–12: Seattle, WA, USA. IMS Annual Meeting at JSM 2021 **w** <http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx>

March 2022

 March 27–30: Houston, TX, USA. ENAR Spring Meeting **w** <http://www.enar.org/meetings/future.cfm>

June 2022

June 27–July 1: Darwin, Australia. Joint Southern Statistical Meetings 2022 (JSSM2022) **w** <https://statsoc.org.au/event-3529236>

July 2022

 July/August [exact dates TBC]: London, UK. IMS Annual Meeting **w** TBC

July 10–15: Riga, Latvia. XXXI International Biometric Conference (IBC 2022) **w** <https://www.biometricsociety.org/meetings-events/ibcs/>

August 2022

 August 6–11: Washington DC, USA. JSM 2022 **w** <http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx>

August 2023

 August 5–10: Toronto, ON, Canada. IMS Annual Meeting at JSM 2023 **w** <http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx>

Are we missing something? If you know of any statistics or probability meetings which aren't listed here, please let us know.

You can email the details to Elyse Gustafson at erg@imstat.org, or you can submit the details yourself at <https://www.imstat.org/ims-meeting-form/>

We'll list them here in the Bulletin, and on the IMS website too, at imstat.org/meetings-calendar/

Membership and Subscription Information

Journals

The scientific journals of the Institute of Mathematical Statistics are *The Annals of Statistics*, *The Annals of Probability*, *The Annals of Applied Statistics*, *The Annals of Applied Probability*, and *Statistical Science*. The *IMS Bulletin* is the news organ of the Institute.

Individual Memberships

Each individual member receives the *IMS Bulletin* (print and/or electronic) and may elect to receive one or more of the five scientific journals. Members pay annual dues of \$105. An additional \$110 is added to the dues of members for each scientific journal selected (\$70 for *Stat Sci*). **Reduced membership dues** are available to full-time students, new graduates, permanent residents of countries designated by the IMS Council, and retired members.

Individual and General Subscriptions

Subscriptions are available on a calendar-year basis. **Individual subscriptions** are for the personal use of the subscriber and must be in the name of, paid directly by, and mailed to an individual. Individual subscriptions for 2020 are available to *The Annals of Applied Probability* (\$225), *The Annals of Applied Statistics* (\$225), *The Annals of Probability* (\$225), *The Annals of Statistics* (\$225), *Statistical Science* (\$185), and *IMS Bulletin* (\$115). **General subscriptions** are for libraries, institutions, and any multiple-readership use. Institutional subscriptions for 2020 are available to *The Annals of Applied Probability*, *The Annals of Applied Statistics*, *The Annals of Probability*, and *The Annals of Statistics* (each title \$525 online only / \$618 print+online), *Statistical Science* (\$301/\$352), and *IMS Bulletin* (\$146 print). Airmail delivery is no longer offered.

IMS Bulletin

The *IMS Bulletin* publishes articles and news of interest to IMS members and to statisticians and probabilists in general, as well as details of IMS meetings and an international calendar of statistical events. Views and opinions in editorials and articles are not to be understood as official expressions of the Institute's policy unless so stated; publication does not necessarily imply endorsement in any way of the opinions expressed therein, and the *IMS Bulletin* and its publisher do not accept any responsibility for them. The *IMS Bulletin* is copyrighted and authors of individual articles may be asked to sign a copyright transfer to the IMS before publication.

The *IMS Bulletin* (ISSN 1544-1881) is published eight times per year, in January/February, March, April/May, June/July, August, September, October/November and December, by the Institute of Mathematical Statistics, 3163 Somerset Dr, Cleveland, Ohio 44122, USA. Periodicals postage paid at Cleveland, Ohio, and at additional mailing offices. Postmaster: Send address changes to 3163 Somerset Dr, Shaker Heights, OH 44122 USA or dues.subs@imstat.org. Copyright © 2020 by the Institute of Mathematical Statistics. Printed by The Sheridan Press, 450 Fame Avenue, Hanover, PA 17331, USA.

Information for Advertisers

General information: The *IMS Bulletin* and webpages are the official news organs of the Institute of Mathematical Statistics. The *IMS Bulletin*, established in 1972, is published 8 times per year. Print circulation is around 3,500 paper copies, and it is also free online in PDF format at <https://www.imstat.org/ims-bulletin-archive/>, posted online about two weeks before mailout (average downloads over 8,000). Subscription to the *IMS Bulletin* costs \$115; call 877-557-4674 (US toll-free) or +1 216 295 2340 (international), or email dues.subs@imstat.org. The IMS website, <https://imstat.org>, established in 1996, receives over 30,000 visits per month.

Advertising job vacancies

A single 60-day online job posting costs just **\$315.00**. We will also include the basic information about your job ad (position title, location, company name, job function and a link to the full ad) in the *IMS Bulletin* at no extra charge. See <http://jobs.imstat.org>

Advertising meetings, workshops and conferences

Meeting announcements here and on the IMS website at <https://imstat.org/meetings-calendar/> are free. Submit your announcement at <https://www.imstat.org/ims-meeting-form/>

Rates and requirements for display advertising

Display advertising allows for placement of camera-ready ads for journals, books, software, etc. A camera-ready ad should be sent as a grayscale PDF/EPS with all fonts embedded. Email your advert to Audrey Weiss, IMS Advertising Coordinator admin@imstat.org or see <https://imstat.org/advertise>

	Dimensions: width x height	Rate
1/3 page	4.9" wide x 4" high (125 x 102 mm)	\$275
1/2 page	7.5" wide x 4" high (190 x 102 mm)	\$345
2/3 page	4.9" wide x 8" high (125 x 203 mm)	\$405
Full page (to edge, including 1/8" bleed)	8.75" wide x 11.25" high (222 mm x 286 mm)	\$465
Full page (within usual <i>Bulletin</i> margins)	7.5" wide x 9.42" high (190 mm x 239 mm)	\$465

Deadlines and Mail Dates for *IMS Bulletin*

Issue	Deadline	Online by	Mailed
1: January/February	December 1	December 15	January 1
2: March	February 1	February 15	March 1
3: April/May	March 15	April 1	April 15
4: June/July	May 1	May 15	June 1
5: August	July 1	July 15	August 1
6: September	August 1	August 15	September 1
7: Oct/Nov	September 15	October 1	October 15
8: December	November 1	November 15	December 1

the
next
issue is
June/July
2020

Read IMS Bulletin
articles online at
<https://imstat.org/news>



DEADLINES
for
submissions
May 1, then
July 1

Please see inside
the back cover for
subscription details
and information for
advertisers, including
all our **deadlines and**
requirements

Journal
alerts

For email alerts when
new IMS journal issues
are released, sign up at
<https://imstat.org/portal/login>

The *purpose* of the *Institute* is to foster the
development and dissemination
of the **theory and applications of**
statistics and probability

ims

IMS: Organized September 12, 1935

THE ANNALS of PROBABILITY

AN OFFICIAL JOURNAL OF THE
INSTITUTE OF MATHEMATICAL STATISTICS

Articles

Dimers and imaginary geometry.....	NATHANAËL BERESTYCKI, BENOÎT LASLIER AND GOURAB RAY	1
On a perturbation theory and on strong convergence rates for stochastic ordinary and partial differential equations with non-globally monotone coefficients	MARTIN HUTZENTHALER AND ARNULF JENTZEN	53
Quenched invariance principles for the maximal particle in branching random walk in random environment and the parabolic Anderson model	JIRÍ ČERNÝ AND ALEXANDER DREWITZ	94
Continuous Breuer–Major theorem: Tightness and nonstationarity	SIMON CÂPPESE, IVAN NOURDIN AND DAVID NUALART	147
Strong existence and uniqueness for stable stochastic differential equations with distributional drift.....	SIVA ATHREYA, OLEG BUTKOVSKY AND LEONID MYTNIK	178
From the master equation to mean field game limit theory: Large deviations and concentration of measure.....	FRANÇOIS DELARUE, DANIEL LACKER AND KAVITA RAMANAN	211
Convergence of transport noise to Ornstein–Uhlenbeck for 2D Euler equations under the enstrophy measure	FRANCO FLANDOLI AND DEJUN LUO	264
Quenched invariance principle for random walks among random degenerate conductances.....	PETER BELLA AND MATHIAS SCHÄFFNER	296
Exact asymptotics for Duarte and supercritical rooted kinetically constrained models.....	LAURE MARÉCHÉ, FABIO MARTINELLI AND CRISTINA TONINELLI	317
Mallows permutations and finite dependence	ALEXANDER E. HOLROYD, TOM HUTCHCROFT AND AVI LEVY	343
Geometric ergodicity in a weighted Sobolev space	ADITHYA DEVRAJ, IOANNIS KONTOYIANNIS AND SEAN MEYN	380
Hydrodynamics in a condensation regime: The disordered asymmetric zero-range process	C. BAHADORAN, T. MOUNTFORD, K. RAVISHANKAR AND E. SAADA	404

Vol. 48, No. 1—January 2020

Ann. Prob. January 2020
<https://projecteuclid.org/euclid.aop>