



March 2019

CONTENTS

- 1 **Wolf Prize for Greg Lawler and Jean-François Le Gall**
- 2–3 **Members' news:** Susan Murphy, Jonas Peters, Tengyao Wang, Emery Brown, Grégory Miermont
- 4–5 **Preview articles:** Krzysztof Burdzy, David Dunson
- 6 **Recent papers:** *Electronic Journal of Statistics*; *Statistics Surveys*
- 7 **Project Euclid** by the Numbers
- 8 **President's Column:** The CRediT you've been asking for
- 10 **ACM joint membership agreement; *Statistical Science Conversations***
- 11 **Teaching Statistics at a Food Coop**
- 12 **Hand writing:** On Talking Data
- 13 **Meeting report:** SPA-2018
- 14 **Meetings**
- 19 **Employment Opportunities**
- 20 **International Calendar of Meetings**
- 23 **Information for Advertisers**

**Read it online:
bulletin.imstat.org**



Wolf Prize for Le Gall, Lawler

The Wolf Prize for Mathematics is awarded to **Gregory Lawler** from Chicago University, for his comprehensive and pioneering research on erased loops and random walks and to **Jean-François Le Gall** from Paris Sud Orsay University, for his profound and elegant works on stochastic processes. The work undertaken by these two mathematicians on loops and probability, which have been recognized by multiple prizes, became the stepping stone for many consequent breakthroughs.

Jean-François Le Gall has made several deep and elegant contributions to the theory of stochastic processes. His work on the fine properties of Brownian motions solved many difficult problems, such as the characterization of sets visited multiple times and the behavior of the volume of its neighborhood—the Brownian sausage. Le Gall made groundbreaking advances in the theory of branching processes, which arise in many applications. In particular, his introduction of the Brownian snake and his studies of its properties revolutionized the theory of super-processes—generalizations of Markov processes to an evolving cloud of dying and splitting particles. He then used some of these tools for achieving a spectacular breakthrough in the mathematical understanding of 2D quantum gravity. Le Gall established the convergence of uniform planar maps to a canonical random metric object, the Brownian map, and showed that it almost surely has Hausdorff dimension 4 and is homeomorphic to the 2-sphere.



Jean-François Le Gall

Photo: F. Hullin



Gregory Lawler

Gregory Lawler has made trailblazing contributions to the development of probability theory. He obtained outstanding results regarding a number of properties of Brownian motion, such as cover times, intersection exponents and dimensions of various subsets. Studying random curves, Lawler introduced a now classical model, the Loop-Erased Random Walk (LERW), and established many of its properties. While simple to define, it turned out to be of a fundamental nature, and was shown to be related to uniform spanning trees and dimer tilings. This work formed much of the foundation for a great number of spectacular breakthroughs, which followed Oded Schramm's introduction of the SLE curves. Lawler, Schramm and Werner calculated Brownian intersection exponents, proved Mandelbrot's conjecture that the Brownian frontier has Hausdorff dimension $4/3$ and established that the LERW has a conformally invariant scaling limit. These results, in turn, paved the way for further exciting progress by Lawler and others.

The awarding ceremony will be in May 2019 in Israel. Since 1978, five or six Wolf Prizes have been awarded annually in the Sciences; prize fields comprise agriculture, chemistry, mathematics, medicine and physics. The prize in each field consists of a certificate and a monetary award of \$100,000, shared between recipients.

Volume 48 • Issue 2
March 2019
ISSN 1544-1881

Contact information

Managing Editor: T.N. Sriram
Assistant Editor: Tati Howell
Contributing Editors:
Anirban DasGupta, Yoram Gat, David Hand, Takis Konstantopoulos, Xiao-Li Meng, Regina Nuzzo, Dimitris Politis, Kavita Ramanan and Terry Speed

Contact the IMS Bulletin by email:

e bulletin@imstat.org
w <http://bulletin.imstat.org>
f <https://www.facebook.com/IMSTATI>
t <https://twitter.com/InstMathStat>

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

✉ IMS Dues and Subscriptions Office
9650 Rockville Pike, Suite L3503A
Bethesda, MD 20814-3998
USA
t 877-557-4674 [toll-free in USA]
t +1 216 295 5661 [international]
f +1 301 634 7099
e staff@imstat.org

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

✉ Executive Director, Elyse Gustafson
IMS Business Office
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: Alison Etheridge
president@imstat.org
President-Elect: Xiao-Li Meng
president-elect@imstat.org
Past President: Jon Wellner
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 presents 2019 awards

The UK Royal Statistical Society has announced the recipients of its 2019 honours, who will be presented with their awards at a ceremony during their annual conference in Belfast this September. Notable among these are the **Guy Medals in Silver and Bronze**, which will be presented to **Susan Murphy** and **Jonas Peters**, respectively, and the **RSS Research Prize**, to **Tengyao Wang**. In addition, the Guy Medal in Gold will be presented to Stephen Buckland, and the Barnett Award to Marian Scott.



Susan Murphy

The Guy Medal in Silver is awarded to Susan Murphy, IMS Fellow and President-Elect, for her methodological, computational and applied work on dynamic treatment regimens. Susan's influential *JRSSB* paper in 2003 on Optimal Dynamic Treatment Regimens proposed a methodology for estimating decision regimens that result in a maximal mean response, consistent with an elegantly-defined regret function and for use with experimental or observational data. Substantial follow-up work on multi-stage decision making has built on this paper, including Susan's own work

ranging from sample size determination to performance guarantees for individualized treatment rules and applications ranging from addictions to micro-randomized optimization of mobile health interventions for the Fitbit generation.

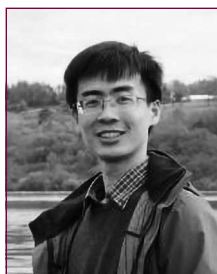
The Guy Medal in Bronze is awarded to IMS member Jonas Peters (University of Copenhagen) for important and innovative contributions to causal inference and related statistical methodology and theory. Of particular note are his two papers in *JRSSB*, namely 'Kernel-based tests for joint independence' (with N. Pfister, P. Bühlmann and B. Schölkopf), published in 2017, and 'Causal inference using invariant prediction: identification and confidence intervals' (with P. Bühlmann and N. Meinshausen), which was read to the Society in 2016.



Jonas Peters

The Research Prize is awarded to IMS member Tengyao Wang for his outstanding and diverse contributions to statistical methodology and theory. Amongst other research, he has given new understanding about computational and statistical trade-offs; developed theory for multi-dimensional shape constrained estimators; and introduced a new paradigm and method for detecting changes in high-dimensional data streams.

More at <https://www.statslife.org.uk/news/4045-announcing-our-honours-recipients-for-2019>



Tengyao Wang



If you hear news about your colleagues,
or anything you think IMS members
would be interested in, tell us!

Email bulletin@imstat.org



More IMS Members' News

Emery N. Brown Wins 2018 Dickson Prize in Science

Emery N. Brown, the Warren M. Zapol Professor of Anesthesia at Harvard Medical School and anesthesiologist at Massachusetts General Hospital, the Associate Director of the Institute for Medical Engineering and Science, the Edward Hood Taplin Professor of Medical Engineering and Computational Neuroscience at MIT, has won Carnegie Mellon University's 2018 Dickson Prize in Science.

"Dr. Brown is one of the world's leading physician-scientists," Carnegie Mellon said in the award announcement. He is among just 21 people elected to all three branches of the National Academies of Science. He is considered the world's expert on statistical analysis of neuronal data, according to CMU faculty member Robert E. Kass, and his research on anesthesia has been "truly transformative" to that field.

He directs an interdisciplinary team comprised of anesthesiologists, neuroscientists, bioengineers, mathematicians, neurologists and a neurosurgeon from MGH, MIT and Boston University that is deciphering the neuroscience of general anesthesia, CMU's announcement noted. Brown also directs the Neuroscience Statistics Research Laboratory at MGH and MIT where the research develops statistical methods and signal processing algorithms to analyze data collected in neuroscience experiments.

In accepting the award, Brown credited the many people he has worked with at MGH, MIT, BU, and Harvard. "I am extremely honored to receive the 2018 Dickson Prize in Science and to join the esteemed ranks of its past recipients," he said. "I am especially grateful to all of the many students, post-docs and colleagues whose successful collaborations have led to this recognition." See <https://www.cmu.edu/dickson-prize/current/>

Grégory Miermont awarded 2018 CNRS Silver Medal

The French National Center for Scientific Research (CNRS) has awarded one of its 2018 Silver Medals to **Grégory Miermont**, professor at the École Normale Supérieure de Lyon. CNRS awards Silver Medals to early-career researchers distinguished by the originality, quality and importance of their work, who are recognized nationally and internationally.

Grégory Miermont has been a professor at ENS Lyon since 2012 and is a junior member of the Institut Universitaire de France. He defended his thesis at the University of Pierre and Marie Curie in 2003 under Jean Bertoin. His first steps as a researcher were the opportunity to solve and clarify many natural issues related to branching random structures (trees, fragmentation-coagulation processes). In recent years, his research has focused on the study of planar maps, a field in full development at the interface between combinatorics, theoretical physics and probabilities. It consists in understanding the large-scale properties of plane graphs. In 2011, Grégory solved the main open problem in the subject, namely the convergence of random quadrangulations towards a "continuous" random metric space (called the Brownian map), which was obtained independently by different methods by Jean-François Le Gall. In recent years, Grégory Miermont has achieved other important results in the field of random geometry. His work with Bettinelli on Brownian discs, his long article with Baur and Ray classifying all possible boundaries of quadrangulations with a boundary, or his fine work with Addario-Berry, Broutin and Goldschmidt on the scale limit of the minimal spanning tree on the complete graph can be cited in particular.


For more information on Grégory's work and main publications, see the article at <http://www.cnrs.fr/insmi/spip.php?article2865>.

 = 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/aap>

Statistical Science: Cun-Hui Zhang

<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

<http://ejp.ejpecp.org>

Electronic Communications in Probability:


Giambattista Giacomin

 <http://ecp.ejpecp.org>

Journal of Computational and Graphical Statistics:


Diane Cook

<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: Victor Perez Abreu


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

Annales de l'Institut Henri Poincaré (B): Gregory

Miermont, Christophe Sabot <http://imstat.org/aihpc>

 <http://projecteuclid.org/aihpc>

Bayesian Analysis: Bruno Sansó

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


Bernoulli: Holger Dette

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

 <http://projecteuclid.org/bj>


Brazilian Journal of Probability and Statistics:

Francisco Louzada Neto <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. Musiela, J. Rosiński, W. Szczołka, & W.A. Woyczyński

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

Stochastic Systems: Shane Henderson

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

Preview: Special IMS Lectures in 2019

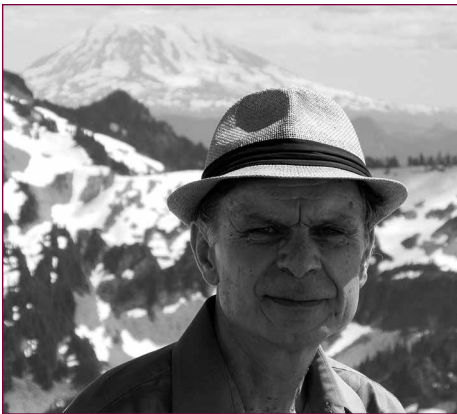
Over the coming months we will be featuring previews of the 2019 special invited speakers who will be giving their lectures at three IMS meetings this year: the **INFORMS/APS meeting in Brisbane, Australia, July 2–4**; the **41st Conference on Stochastic Processes and their Applications 2019 (SPA 2019), July 8–12** in Evanston, Illinois, USA; and the **2019 Joint Statistical Meetings, JSM, July 27–August 1**, in Denver, Colorado, USA.

Charles Bordenave will be giving a Medallion Lecture at the INFORMS/APS meeting. The SPA meeting will feature two Medallion lectures, from **Krzysztof Burdzy** [see below] and **Etienne Pardoux**, as well as the Schramm Lecture from **Stanislav Smirnov**. At the JSM, the Wald lecturer will be **Trevor Hastie**; the Rietz lecture will be **Yoav Benjamini**, and the remaining four Medallion lectures will be given by **David Dunson** [see next page], **Elizaveta (Liza) Levina**, **Hao Helen Zhang** and **Yee Whye Teh**.

So, to give you a taste of their lectures, two of the 2019 special invited speakers outline their subjects below. We'll bring you more preview articles in the next few issues.



Medallion lecturer: Krzysztof Burdzy



Krzysztof Burdzy received his PhD in 1984 from the Department of Statistics at the University of California at Berkeley, under the supervision of Professor Jim Pitman. He was a postdoc at the University of California at San Diego and held positions at the Polish Academy of Sciences and Purdue University before joining the Department of Mathematics at the University of Washington in 1988. His research interests include Brownian motion and its applications to analysis and, more recently, processes with ballistic paths. He is a Fellow of the IMS and the AMS, a member of the Washington State Academy of Sciences, and received the 1992 Rollo Davidson Prize and the IMS Carver Medal in 2016.

Krzysztof Burdzy's Medallion Lecture will be given at SPA 2019 in Evanston, Illinois, in July 2019; see <https://sites.math.northwestern.edu/SPA2019/SPA2019.html>.

On Archimedes' principle and Fermi acceleration

Archimedes' principle is over 2,000 years old but there is no mathematical literature on this law of physics. The most likely reason is that Archimedes' principle follows easily from the formulas for pressure. This approach leads to some subtle questions. I will describe an approach to Archimedes' principle using classical mechanics, mixed with some stochastic ideas.

"Fermi acceleration" refers to the unlimited growth of energy in models for particles reflecting from moving walls. I will discuss the question of the emergence of Fermi acceleration in rotating

drums with hard balls under gravitation. Without gravitation, no Fermi acceleration arises in a rotating drum because the system is integrable.

Both topics are related to Lambertian reflections, also known as Knudsen law, modeling random reflections of light or gas particles from rough surfaces.

This is joint work with M. Duarte, C.E. Gauthier, R. Graham, J. Malecki and J. San Martin.

Medallion lecturer: David Dunson

David Dunson is Arts and Sciences Distinguished Professor of Statistical Science and Mathematics at Duke University. He is known for his broad spanning contributions to statistical methodology, with a particular focus on novel modeling frameworks and Bayesian approaches that are motivated by complex and high-dimensional data collected in the sciences. This includes latent factor, dimensionality reduction, nonparametric and machine learning methodology. Primary areas of application include neurosciences and brain network modeling, environmental health, ecology, and human fertility, among others. David is a fellow of the ASA, IMS and ISBA and has won numerous awards, including most notably the 2010 COPSS President's Award. His work is very widely cited and he has an h -index of 70 on Google Scholar.

David Dunson's Medallion Lecture will be given at JSM 2019 in Denver, USA (provisionally on Monday July 29, but check the program at <http://ww2.amstat.org/meetings/jsm/2019/onlineprogram/index.cfm> when it is finalized in late March).



Learning & exploiting low-dimensional structure in high-dimensional data

Characterizing low-dimensional structure in complex and high-dimensional data is one of the canonical problems in statistics and machine learning. There is a very rich associated literature spanning from classical methods, such as principal components analysis (PCA), to recent popular non-linear approaches, such as various manifold learning algorithms and variational auto-encoders (VAEs). The majority of this literature is focused on algorithmic approaches that lack uncertainty quantification, and (in particular) the ability to propagate uncertainty across different components in inference and prediction tasks. Most commonly, one applies a two-stage approach in which the original high-dimensional data are replaced with lower-dimensional scores, and these scores are then used as the basis of data visualization and subsequent statistical analyses.

A particular focus of this talk is on fully model-based frameworks for flexible non-linear dimensionality reduction, in which one has a hierarchical likelihood specification of the data generating process. The associated literature is surprisingly limited, with most of the focus being on some variation of locally linear models. For example, one could approximate a non-linear subspace or manifold using a collection of hyperplanes with the density of the data having elliptical contours around these planes. This leads naturally to mixture of Gaussian models, potentially with a factor analytic structure on the covariance to reduce dimension. However, a critical disadvantage of locally linear models, including mixtures of Gaussians, is the inability to parsimoniously represent data lying close to non-linear subspaces having high curvature.

Motivated by this problem, we propose a useful new class

of *spherelet* dictionaries and kernels for concisely representing nonlinear low dimensional structure in complex data. We start by proposing a simple generalization of PCA to allow curvature; we refer to this approach as spherical PCA (SPCA) and show that SPCA has substantial theoretical and practical advantages in many settings – using manifold learning as a motivating example. SPCA has a simple analytic form, making it easy to use as an alternative to PCA in broad cases. We show improvements over competitors in a variety of applications including manifold estimation, image denoising, geodesic distance estimation and classification. A simple nearest-neighbor spherelets classifier can be defined that has improved performance over a wide range of competitors, including convolutional neural networks, in canonical image classification problems, such as for digits data. Relative to neural networks, dramatically fewer training examples are needed.

Spherelets can also be used to create new kernels for multivariate density estimation and associated problems. In particular, spherelet kernels are obtained by generating from a Fisher von Mises density on a sphere and then adding Gaussian noise. The resulting kernels can be curved to an extent controlled by the radius of the sphere, generalize the Gaussian, and have an analytic expression. We define spherelet kernel mixture models and developing supporting MCMC algorithms and theory, showing dramatically better performance compared with mixtures of Gaussians in a variety of examples.

Recent papers: two co-sponsored journals

Electronic Journal of Statistics

The *Electronic Journal of Statistics (EJS)* publishes research articles and short notes in theoretical, computational and applied statistics. The journal is open access. Articles are refereed and are held to the same standard as articles in other IMS journals. Articles become publicly available shortly after they are accepted. EJS is sponsored by IMS and the Bernoulli Society. The Editor is Domenico Marinucci. Read it at <https://projecteuclid.org/euclid.ejs>

Volume 13: Number 1, 2019

Linear regression with sparsely permuted data	MARTIN SLAWSKI AND EMANUEL BEN-DAVID; 1–36
Convergence rates of latent topic models under relaxed identifiability conditions	YINING WANG; 37–66
Generalised additive dependency inflated models including aggregated covariates	YOUNG K. LEE, ENNO MAMMEN, JENS P. NIELSEN, AND BYEONG U. PARK; 67–93
Exact adaptive confidence intervals for linear regression coefficients	PETER HOFF AND CHAOYU YU; 94–119
Auxiliary information: the raking-ratio empirical process	MICKAEL ALBERTUS AND PHILIPPE BERTHET; 120–165
Trace class Markov chains for the Normal–Gamma Bayesian shrinkage model	LIYUAN ZHANG, KSHITIJ KHARE, AND ZEREN XING; 166–207
Detection of sparse mixtures: higher criticism and scan statistic	ERY ARIAS-CASTRO AND ANDREW YING; 208–230
Importance sampling the union of rare events with an application to power systems analysis	ART B. OWEN, YURY MAXIMOV, AND MICHAEL CHERTKOV; 231–254
Estimation of spectral functionals for Levy-driven continuous-time linear models with tapered data	MAMIKON S. GINOVYAN AND ARTUR A. SAHAKYAN; 255–283
Fast Bayesian variable selection for high dimensional linear models: Marginal solo spike and slab priors.	SU CHEN AND STEPHEN G. WALKER; 284–309
Weak dependence and GMM estimation of supOU and mixed moving average processes.	IMMA VALENTINA CURATO AND ROBERT STELZER; 310–360
Optimal designs for regression with spherical data	HOLGER DETTE, MARIA KONSTANTINOY, KIRSTEN SCHORNING, AND JOSUA GÖSMANN; 361–390
Additive partially linear models for massive heterogeneous data.	BINHUAN WANG, YIXIN FANG, HENG LIAN, AND HUA LIANG; 391–431
Monte Carlo modified profile likelihood in models for clustered data	CLAUDIA DI CATERINA, GIULIANA CORTESE, AND NICOLA SARTORI; 432–464
Query-dependent ranking and its asymptotic properties	BEN DAI AND JUNHUI WANG; 465–488

Statistics Surveys

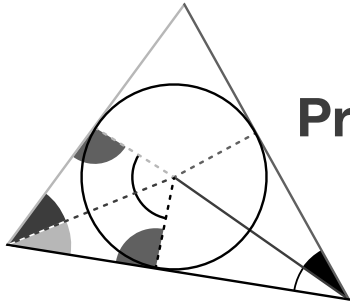
Statistics Surveys publishes survey articles in theoretical, computational, and applied statistics. The style of articles may range from reviews of recent research to graduate textbook exposition. The essential requirements are a well specified topic and target audience, together with clear exposition. *Statistics Surveys* is co-sponsored by IMS, the American Statistical Association, the Bernoulli Society, and the Statistical Society of Canada. The IMS Editor is David Banks. Read it at <https://projecteuclid.org/euclid.ssu>

Volume 12, 2018

A design-sensitive approach to fitting regression models with complex survey data	PHILLIP S. KOTT; 1–17
Variable selection methods for model-based clustering	MICHAEL FOP AND THOMAS BRENDAN MURPHY; 18–65
An approximate likelihood perspective on ABC methods.	GEORGE KARABATSOS AND FABRIZIO LEISEN; 66–104
A review of dynamic network models with latent variables	BOMIN KIM, KEVIN H. LEE, LINGZHOU XUE, AND XIAOYUE NIU; 105–135
Pitfalls of significance testing and p-value variability: An econometrics perspective	NORBERT HIRSCHAUER, SVEN GRÜNER, OLIVER MUSSHOFF, AND CLAUDIA BECKER; 136–172

These two journals are among the range of Open Access journals that IMS offers (the others are *Electronic Communications in Probability*, *Electronic Journal of Probability* and *Probability Surveys*). Donations are welcome to the IMS Open Access Fund:

<https://www.imstat.org/shop/donation/>



Project Euclid

by the numbers
projecteuclid.org

An alternative
to corporate
publishing since
its founding in

1999

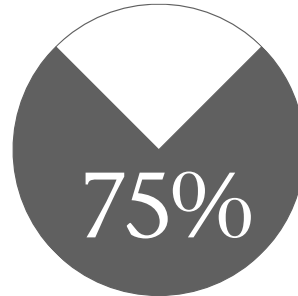
Project Euclid hosts

105 publications

from **41** publishers

in **17** countries

on **6** continents



of Project Euclid
content is
open access

6

Project Euclid hosts three
top-20 mathematics
journals and three top-20
statistics journals, ranked
by impact factor

2,513,902

Pages on Project Euclid as of 1/2019

60

journals have
their full archive
on Project Euclid

32



titles in Euclid Prime in 2019

Project Euclid hosts articles from

15



Abel Prize winners

44



Fields Medalists

45



Wolf Foundation · *פסח* 117

Wolf Prize winners

The CRediT you have been asking for

Xiao-Li Meng writes, in his third President's Column: "Where should I put my name in the author list when I write a paper with my students?" is one recurring question I have been asked by junior colleagues since I earned the privilege to enjoy my senior moments. To people outside of the publication world, this question may sound purely academic, puzzling, or even silly. With zillions of publications available, shouldn't there already be a well-established rule for such a simple matter? Besides, how many readers actually pay attention to the authorship order?

In the IMS community, however, we all understand that the matter is far from simple, and indeed it is a main source of frustration, even unhappiness, in the academic world. Many of us also have encountered situations where we have tried to infer the contribution made by a particular author from the authorship order, such as when we serve as a reference letter writer for someone we don't know, as a member of a promotion or appointment committee, or on a funding or award panel. We understand that, whether in perception or in reality, being a *lead* author or *mid* author could mean the difference between having a leading professional life or a mediocre one.

At the societal and professional level, properly documenting, measuring, and conveying the contributions made by those who work with large collaborative teams is a critical step "to equalize our value systems for influential scholarly pursuits and for impactful collaborative effort" (<http://bulletin.imstat.org/2018/11/the-world-is-loving-us-almost-surely-can-we-love-back-passionately/>). The current authorship metric adopted by all of our journals is structurally deficient for this task.

As we all know, our current authorship convention relies on a one-dimensional ordering. We use the ordering to index the degrees of contributions, usually with the

leading author going first. Or we invoke a non-informative alphabetical ordering to signal equal contributions or, more likely, an agreement among the authors that there is no better way to make everyone happier. Consequently, the information conveyed by the current authorship data is insufficient, ambiguous, and even deceiving, the worst kind of data design and collection that we tell our students to avoid like fast food.

Successful collaborative projects are, by default, multi-dimensional, as the resulting impact of the project relies on different expertise and skills. Any univariate index is mathematically inadequate to represent multi-dimensional information, no matter how cleverly it is constructed (e.g., the *h*-index). Worse, inadequate representations tend to induce bad behaviors. Once, I had a potential collaborator who announced on day one that his position on our authorship list must be invariant to his actual contributions, that is, always the first. I appreciated his candidness, as it helped me establish my own invariance principle: I won't co-author papers with any such invariant authors.

The scientific community is fueled by innovations and creativities, which have greatly advanced human societies and civilizations. Most ironically, the same community has been embarrassingly slow to come up with a creative solution to address this long-standing issue of its own: properly documenting authors' contributions in research publications. And the statistical community has not helped much either, despite the problem being about data (accurately documenting each author's roles) and inference (about the authors' contributions to the overall project).

The movie industry solved this problem more than half a century ago, when films started to have both opening and closing credits (granted, few viewers care to stay until the very last, unless there are out-takes

or alternative endings). Years ago, I joked with some colleagues that someday we would learn from Hollywood about crediting contributions. I am therefore particularly pleased to learn that the scientific publication world is indeed moving from authorship into *contributorship* by explicitly acknowledging the specific roles of each author, just as in movie credits.

The article "Credit where credit is due" in *Nature* (April 2014, pp. 312-313; <https://www.nature.com/news/publishing-credit-where-credit-is-due-1.15033>) proposed the Contributor Roles Taxonomy (CRediT) methodology for documenting authors' contributions. The method has been endorsed by leaders of major scientific organizations and publications, such as the US National Academy of Sciences (NAS), *Science*, *New England Journal of Medicine*, *PLOS*, Cell Press, and SAGA Publishing; see "Transparency in authors' contributions and responsibilities to promote integrity in scientific publication" in *PNAS* (March 2018, pp 2557-2560; <https://www.pnas.org/content/115/11/2557>). So far, CRediT has been adopted in various forms by *Nature*, *PLOS*, *Cell*, and in about 120 journals, as most recently reported in <https://onlinelibrary.wiley.com/doi/full/10.1002/leap.1210>.

At the heart of CRediT is a taxonomy of research contributions to list individual authors' specific roles for articles. The table on the next page, which lists 14 roles, is reproduced from the 2014 *Nature* article. I am sure not everyone would agree on the specific descriptions of each role, or even the list of roles. Indeed, the authors of CRediT recognized that some roles, such as "Project administration" or "Funding acquisition," might not even belong to the list (e.g., it is debatable if a lab director is automatically entitled to put her/his name on every paper from the lab because

it is supported by funds s/he raised). Nevertheless, CRediT is a much-needed step in the right direction, providing richer data for inferring each author’s contributions. Therefore, I would strongly encourage our journals, especially those that publish more collaborative work (e.g., *Annals of Applied Statistics*) to consider adopting a form of CRediT. In doing so, I also hope we will be mindful about balancing appropriateness for our fields and adherence to a common standard across fields, especially considering the interdisciplinary nature of the collaborative work that we want to be appropriately credited for performing.

Of course, no metric or system is perfect, and each of them can (and will) be abused. If all authors put down their names for all the roles, then the CRediT system

achieves little as a data collection process. There will be times when such “all-for-all” is appropriate, especially for some theoretical papers, which tend to have smaller number of authors who engage in all aspects of the project. But for large collaborative projects, where CRediT is needed most, it is typically not difficult to delineate the roles. I have been involved in multiple large scientific projects (e.g., in astrophysics, environmental sciences, health disparities) where I had zero roles in data collection, data curation, or data visualization. Not claiming credit for any process to which I made no contribution is obviously the right thing to do, but it also relieves me from the accountability for oversights, mistakes, or (God forbid!) even plagiarism in these processes.

Spider-Man said, “With great power comes great responsibility,” and the aforementioned *PNAS* article followed suit by stating that authorship implies both credit and accountability. Without proper attribution, all authors would be held accountable for any error or flaw in the paper; as NAS specifies, “an author who is willing to take credit for a paper must also bear responsibility for its contents. Thus, unless a footnote or the text of the paper explicitly assigns responsibility for different parts of the paper to different authors, the authors whose names appear on a paper must share responsibility for all of it” (<https://www.nap.edu/catalog/12192/on-being-a-scientist-a-guide-to-responsible-conduct-in>). For large collaborative projects, it is typically impossible for any author to know much about what every co-author did, let alone to watch for errors and flaws in every process. (As a matter of fact, among about 150 co-authors of mine, there are more than 10% of them that I never had any correspondence with, and all of those were from these large collaborative projects.)

Of course, there will be a few people who would hate anything like CRediT. A digital scholar told me recently, “Someone got really mad at me after I talked about the CRediT system in a presentation.” Others who knew the person explained that this someone is known to fight for credits that he does not deserve, including insisting on being the leading author, but without leading the project. I took it as a good sign that CRediT has frustrated such people, because its very purpose is to follow Samuel Adam’s advice and give credit only to whom credit is due. If you find yourself frustrated by CRediT or other similar authorship contribution taxonomies, I’d suggest you first get a case of Samuel Adams and then apply to become a dean or president, where you will be credited or blamed for things of which you are completely unaware.

Table 1: A taxonomy of research contributions to list individual authors’ specific roles for articles (reproduced from Nature with permission)

Taxonomy category	Description of role
Study conception	Ideas; formulation of research question; statement of hypothesis
Methodology	Development or design of methodology; creation of models
Computation	Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms
Formal analysis	Application of statistical, mathematical or other formal techniques to analyse study data
Investigation: perform the experiments	Conducting the research and investigation process, specifically performing the experiments
Investigation: data/evidence collection	Conducting the research and investigation process, specifically data/evidence collection
Resources	Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation or other analysis tools
Data curation	Management activities to annotate (produce metadata) and maintain research data for initial use and later re-use
Writing/manuscript preparation: writing the initial draft	Preparation, creation and/or presentation of the published work, specifically writing the initial draft
Writing/manuscript preparation: critical review, commentary or revision	Preparation, creation and/or presentation of the published work, specifically critical review, commentary or revision
Writing/manuscript preparation: visualization/data presentation	Preparation, creation and/or presentation of the published work, specifically visualization/data presentation
Supervision	Responsibility for supervising research; project orchestration; principal investigator or other lead stakeholder
Project administration	Coordination or management of research activities leading to this publication
Funding acquisition	Acquisition of the financial support for the project leading to this publication

A NEW RELATIONSHIP

We are pleased to announce that IMS will be engaging in joint activities with the **Association of Computing Machinery (ACM)**, addressing the dynamic field of Data Science.



Association for
Computing Machinery

Advancing Computing as a Science & Profession

As an initial event, the **ACM–IMS Interdisciplinary Summit on the Foundations of Data Science** will be held June 15, 2019, in San Francisco. The event will bring together luminaries from Computing and Statistics for keynotes and panels on important topics in Data Science, such as fairness, privacy, ethics, causal inference, deep learning, and reinforcement learning, in addition to discussions about the future of Data Science and the role of ACM and IMS. Information about the program and registration will be available shortly at <http://acct-www.acm.org/data-science-summit>

We are also pleased to announce a **joint membership agreement** for the two societies. IMS members will receive a **25% discount** on ACM membership. Student IMS members will receive free ACM membership. Information about this joint membership is available at <https://www.acm.org/membership/joint-member-rates-for-ims>

Statistical Science ‘Conversations’ online

Reminder that Stat Sci ‘Conversations’ are available on website

If you’re reading this, you’re probably already an IMS member, and as such, have set up your free access to all IMS journals, past and present. But did you know that **all** *Statistical Science* ‘Conversations’ are now open to the public as well? These interviews with some of the distinguished leaders in statistics and probability are one of the most popular features of *Statistical Science*. The personal opinions and experiences given in these interviews add a human touch, while also giving insights into the intellectual history of our field. By making them openly available, IMS hopes to add to a broader understanding of the important roles that statistics and probability play in science and in society more generally. So tell your interested friends!

Added in the past year are conversations with S.R.S. (Raghu) Varadhan, Tom Louis, Jim Pitman and Jon Wellner. You can find a full list of the articles here: <https://www.imstat.org/journals-and-publications/statistical-science/conversations/>



Teaching Statistics... at a Food Coop

Jonathan Skinner has taught a free statistics class (“without math”) as part of the offerings at his local food coop, in order to spread the good word, for the past several years. He writes: I am a retired statistician with a PhD in mathematics (1970). It struck my fancy to offer statistics in the classes at our local Honest Weight Food Coop, as a change from those on meditation and cooking. My monthly sessions aim to provide a chance to talk about statistical issues—and science in general—and to generate a spark of thoughtfulness for people outside academic circles. I advertise: “No math needed for or used in this stand-alone session.” This is not strictly accurate, since what I omit is algebraic notation, and when possible I describe the computations in words. I think, if Euclid can describe, with proof, the generation of perfect numbers from powers of two before the invention of algebra, I can define variance without using a frightening capital sigma, with indices, indicating summation. The expected attendees are people interested in a bit of intellectual zing, who would like to learn something about statistics, who don’t mind digressions into general science, and who have little or no background in mathematics. Some who actually attend claim to suffer math-fright or total ignorance of statistics, although this later claim is usually false. Others reluctantly admit to some statistical background but say they have forgotten it all. All of them seem to relate easily to graphs and diagrams.

Before each session, I email a script that I will work from to all attendees for whom I have an email address. Two to four people show up, so our meeting is like a long conversation about statistics.

My outlook is based on Fisher’s definition of statistics on page 1 of his *Statistical Methods for Research Workers* (now almost 100 years old and still in print): “Statistics may be regarded as (i) the study of **populations**, (ii) as the study of **variation**, (iii) the study of methods of the **reduction of data**.” [Emphasis in the original.] The second and third items differ little in substance from the definition of D.J. Hand

*He advertises:
No math needed for, or used
in, this stand-alone session*

in his recent article on administrative data in the *JRSS* (Series A, February 2018): “statistics is the technology of extracting meaning from data and of handling uncertainty.” So I always include Fisher’s definition with explanation, since I think everyone needs to recognize Fisher’s contribution to our subject. I also try to distinguish statistics from mathematics, saying that in math a number is just a number, while in statistics, a number is always a number *of something* and has a story behind it. If you don’t know the story of the data and its treatment, how the study of the population was carried out, then you don’t understand the statistic. But it’s a mistake to remember the story and forget the magnitude—you can’t have one without the other—even though popular mentions of a statistic rarely give its story.

I work in a bit of the history of statistics, to the effect that statistics dates back 5,000 years, when it was a matter of counting and tabulation. Probability is equally old, with dice-like bones found in archaeological digs. The two subjects joined about 200 years ago, although our modern subject, unlike the Average Man who was born from Quetelet’s work in 1831, lacks a birth announcement. Now, models are all-important, so they, as well as variability—Fisher’s item (ii)—are mentioned in

every session.

Other than this, the content of the class changes every month, with minimal repetition. I draw statistical stories and topics from wherever I can. In addition to the work of Fisher and Professor Hand mentioned above, I am especially indebted to history books such as those by Stephen Stigler (*Seven Pillars of Statistical Wisdom*) and Theodore Porter (*Trust in Numbers: The Pursuit of Objectivity in Science and Public Life*) and to books on models such as those by Paul N. Edwards (*A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*, with its motto, “without models, there are no data”) and by Virginia Eubanks (*Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*, with details of the misery arising from mis-analyzed administrative data). The recent book by Bradley Efron & Trevor Hastie (*Computer Age Statistical Inference: Algorithms, Evidence, and Data Science*) and the older book by C.R. Rao (*Statistics and Truth: Putting Chance to Work*) have provided examples. Margo Anderson’s *The American Census*, Michael Lewis’s *The Fifth Risk*, Emmanuel Todd’s *Who Is Charlie?*, etc.—too many books related to or using statistics to mention. I also include classical references and often end with a poem. My favorite poem is “The Three Goals” by David Budbill, about the difficulty of relating individuals to populations. [*You can read this poem in https://books.google.co.uk/books?id=mO8uAfj_m3oC — Ed.*]

*Do you put your statistical
expertise to good use, outside
your work? Tell us about it!
Email bulletin@imstat.org*

Hand writing: On Talking Data

Contributing Editor David J. Hand (Imperial College London) counters the argument that the numbers speak for themselves: indeed they can, but they can also lie...



David Hand

In 2008, in an article in *Wired* magazine, Chris Anderson famously wrote that “with enough data, the numbers speak for themselves.” This was in the context of arguing that “more is different” as far as data are concerned. He was claiming that the vast masses of data now being created, collected automatically as people go about their everyday lives, mean we can actually see what people do without having to construct theoretical models of behaviour. And there is certainly an element of truth in the claim – if the aim is simply prediction or decision-making, then understanding what is going on is unnecessary. All that is needed is to know how things are related and what will happen when interventions are made. That information can be gained from past data and, along with an assumption of stationarity in supposing that the future will be like the past, it allows prediction of what will happen. However, if the aim is deeper, if the aim is actually to understand underlying mechanisms and processes, then models are necessary. Indeed, in one sense “models” are what understanding means.

Although big data has driven the modern notion that numbers can speak for themselves, Anderson’s statement was not the first time the idea had arisen. For example, in their 1988 book *The Likelihood Principle*, James Berger and Robert Wolpert wrote (Berger and Wolpert, 1988, p78): “[i]t was apparently this feeling, that data should be able to speak for itself, that led Barnard to first support the Stopping Rule Principle”. The argument there was that the data were adequate for inference, and how they were collected was irrelevant. This position has received diminishing support over time, as is demonstrated by the furore following John Ioannidis’s 2005 article “Why Most Published Research Findings are False.”

Various people have pushed back against Anderson’s assertion. Nate Silver, author of *The Signal and the Noise*, said (Silver, 2012, p9) “The numbers have no way of speaking for themselves. We speak for them. We imbue them with meaning.” And Deborah Mayo on p79 of in her recent book *Statistical Inference as Severe Testing*, said (Mayo, 2019) “In this day of fascination with

Big Data’s ability to predict what book I’ll buy next, a healthy Popperian reminder is due: humans also want to understand and explain.”

But the fact is that the mistaken notion that numbers require no interpretation had been addressed long ago. Alfred Marshall, in his inaugural lecture for his Chair in Political Economy at Cambridge in 1885, wrote (Hodgson, 2005): “Experience in controversies such as these brings out the impossibility of learning anything from facts till they are examined and interpreted by reason; and teaches that the most reckless and treacherous of all theorists is he who professes to let facts and figures speak for themselves”. Although mainly concerned with the difficulty of deducing causal relationships from the “facts and figures” alone, Marshall was also very aware of the dangers of taking numbers out of context, of failing to allow for data quality, of perversions in how the data were collected, and the host of other risks associated with the blind use of data as descriptions of the phenomenon they purport to represent.

The phrase “the numbers speak for themselves” is taken to mean that what they say is obvious, requiring no interpretation and brooking no disagreement. But data alone are not sufficient to understand phenomena. Understanding requires more than simple description of observed structures in data sets – not least because, as I sometimes put it, if data can speak for themselves, they can also lie for themselves.

Further reading

- Anderson C. (2008) The end of theory: the data deluge makes the scientific method obsolete. http://www.wired.com/science/discoveries/magazine/16-07/pb_theory
- Berger J.O. and Wolpert R.L. (1988) *The Likelihood Principle*. Institute of Mathematical Statistics, *Lecture Notes – Monograph Series*, Vol. 6, 2nd ed.
- Hodgson G.M. (2005) “The present position of economics” by Alfred Marshall. *Journal of Institutional Economics*, 1, 121–127.
- Ioannidis J.P.A. (2005) Why Most Published Research Findings are False. *PLoS Medicine*, 2(8), 696–701.
- Mayo D. (2019) *Statistical Inference as Severe Testing*. Cambridge University Press, Cambridge.
- Silver N. (2012) *The Signal and the Noise: The Art and Science of Prediction*. Penguin Books, London

Meeting report: SPA-2018

The 40th Stochastic Processes and their Applications Conference, SPA-2018, took place June 11–15, 2018, in Gothenburg, Sweden. Sergei Zuyev, the Chair of the Local Organizing Committee of SPA-2018, reports:

Conferences on stochastic processes and their applications are organised under patronage of the Bernoulli Society and IMS; they can justifiably be regarded as the most important international meetings on stochastic processes and their applications in various fields, from physics and biology to economics and technology. With the exception of the years when the Bernoulli World Congress is held (last in 2016 in Toronto), they are organised every year. The first SPA conference was held in Rochester in 1971. In 2015 the SPA conference was held in Oxford and in 2017 it was organised in Moscow. Notably, the 14th SPA Conference was held in Gothenburg back in 1984, featuring talks of such famous scientists as Harald Cramér, Joseph Doob and Kiyosi Itô. So, in 2018, the SPA conference returned to Gothenburg to celebrate its 40th anniversary.

The summer of 2018 on the west coast of Sweden was the hottest in over 100 years, and the participants were greeted by warm Scandinavian sun with the daytime temperatures of around 25°C/77°F (with some shots of summer rains at times). Gothenburg's well-deserved status of a Friendly City contributed to the overall pleasant atmosphere of the conference. A half-day of excursions organised around the city and, especially, a dining cruise along the picturesque Västra Götaland coast with thousands of islands was a memorable experience. The conference dinner guests were entertained by Swedish traditional songs presented by an ensemble of local young singers.

SPA-2018 was organised by Chalmers University of Technology and it was one of the largest SPA conferences, with 478 registered participants from 43 countries. The most represented were Sweden, Germany, France, UK and USA. The conference program consisted of 13 plenary talks, 137 invited talks, 213 contributed talks: 363 talks in total. The first half of each day was given to plenary talks, followed after lunch by invited sessions, organised contributed sessions and sessions with contributed talks—up to 13 sessions in parallel, giving participants plenty of choice of topics to follow. Finding one's own way through the sessions and places was facilitated by a user-friendly online programme with extensive selection capabilities. Two poster sessions were organised in the form of a mingle lunch served with delicious Scandinavian food. A few participants with small children benefited from a professional childcare service provided on site by Chalmers, free of charge.

SPA-2018 opened on Monday with a plenary talk by **Olav Kallenberg**, and closed on Friday with the Doob lecture delivered by **Jeffrey Steif**. The Lévy lecture was given by **Alison Etheridge**. Two IMS medallion lectures were given, by **Davar Khoshnevisan** and **Anna De Masi**, and a new named Entropy lecture, sponsored by *Entropy* journal, was given by **François Baccelli**. Other plenary talks were given by **Mia Deijfen**, **Patricia Gonçalves**, **Kurt Johansson**, **Mikhail Menshikov**, **Annie Millet**, **Asaf Nachmias** and **Nike Sun**. The slides of the plenary talks, as well as the book of abstracts, can be downloaded from the conference website: spa2018.org. Feel the atmosphere of the conference by browsing the photos taken by the author and watch a short video from SPA-1984 at spa2018.org/conference-images

As an experiment, two talks were given remotely via a web-conferencing system. While connection dropouts experienced in one of the talks made it, at times, difficult to understand, the other talk went very smoothly. We envisage that web-conferencing will soon

become an integral part of the meetings, but we hope that face-to-face discussions will still remain the main attraction and benefit of attending conferences.

The organizing committee is happy to have received so much very positive feedback from the participants and thank all the speakers, the Programme Committee, its Head Timo Seppäläinen and the technical organisation company MeetX, who made SPA-2018 so successful and memorable.



IMS meetings around the world

Joint Statistical Meetings: 2019–2023

IMS sponsored meeting

IMS Annual Meeting @ JSM 2019

July 27–August 1, 2019. Denver, CO, USA.

[w](http://ww2.amstat.org/meetings/jsm/2019/) <http://ww2.amstat.org/meetings/jsm/2019/>

We hope you'll join us in Denver for the 2019 IMS Annual Meeting, in conjunction with JSM. With more than 6,500 attendees (including over 1,000 students) from 52 countries, and over 600 sessions, it's a busy few days! The theme this year is "Statistics: Making an Impact."

Late-Breaking Sessions cover one or more technical, scientific, or policy-related topics that have arisen in past year. Proposals are accepted by Richard Levine, JSM 2019 program chair, via email from mid-February to mid-April 2019: for full details of what is required, please see <http://ww2.amstat.org/meetings/jsm/2019/iolslatebreaking.cfm>



IMS sponsored meetings: JSM dates for 2020–2024

JSM 2020

August 1–6, 2020
Philadelphia, PA

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 co-sponsored meeting

2019 Seminar on Stochastic Processes

March 13–16, 2019. University of Utah, Salt Lake City, USA

[w](http://www.math.utah.edu/SSP-2019/) <http://www.math.utah.edu/SSP-2019/>

The Seminar on Stochastic Processes 2019 (SSP2019) will feature the Kai-Lai Chung lecture from Jean Bertoin (Universität Zürich), and invited speakers: Dan Crisan (Imperial College London); Kay Kirkpatrick (University of Illinois at Urbana-Champaign); Sunder Sethuraman (University of Arizona); and Amandine Véber (École Polytechnique).

On March 13th, there will be two 90-minute tutorials by Marek Biskup (University of California, Los Angeles). More information on the content of the tutorials will be posted in early 2019.

There are no registration fees, but all participants, including invited speakers, are asked to register (the registration form is on the meeting website now).

IMS Sponsored meeting

Bernoulli/IMS 10th World Congress in Probability and Statistics

August 17–21, 2020. Seoul, South Korea

[w](http://www.wc2020.org) <http://www.wc2020.org>

Program chair is Siva Athreya and the Local chair is Hee-Seok Oh.

UPDATED

IMS co-sponsored meeting

20th INFORMS Applied Probability Society Conference

July 3–5, 2019. Brisbane, Australia

[w](http://informs-aps.smp.uq.edu.au/) <http://informs-aps.smp.uq.edu.au/>

The plenary speakers for the conference are: Charles Bordenave, Université de Toulouse, France (IMS Medallion Lecturer); Ton Dieker, Columbia University; Nelly Litvak, University of Twente and Eindhoven University of Technology, Netherlands; and Sidney Resnick, Cornell University (Marcel Neuts Lecturer).

A number of related events are being held before and after this conference: *Queues, Modelling, and Markov Chains: A Workshop Honouring Prof. Peter Taylor*, June 28–30 at Mount Tamborine, Queensland. *Applied² Probability*, July 2 at The University of Queensland, Brisbane. *12th International Conference on Monte Carlo Methods and Applications (MCM2019)*, July 8–13 in Sydney, Australia.

At a glance:

forthcoming
IMS Annual
Meeting and
JSM dates

2019

IMS Annual Meeting

@ JSM: Denver,
July 27–August 1,
2019

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,
August 6–11,
2022

2023

IMS Annual Meeting

@ JSM: Toronto,
August 5–10,
2023

More IMS meetings around the world

IMS co-sponsored meeting

NEW

Symposium on Data Science and Statistics (SDSS) 2019

May 29–June 1, 2019

Bellevue, Washington, USA

[w](https://ww2.amstat.org/meetings/sdss/2018/) <https://ww2.amstat.org/meetings/sdss/2018/>

IMS Rep on Program Committees: Thomas C. M. Lee
Now an IMS co-sponsored meeting, this is the second annual Symposium on Data Science and Statistics. SDSS provides a unique opportunity for data scientists, computer scientists, and statisticians to come together and exchange ideas.

IMS co-sponsored meeting

Workshop: Emerging Data Science Methods for Complex Biomedical and Cyber Data

March 29–30, 2019

Augusta, GA, USA

[w](https://www.augusta.edu/mcg/dphs/workshop) <https://www.augusta.edu/mcg/dphs/workshop>

The Division of Biostatistics and Data Science in the Department of Population Health Sciences in the Medical College of Georgia (MCG) at Augusta University (AU) is organizing this workshop focusing on elucidating emerging data science methods for modeling complex biomedical and cyber data. The goal of the proposed two-day workshop is to educate and empower graduate students, postdoctoral fellows, and early career researchers and faculty members with emerging statistical methods to address the complex data arising from various fields, in particular, from biosciences and cyber science.

IMS co-sponsored meeting

The 7th Workshop on Biostatistics and Bioinformatics

May 10–12, 2019. Atlanta, GA, USA

[w](https://math.gsu.edu/yichuan/2019Workshop/) <https://math.gsu.edu/yichuan/2019Workshop/>

The keynote speaker is Dr. **Samuel Kou**, Professor of both Statistics and Biostatistics, the chair of Statistics Department at Harvard, and the recipient of the COPSS President's Award in 2012. There will be invited talks by distinguished researchers, and a poster session by young researchers and graduate students.

In order to encourage graduate students and young researchers to conduct a cutting-edge research, we will organize a poster session. The workshop will be providing **partial travel awards** to selected conference participants. Priority will be given to senior graduate students, post-graduate, recent PhD's, junior faculty, and under-represented groups. Check the website for application details of travel awards for young and minority researchers.

IMS co-sponsored meeting

NEW

ACM–IMS Interdisciplinary Summit on the Foundations of Data Science

June 15, 2019. San Francisco, CA, USA

[w](https://acct-www.acm.org/data-science-summit) <https://acct-www.acm.org/data-science-summit>

An interdisciplinary event bringing together researchers and practitioners to address fairness, privacy, ethics, causal inference, deep learning, reinforcement learning, and the future of data science. ACM (the Association for Computing Machinery) and IMS are the two key academic organizations in these areas. This new joint venture [*see announcement on page 10*] aims to propel data science and to engage and energize our communities to work together.

IMS co-sponsored meeting

12th International Conference on Bayesian Nonparametrics (BNP12)

June 24–28, 2019

Oxford, UK

[w](http://www.stats.ox.ac.uk/bnp12/) <http://www.stats.ox.ac.uk/bnp12/>

The Bayesian nonparametrics (BNP) conference is a bi-annual international meeting bringing together leading experts and talented young researchers working on applications and theory of nonparametric Bayesian statistics. Keynote speakers are Tamara Broderick (MIT), Long Nguyen (Michigan) and Aad van der Vaart (Leiden). Applications for travel support: **deadline December 15**.

Note that O'Bayes 2019 follows this meeting in Warwick, 70 miles away [*see the announcement below*]

IMS co-sponsored meeting

O'Bayes 2019: Objective Bayes Methodology Conference

June 29–July 2, 2019

University of Warwick, UK

[w](https://warwick.ac.uk/fac/sci/statistics/staff/academic-research/robert/Obayesconference/) <https://warwick.ac.uk/fac/sci/statistics/staff/academic-research/robert/Obayesconference/>

O'Bayes 2019 is dedicated to facilitate the exchange of recent research developments in objective Bayes theory, methodology and applications, and related topics, to provide opportunities for new researchers, and to establish new collaborations and partnerships. The meeting is the biennial meeting of the Objective Bayes section of the International Society for Bayesian Analysis (ISBA).

Note that O'Bayes 2019 is immediately after the BNP 2019 conference in Oxford [*see announcement above*], which takes place 24–28 June 2019, close enough in both travel time (45 minutes by direct train) and distance (70 miles) to benefit members of both the Objective Bayes and Bayesian non-parametric communities, who should consider joint attendance. Registration is open now.



IMS sponsored meetings

ENAR dates, 2019–2020

March 24–27, 2019: in Philadelphia, PA

March 22–25, 2020: in Nashville, TN

w www.enar.org/meetings/future.cfm

The 2019 ENAR/IMS meeting will be in Philadelphia (and the following year in Nashville.) Featuring a *Fostering Diversity in Biostatistics* workshop on March 24, on career and training opportunities within biostatistics, connecting underrepresented minority students interested in biostatistics with professional biostatisticians in academia, government and industry.

IMS co-sponsored meeting



Statistics Conference in Honor of Aad van der Vaart's 60th Birthday

June 17–21, 2019. Leiden, The Netherlands

w <http://pub.math.leidenuniv.nl/~schmidthieberaj/aadbirthday/index.html>

The conference, honoring Aad van der Vaart's 60th birthday and many professional achievements, will bring together collaborators and leading researchers in theoretical and applied statistics. Topics include nonparametric Bayes, high-dimensional/nonparametric statistics and applications of statistics in the life sciences.

See the website for a tentative list of speakers and registration instructions.

IMS co-sponsored meeting



Statistics and the Life Sciences: Creating a Healthier World

November 15, 2019

Boston University School of Public Health

w <http://www.bu.edu/sph/news-events/signature-programs/deans-symposia/>

IMS Representative(s) on Program Committees: Josee Dupuis, Eric Kolaczyk

A new website is under construction for this one-day meeting, but this URL gives details of the Dean's Symposia, of which this is one.

For now, please note the date.

IMS co-sponsored meeting

2019 WNAR/IMS meeting

June 23–26, 2019. Portland, OR, USA

w <http://www.wnar.org/event-3013994>

The 2019 WNAR/IMS meeting will be in Portland, Oregon from June 23–26 hosted by Oregon Health & Science University (OHSU). Portland, Oregon's largest city, is known for eco-friendliness with high walkability, parks, bridges and bicycle paths. The scientific program features short courses, invited and contributed oral sessions, and student paper sessions. The local organizer is Byung Park (parkb@ohsu.edu), and the program chair is Meike Niederhausen (niederha@ohsu.edu).

IMS co-sponsored meeting

41st Conference on Stochastic Processes and their Applications (SPA) July 8–12, 2019. Evanston, IL, USA

w <http://sites.math.northwestern.edu/SPA2019/>

The 41st Stochastic Processes and their Applications conference will take place July 8–12, 2019, in Evanston, USA. It will feature the following invited lectures. **Plenary Speakers:** Cécile Ané, Béatrice de Tilière, James R. Lee, Dmitry Panchenko, Yanxia Ren, Allan Sly, Caroline Uhler. **IMS Medallion Lectures:** Krzysztof Burdzy and Etienne Pardoux. **Lévy Lecture:** Massimiliano Gubinelli. **Doob Lecture:** Jeremy Quastel. **Schramm Lecture:** Stanislav Smirnov.

IMS co-sponsored meeting



IMS-China 2019

July 6–10, 2019. Dalian, China

w <http://ims-china.org/>

The 2019 IMS-China International Conference on Statistics and Probability, hosted by Dalian University of Technology, will be held at Dalian in Liaoning, China, on July 6–10, 2019. All talks will take place at the Dalian International Conference Center. Online registration will be opening soon.

IMS co-sponsored meeting

ICIAM 2019: the 9th International Congress on Industrial and Applied Mathematics

July 15–19, 2019. Valencia, Spain

w <https://iciam2019.org/index.php>

The 9th International Congress on Industrial and Applied Mathematics (ICIAM 2019) will be held in Valencia, Spain, from July 15–19, 2019. IMS is a member of ICIAM.

SPECIAL OFFER: Discounted travel with Lufthansa Group Partner Airlines & Iberia Airlines: see website for details.

IMS co-sponsored meeting



12th International Conference on Bayesian Nonparametrics (BNP12) June 24–28, 2019. Oxford, UK

w <http://www.stats.ox.ac.uk/bnp12/>

This biannual international meeting brings together leading experts and talented young researchers working on applications and theory of nonparametric Bayesian statistics. Now IMS co-sponsored.

IMS co-sponsored meeting

The 7th International Workshop in Sequential Methodologies June 18–21, 2019. Binghamton, USA

w <https://sites.google.com/view/iwsm2019>

Hosted by Department of Mathematical Sciences at Binghamton University, State University of New York (SUNY), USA.

Other meetings and events around the world

Statistical Analysis of Neural Data (SAND9) NEW

May 21–23, 2019

Pittsburgh, PA, USA

[w http://sand.stat.cmu.edu](http://sand.stat.cmu.edu)

The ninth international workshop on Statistical Analysis of Neural Data (SAND9) will take place on May 21–23, 2019, in Pittsburgh, PA. Please mark your calendar.

More details can be found at the SAND9 website.

Registration will open soon.

Bocconi Summer School in Advanced Statistics and Probability July 8–19, 2019 NEW

Lake Como, Italy

[w http://bocconi2019.lakecomoschool.org](http://bocconi2019.lakecomoschool.org)

The 2019 edition of the Bocconi Summer School in Advanced Statistics and Probability, on “Random Graphs and Complex Networks: Structure and Function”, will take place on July 8–19, 2019, at Villa del Grumello, on the shores of the Lake Como, Italy.

The Instructors will be Remco van der Hofstad (Eindhoven University of Technology, The Netherlands) and Shankar Bhamidi (University of North Carolina, USA). Tutorials will be given by Souvik Dhara (New England Lab, Microsoft Research and MIT, USA) and Clara Stegehuis (Eindhoven University of Technology, The Netherlands).

The two-week summer school is open to all interested researchers, but is especially designed for PhD students. The deadline for applications is March 27, 2019.

For more information see the website or contact BBS.statistics@unibocconi.it, or sonia.petrone@unibocconi.it

31st Annual Conference on Statistics and Modeling in Human and Social Sciences NEW

March 26–28, 2019

Faculty of Economics and Political Science, Cairo University, Egypt

[w http://www.feps.edu.eg/en/departments/statistics/conference/index.html](http://www.feps.edu.eg/en/departments/statistics/conference/index.html)

See poster:

CALL FOR PAPERS

The 31st ANNUAL International Conference on
Statistics and Modeling in Human and Social Sciences
March 26-28, 2019



Organized by : Department of Statistics, Faculty of Economics and Political
Science, Cairo University, Egypt

General Information	Important Dates
<p>The main goal of the annual conference is to bring together statisticians, researchers and practitioners of Statistics and to provide them with the opportunity to present and to discuss their research findings on various areas of Statistical Sciences and their applications.</p>	<p>Deadline for</p> <ul style="list-style-type: none"> • Abstract Submission: Jan. 31st, 2019 • Full Paper Submission: Feb. 28th, 2019 • Acceptance notification: Mar. 16th, 2019
<p>How To Submit a Paper?</p> <p>We invite you to submit the abstract and the full paper via email to ICSM@feps.edu.eg Check guidelines for requested format.</p> <p>Presented papers will be accepted for publishing upon the approval of the reviewing committee.</p>	<p>Research Areas Include</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid #eee; padding: 5px; background-color: #eee;">Theory of Statistics</div> <div style="border: 1px solid #eee; padding: 5px; background-color: #eee;">Applied Statistics</div> </div> <div style="border: 1px solid #eee; padding: 10px; margin-top: 5px;"> <ul style="list-style-type: none"> - Actuarial Science - Bayesian Statistics - Biostatistics and Survival Analysis - Computer Modeling in Social Sciences - Data Science, Big Data and Data Mining - Demography - Econometrics - Environmental Statistics - Operations Research - Multivariate Analysis - Reliability Theory - Sampling - Small area Estimation - Statistical Education - Statistical Quality Control - Time Series </div>
<p>Venue</p> <p>Premises of the Faculty of Economics and Political Science, Cairo University, Egypt .</p>	<p>Registration Fees</p> <ul style="list-style-type: none"> • \$400 for non Egyptians • L.E. 400 for Egyptians
<p>Contact Info: Tel. (+20) 237742990 Fax (+20) 235711020 http://www.feps.edu.eg/en/departments/statistics/conference/index.html</p>	

More meetings around the world

30th International Biometric Conference (IBC2020)

July 6–10, 2020

Seoul, Korea

[w https://www.biometricsociety.org/2018/07/ibc-2020-seoul-preview/](https://www.biometricsociety.org/2018/07/ibc-2020-seoul-preview/)

On behalf of the 30th International Biometric Conference (2020IBC) Local Organizing Committee and International Biometric Society Korean Region (IBS Korean Region), it is our greatest honor and pleasure to host the 2020 IBC in Seoul, Korea. International Biometric Conferences have been the most effective and prominent gathering of biometric professionals and having the Conference convened in Seoul would be particularly meaningful, to the extent that this highly acclaimed conference would change the face of bioscience in Korea and beyond in every way. Biosciences in Korea and Asia have been recognized as one of the most promising industries for growth (research field for better health and environment), yet there still is a lot of room for improvement.

The 2020 IBC Local Organizing Committee and IBS Korean Region will exert all efforts to design comprehensive and rewarding scientific programs and all participants will have various opportunities to strengthen professional networks and friendship with one another in and around the conference.

Seoul, the heart of the nation and the venue for 2020 IBC, is a popular destination for international travelers, one where tradition meets modernity in perfect harmony. Seoul has been home to many exciting and outstanding international conferences and events in the past few decades. The city is safe and tourist-friendly and offers the warmest hospitality, state-of-the-art conference and comfortable accommodation facilities, breathtaking scenery, and appealing cuisines.

2020 IBC's cultural and social programs will be organized for memories to cherish for life and there will also be many other opportunities to explore Seoul and Korea. The 2020 IBC Local Organizing Committee and IBS Korean Region, in close association with central and local governments, industries, academic societies and institutions in Korea, assure the success of the 2020 IBC. We, therefore, would like to express my sincere enthusiasm to host the 2020 IBC in Seoul and gratitude for your kind consideration and support in advance.

Meeting organizer's to-do list



International Conference on Health Policy Statistics (ICHPS)

January 6–8, 2020. San Diego, CA, USA

[w http://ww2.amstat.org/meetings/ices/2020/index.cfm](http://ww2.amstat.org/meetings/ices/2020/index.cfm)

The 13th International Conference on Health Policy Statistics is going to vibrant and beautiful San Diego, California, January 6–8, 2020, and we hope to see you there!

International Conference on Establishment Statistics (ICES VI)

June 15–18, 2020. New Orleans, Louisiana, USA

[w http://ww2.amstat.org/meetings/ices/2020/index.cfm](http://ww2.amstat.org/meetings/ices/2020/index.cfm)

Continuing in the traditions of ICES-I to ICES-V, ICES-VI will explore new areas of establishment statistics, as well as reflect state-of-the-art methodology at the time of the conference.

Employment Opportunities around the world

Canada: Saskatoon, SK

University of Saskatchewan, Department of Mathematics and Statistics

Tenure-Track Position in Statistics

<https://jobs.imstat.org/job//46410597>

Hong Kong

The University of Hong Kong

Tenure-Track Associate Professor/Assistant Professor in Business Analytics

<https://jobs.imstat.org/job//46530564>

India: Various locations

Indian Statistical Institute, Theoretical Statistics and Mathematics Division

Faculty Positions at the Indian Statistical Institute (various locations)

<https://jobs.imstat.org/job//45838389>

Kazakhstan: Astana

Nazarbayev University

Full-time positions in Applied Mathematics

<https://jobs.imstat.org/job//46360130>

Kazakhstan: Astana

Nazarbayev University

Full-time positions in Statistics

<https://jobs.imstat.org/job//46358910>

New Zealand: Wellington

Faculty of Science

Professor in Statistics and Data Science

<https://jobs.imstat.org/job//45838641>

Switzerland: Lausanne

Ecole Polytechnique Federale Lausanne

Instructorship in Statistics

<https://jobs.imstat.org/job//45768518>

United States: La Jolla, CA

University of California - San Diego

Multiple Positions in the Halicioglu Data Science Institute

<https://jobs.imstat.org/job//45748492>

United States: Los Angeles, CA

UCLA Department of Biostatistics

Assistant / Associate Professor

<https://jobs.imstat.org/job//46071395>

United States: Santa Barbara, CA

University of California, Santa Barbara

Open-Rank (tenured or tenure-track) position in Statistics with emphasis on Data Science

<https://jobs.imstat.org/job//46645861>

United States: Ames, IA

Iowa State University

Professor and Chair of the Department of Statistics

<https://jobs.imstat.org/job//46664235>

United States: Las Cruces, NM

New Mexico State University

Assistant Professor in Applied Statistics

<https://jobs.imstat.org/job//46388339>

United States: Las Vegas, NV

University of Nevada, Las Vegas

Statistics, Assistant Professor

<https://jobs.imstat.org/job//46232641>

United States: Ithaca, NY

Cornell University

Lecturer - Biological Statistics and Computational Biology

<https://jobs.imstat.org/job//45769520>

United States: Portland, OR

Portland State University

Assistant Professor in Statistics

<https://jobs.imstat.org/job//45847349>

United States: Portland, OR

Portland State University

Instructor to Senior Instructor I

<https://jobs.imstat.org/job//46531432>

United States: Philadelphia, PA

University of Pennsylvania, Wharton

Department of Statistics

Departmental Postdoctoral Researcher

<https://jobs.imstat.org/job//45122063>

United States: Johnston, RI

FM Global

Senior Data Scientist- Predictive Analytics

<https://jobs.imstat.org/job//46173365>

United States: Fairfax, VA

George Mason University


Chair, Department of Statistics

<https://jobs.imstat.org/job//46232598>

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



March 2019

March 6–8: Zanjan, Iran. 5th Conference on Contemporary Issues in Data Science (CiDaS)  [w](https://cidas.iasbs.ac.ir/) <https://cidas.iasbs.ac.ir/>

 March 13–16: Salt Lake City, USA. 2019 Seminar on Stochastic Processes  [w](http://www.math.utah.edu/SSP-2019/) <http://www.math.utah.edu/SSP-2019/>


 March 24–27: Philadelphia, PA, USA. ENAR Spring Meeting  [w](http://www.enar.org/meetings/future.cfm) <http://www.enar.org/meetings/future.cfm>


 March 26–28: Cairo, Egypt. Statistics and Modeling in Human and Social Sciences  [w](http://www.feps.edu.eg/en/departments/statistics/conference/index.html) <http://www.feps.edu.eg/en/departments/statistics/conference/index.html>

 March 29–30: Augusta, GA, USA. Emerging Data Science Methods for Complex Biomedical and Cyber Data  [w](https://www.augusta.edu/mcg/dphs/workshop) <https://www.augusta.edu/mcg/dphs/workshop>


April 2019


April 23–26: Paris, France. International Conference on Control, Decision and Information Technologies (CoDIT'19)  [w](https://codit19.com) <https://codit19.com>



April 23–26: Vienna, Austria. 8th International Conference on Risk Analysis and Design of Experiments  [w](https://icr8.boku.ac.at/) <https://icr8.boku.ac.at/>


April 25–26: Birmingham, UK. 2nd IMA and OR Society Mathematics of Operational Research  [w](https://ima.org.uk/9649/2nd-ima-and-or-society-conference-on-mathematics-of-operational-research/) <https://ima.org.uk/9649/2nd-ima-and-or-society-conference-on-mathematics-of-operational-research/>



May 2019


May 1–3: Knoxville, TN, USA. NIMBioS/DySoC Investigative Workshop: Mathematics of Gun Violence  [w](http://www.nimbios.org/workshops/WS_gunviolence) http://www.nimbios.org/workshops/WS_gunviolence


May 4: Washington DC, USA. National Math Festival  [w](https://www.nationalmathfestival.org/2019-festival/) <https://www.nationalmathfestival.org/2019-festival/>


 May 10–12: Atlanta, GA, USA. 7th Workshop on Biostatistics and Bioinformatics  [w](https://math.gsu.edu/yichuan/2019Workshop/) <https://math.gsu.edu/yichuan/2019Workshop/>




May 13–15: Knoxville, TN, USA. NIMBioS Investigative Workshop: Scientific Collaboration Enabled by High Performance Computing  [w](http://www.nimbios.org/workshops/WS_hpc) http://www.nimbios.org/workshops/WS_hpc

 May 21–23: Pittsburgh, PA, USA. Statistical Analysis of Neural Data (SAND9)  [w](http://sand.stat.cmu.edu) <http://sand.stat.cmu.edu>


May 25–26: Athens, Greece. 3rd International Conference On Quantitative, Social, Biomedical & Economic Issues 2019 – ICQSBEI 2019  [w](https://icqsbei2019.weebly.com) <https://icqsbei2019.weebly.com>


May 27–June 8: Charlottesville, VA, USA. Integrable Probability summer school  [w](http://vipss.int-prob.org/) <http://vipss.int-prob.org/>


May 29–31: Knoxville, TN, USA. NIMBioS Investigative Workshop: Transients in Biological Systems  [w](http://www.nimbios.org/workshops/WS_transients) http://www.nimbios.org/workshops/WS_transients


  May 29–June 1: Washington DC, USA. Symposium on Data Science and Statistics [now IMS co-sponsored]  [w](http://ww2.amstat.org/meetings/sdss/2019/) <http://ww2.amstat.org/meetings/sdss/2019/>


June 2019


June 3–7: Knoxville, TN, USA. NIMBioS: The Search for Selection  [w](http://www.nimbios.org/tutorials/selection2) <http://www.nimbios.org/tutorials/selection2>




June 4–7: El Escorial, Spain. SYSORM 2019  [w](https://eventos.ucm.es/go/sysorm19) <https://eventos.ucm.es/go/sysorm19>

June 9–15: West Greenwich, RI, USA. Stochastic Spatial Models, AMS MRC summer conference  [w](http://www.ams.org/programs/research-communities/2019MRC-Stochastic) <http://www.ams.org/programs/research-communities/2019MRC-Stochastic>



June 10–14: Toronto, Canada. Workshop on Theory and Applications of Stochastic Partial Differential Equations  [w](http://www.fields.utoronto.ca/activities/18-19/SPDEs) <http://www.fields.utoronto.ca/activities/18-19/SPDEs>

June 11–14: Florence, Italy. Applied Stochastic Models and Data Analysis International Conference (ASMDA2019) and Demographics2019 Workshop  [w](http://www.asmda.es/asmda2019.html) <http://www.asmda.es/asmda2019.html>

June 12–14: Delft, The Netherlands. DYNSTOCH 2019  [w](http://web.math.ku.dk/~michael/dynstoch/) <http://web.math.ku.dk/~michael/dynstoch/>

  June 15: San Francisco, CA, USA. ACM–IMS Interdisciplinary Summit on the Foundations of Data Science  [w](https://acct-www.acm.org/data-science-summit) <https://acct-www.acm.org/data-science-summit>

June 16–19: Thessaloniki, Greece. **39th International Symposium on Forecasting** **w** <https://isf.forecasters.org/>

  June 17–21: Leiden, The Netherlands. **Statistics Conference in Honor of Aad van der Vaart's 60th Birthday** **w** <http://pub.math.leidenuniv.nl/~schmidthieberaj/aadbirthday/index.html>



 June 18–21: Binghamton, USA. **7th International Workshop on Sequential Methodologies (IWSM)** **w** <http://sites.google.com/view/iwsm2019>

June 18–21: Chania, Greece. **12th Chaotic Modeling & Simulation Conference (CHAOS2019)** **w** <http://www.cmsim.org/>

June 19–21: Lima, Peru. **VI Congreso Bayesiano de América Latina / Bayesian Congress of Latin America (VI COBAL)** **w** <https://sites.google.com/site/cobal2019/>

June 19–22: Manizales, Colombia. **3rd International Congress on Actuarial Science and Quantitative Finance** **w** <http://icasqf.org/>

June 24–27: Uppsala, Sweden. **Perspectives on high-dimensional data analysis (HDDA-IX)** **w** <https://indico.uu.se/event/526/overview>

  June 24–28: Oxford, UK. **12th International Conference on Bayesian Nonparametrics** **w** <http://www.stats.ox.ac.uk/bnp12/>

 June 23–26: Portland, OR, USA. **2019 WNAR/IMS meeting** **w** <http://www.wnar.org/event-3013994>

 June 29–July 2: Warwick, UK. **O'Bayes 2019: Objective Bayes Methodology Conference** **w** <https://warwick.ac.uk/fac/sci/statistics/staff/academic-research/robert/obayesconference/>

July 2019


July 1–9: Zagreb, Croatia. **11th International Conference on Extreme Value Analysis** **w** <http://web.math.hr/eva2019>

  July 3–5 [**NOTE CORRECTED DATES**, not July 13–15 as previously listed]: Brisbane, Australia. **20th INFORMS Applied Probability Conference** **w** <http://informs-aps.smp.uq.edu.au/>

  July 6–10: Dalian, China. **2019 IMS-China Conference** **w** [**NEW WEBSITE**] <http://www.ims-china.org>

 July 8–12: Evanston, IL, USA. **41st Conference on Stochastic Processes and their Applications (SPA)** **w** <http://sites.math.northwestern.edu/SPA2019/>

July 8–12: Guimarães, Portugal. **International Workshop on Statistical Modelling (IWSM2019)** **w** <http://www.iwsm2019.org/>

 July 8–19: Lake Como, Italy. **Bocconi Summer School in Advanced Statistics and Probability** **w** <http://bocconi2019.lakecomoschool.org>

July 14–18: Leuven, Belgium. **40th Conference of the International Society for Clinical Biostatistics** **w** <http://www.icsb.info>

 July 15–19: Valencia, Spain. **ICIAM 2019** **w** <https://iciam2019.org/index.php>

July 22–26: Palermo, Italy. **European Meeting of Statisticians 2019** **w** <http://www.ems2019.palermo.it>

July 23–25: Kuantan, Malaysia. **2nd International Conference on Applied & Industrial Mathematics and Statistics 2019 (ICoAIMS 2019)** **w** <http://icoaims.ump.edu.my/index.php/en/>

 July 27–August 1: Denver, CO, USA. **IMS Annual Meeting at JSM 2019** **w** <http://ww2.amstat.org/meetings/jsm/2019/index.cfm>

August 2019

August 17–19: St. Louis, USA. **4th Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI)** **w** <https://www.math.wustl.edu/~kuffner/WHOA-PSI-4.html>

August 18–23: Kuala Lumpur, Malaysia. **ISI2019: 62nd International Statistical Institute World Statistics Congress 2019** **w** <http://www.isi2019.org/>

September 2019

September 22–26: Hannover, Germany. **29th European Safety and Reliability Conference (ESREL 2019)** **w** <https://esrel2019.org/>

September 23–25: Washington DC. **ASA Biopharmaceutical Section: Regulatory-Industry Statistics Workshop** **w** <https://ww2.amstat.org/meetings/biop/2019/>

October 2019

October 3–5: Bellevue, WA, USA. **2019 Women in Statistics and Data Science Conference** **w** <https://ww2.amstat.org/meetings/wds/2019>

October 10–12: Grand Rapids, USA. **3rd International Conference on Statistical Distributions and Applications (ICOSDA 2019)** **w** <http://people.cst.cmich.edu/lee1c/icosda2019/>

November 2019


  November 15: Boston, MA, USA. **Statistics and the Life Sciences: Creating a Healthier World** **w** TBD

International Calendar *continued*

December 2019

 December 2–6: Mérida, México. **XV CLAPEM: Latin American Congress of Probability and Mathematical Statistics** **w** <http://clapem2019.eventos.cimat.mx/>

January 2020

 January 6–8: San Diego, CA, USA. **International Conference on Health Policy Statistics (ICHPS)** **w** <http://ww2.amstat.org/meetings/ices/2020/index.cfm>

March 2020

 March 22–25: Nashville, TN, USA. **ENAR Spring Meeting** **w** <http://www.enar.org/meetings/future.cfm>

June 2020


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

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

June 24–27: Brno, Czech Republic. **Fifth International Workshop on Functional and Operatorial Statistics (IWFOs 2020)** **w** <https://iwfos2020.sci.muni.cz/>

July 2020

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


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

August 2020

 August 1–6: Philadelphia, PA, USA. **JSM 2020** **w** <http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx>

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

March 2021

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

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>

July 2022

 July/August: Location TBC. **IMS Annual Meeting** **w** TBC


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>

August 2024

 August 3–8: Portland, OR, USA. **JSM 2024** **w** <http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx>

August 2025

 August 2–7: Nashville, TN, USA. **IMS Annual Meeting at JSM 2025** **w** <http://www.amstat.org/ASA/Meetings/Joint-Statistical-Meetings.aspx>

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 \$101 is added to the dues of members for each scientific journal selected (\$63 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 2019 are available to *The Annals of Applied Probability* (\$216), *The Annals of Applied Statistics* (\$216), *The Annals of Probability* (\$216), *The Annals of Statistics* (\$216), *Statistical Science* (\$178), and *IMS Bulletin* (\$115). **General subscriptions** are for libraries, institutions, and any multiple-readership use. Institutional subscriptions for 2019 are available to *The Annals of Applied Probability*, *The Annals of Applied Statistics*, *The Annals of Probability*, and *The Annals of Statistics* (each title \$515 online only / \$589 print+online), *Statistical Science* (\$295/\$335), and *IMS Bulletin* (\$139 print). Airmail rates for delivery outside North America are \$154 per title.

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 Institute of Mathematical Statistics, 9650 Rockville Pike, Suite L3503A, Bethesda, MD 20814-3998.

Copyright © 2019 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 4,000 paper copies, and it is also free online in PDF format at <http://bulletin.imstat.org>, posted online about two weeks before mailout (average downloads over 8,000). Subscription to the *IMS Bulletin* costs \$115. To subscribe, call 877-557-4674 (US toll-free) or +1 216 295 2340 (international), or email staff@imstat.org. The IMS website, <http://imstat.org>, established in 1996, receives over 30,000 visits per month. Public access is free.

Advertising job vacancies

A single 60-day online job posting costs just \$305.00. 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 <http://bulletin.imstat.org/advertise>

	Dimensions: width x height	Rate
1/3 page	4.9" wide x 4" high (125 x 102 mm)	\$270
1/2 page	7.5" wide x 4" high (190 x 102 mm)	\$335
2/3 page	4.9" wide x 8" high (125 x 203 mm)	\$390
Full page (to edge, including 1/8" bleed)	8.75" wide x 11.25" high (222 mm x 286 mm)	\$445
Full page (within usual <i>Bulletin</i> margins)	7.5" wide x 9.42" high (190 mm x 239 mm)	\$445

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 15	September 1	September 15
7: Oct/Nov	September 15	October 1	October 15
8: December	November 1	November 15	December 1

the
next
issue is
April/May
2019

Read IMS Bulletin
articles online at
<http://bulletin.imstat.org>



DEADLINES
for
submissions

March 15,
then May 1

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

Journal
alerts

For alerts and special
information on all the
IMS journals, sign up
at the IMS Groups site
<http://lists.imstat.org>



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

IMS: Organized September 12, 1935

THE ANNALS
of
APPLIED
PROBABILITY

AN OFFICIAL JOURNAL OF THE
INSTITUTE OF MATHEMATICAL STATISTICS

Weak convergence rates of spectral Galerkin approximations for SPDEs with nonlinear diffusion coefficients	DANIEL CONUS, ARNULF JENTZEN AND RYAN KURNIAWAN	653
Change-point detection for Lévy processes	JOSÉ E. FIGUEROA-LÓPEZ AND SVEINN ÓLAFSSON	717
Super-replication with fixed transaction costs	PETER BANK AND YAN DOLINSKY	739
First-order Euler scheme for SDEs driven by fractional Brownian motions: The rough case	YANGHUI LIU AND SAMY TINDEL	758
Malliavin calculus approach to long exit times from an unstable equilibrium	YURI BAKHTIN AND ZSOLT PAJOR-GYULAI	827
Optimal mean-based algorithms for trace reconstruction	ANINDYA DE, RYAN O'DONNELL AND ROCCO A. SERVEDIO	851
A shape theorem for the scaling limit of the IPDSAW at criticality	PHILIPPE CARMONA AND NICOLAS PÉTRÉLIS	875
Normal approximation for stabilizing functionals	RAPHAËL LACHËZE-REY, MATTHIAS SCHULTE AND J. E. YUKICH	931
Ergodicity of an SPDE associated with a many-server queue	REZA AGHAJANI AND KAVITA RAMANAN	994
Central limit theorems in the configuration model	A. D. BARBOUR AND ADRIAN RÖLLIN	1046
Ergodicity of a Lévy-driven SDE arising from multiclass many-server queues	ARI ARAPOSTATHIS, GUODONG PANG AND NIKOLA SANDRIĆ	1070
On one-dimensional Riccati diffusions	A. N. BISHOP, P. DEL MORAL, K. KAMATANI AND B. RÉMILLARD	1127
On Poisson approximations for the Ewens sampling formula when the mutation parameter grows with the sample size	KOJI TSUKUDA	1188
The critical greedy server on the integers is recurrent	JAMES R. CRUISE AND ANDREW R. WADE	1233
Join-the-shortest queue diffusion limit in Halfin–Whitt regime: Tail asymptotics and scaling of extrema	SAYAN BANERJEE AND DEBANKUR MUKHERJEE	1262

5164 (print)
5137 (online)
Ann. App. Prob. April 2019
<http://projecteuclid.org/euclid.aop>