Volume 46 • Issue 4

IMS Bulletin

June/July 2017

CONTENTS

1 **Carver Award**

2 **Members' News:** Maury Bramson, Leonid Mytnik, Vlada Limic, Francesca Dominici

3 **Calls for Nominations:** 16th Norwood Award; Ulf Grenander Prize, Bertrand Russell Prize

5 **Recent papers:** *Annales de l'Institut Henri Poincaré; Observational Studies*

6 **Previews of Special Lectures:** Rob Kass, Emmanuel Candès, Rick Kenyon, Takashi Kumagai, Marta Sanz-Solé, Mark Girolami

11 **Nominate a Special Lecturer**

12 **Obituary:** Charles Stein

14 **2017 IMS Fellows**

15 ***Statistics Surveys* news**

16 **Travel Awards recipients**

17 **XL-Files:** Bayesian, Fiducial and Frequentist—BFF4EVER

18 **Treasurer's Report for 2016**

20 **Meetings**

27 **Employment Opportunities; International Calendar of Meetings**

31 **Information for Advertisers**

Read it online: bulletin.imstat.org

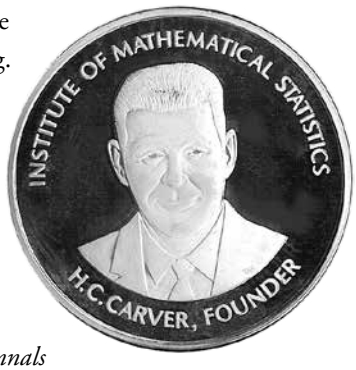
2017 Carver Award winner

Elyse Gustafson, IMS Executive Director

The Institute of Mathematical Statistics has selected Elyse Gustafson as the recipient of this year's Harry C. Carver Medal. The award is made for Elyse's exceptional service and dedication as Executive Director of the IMS over the past 20 years. Throughout this time, which included relocation of the IMS office, unpredictable fiscal challenges and substantial changes in the publishing industry, the IMS functioned smoothly as a preeminent society and publisher, under the administrative leadership of Elyse Gustafson. As the sole permanent staff person, Elyse has admirably managed a team of dedicated contractors and provided outstanding support for the IMS Executive Committee, Council, multiple IMS committees and journal editorial boards. She is especially recognized for her extraordinary ability to cooperate efficiently and cheerfully with a huge number of members who volunteer their time to help with IMS activities and who have a wide range of ideas and working styles.

Elyse will receive the Carver Medal at the IMS Presidential Address and Awards ceremony on Monday, July 31, at JSM in Baltimore (8:00pm in Ballroom 1. See the JSM online program at: http://ww2.amstat.org/meetings/jsm/2017/onlineprogram/ActivityDetails.cfm?SessionID=213958).

On hearing about her award, Elyse said, "I am surprised and honored to receive the Carver Medal. Working for the IMS for the last 20 years has been incredibly fulfilling. The volunteer leadership of the IMS is deeply dedicated to the mission of the organization. They are what makes this job so rewarding. Cultivating the organization together with these leaders has been more than I can hope for. I look forward to many more years together."



The Carver Medal was created by the IMS in honor of Harry C. Carver, Founding Editor of the *Annals of Mathematical Statistics* and one of the founders of the IMS. The medal is for exceptional service specifically to the IMS and is open to any member of the IMS who has not previously been elected President. See http://www.imstat.org/awards/carver.html for more information on the nomination process (it's not too early to start thinking about nominations for next year! You can check the list of past recipients at http://www.imstat.org/awards/awards_IMS_recipients.htm).

IMS Bulletin

Volume 46 • Issue 4
June/July 2017
ISSN 1544-1881

Contact information

IMS Bulletin Editor: Vlada Limic
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
https://www.facebook.com/IMSTATI

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
PO Box 22718, Beachwood
OH 44122, USA

t 877-557-4674 [*toll-free in USA*]
t +1 216 295 5661 [*international*]
f +1 216 295 5661
e erg@imstat.org

Executive Committee

IMS Members' News

National Academy of Science elects Maury Bramson


Maury Bramson

Maury D. Bramson, professor of mathematics at the University of Minnesota, Minneapolis, was among the 84 new members and 21 foreign associates elected to the US National Academy of Sciences. Members and Associates are elected in recognition of their distinguished and continuing achievements in original research. Those elected this year bring the total number of active members to 2,290 and the total number of foreign associates to 475.

Maury Bramson works in probability theory, including interacting particle systems (with applications to mathematical physics, physical chemistry, and biological systems), branching Brownian motion (with applications to mathematical physics and biological systems), and stochastic networks (with applications to electrical and industrial engineering, computer science, and operations research). Among his honors, Bramson is a fellow of IMS and the American Mathematical Society, and was an invited speaker at the 1998 International Congress of Mathematicians.

Leonid Mytnik and Vlada Limic receive von Humboldt Award

IMS Bulletin Editor Vlada Limic writes:

I am very happy to bring you news of Leonid Mytnik's Humboldt-Forschungspreis. Leonid and I met, not entirely by chance, in Bamberg, Francony in late March. The von Humboldt symposium held there for a few days was an exceptional event for me in many ways. It was the first time I had seen Leonid in person for about ten years. It was my first time in Bamberg, a UNESCO World Heritage site, unknown to me a year ago. It was the first time I participated in a ceremony that honored 46 scientists from many different disciplines simultaneously. Leonid was not among that 46—he will be honored later this year at the von Humboldt Annual Meeting in Berlin—but I was. Last November I received a Friedrich Wilhelm Bessel-Forschungspreis, an analog of Leonid's award in my (lighter) scientific category. My host is Anja Sturm at Georg-August-Universität, Göttingen. I look forward to this exciting year. Since there is no "free lunch", at the moment I am paying in time spent on all the practical aspects. I will most likely be quiet for a while. Before that, let me use this opportunity to thank again those who made my year.

Francesca Dominici awarded 2016 Norwood Award


Francesca Dominici

Francesca Dominici, Professor of Biostatistics, Senior Associate Dean for Research, and Associate Dean of Information Technology at the Harvard T. H. Chan School of Public Health, was honored with the 2016 Janet L. Norwood Award. Read the full announcement at http://soph.uab.edu/news/dr-francesca-dominici-receives-janet-l-norwood-award-outstanding-achievement-statistical and the call for nominations for the 2017 Norwood Award is on page 3.

IMS Elections 2017: last reminder to VOTE

If you haven't voted yet, please do before June 16! Select the next IMS President and six new IMS Council members: https://secure.imstat.org/secure/vote2017/vote2017.asp

Calls for nominations

The Sixteenth Annual Janet L. Norwood Award

The Department of Biostatistics and the School of Public Health, University of Alabama at Birmingham (UAB) is pleased to request nominations for the Sixteenth Annual Janet L. Norwood Award for Outstanding Achievement by a Woman in the Statistical Sciences. The award will be conferred on Wednesday, September 13, 2017. The award recipient will be invited to deliver a lecture at the UAB award ceremony, and will receive all expenses, the award, and a $5,000 prize.

Eligible individuals are women who have completed their terminal degree, have made extraordinary contributions and have an outstanding record of service to the statistical sciences, with an emphasis on both their own scholarship and on teaching and leadership of the field in general and of women in particular and who, if selected, are willing to deliver a lecture at the award ceremony. For additional details about the award, please visit our website at http://www.soph.uab.edu/awards/norwoodaward.

To nominate, please send a full curriculum vitae accompanied by a letter of not more than two pages in length describing the nature of the candidate's contributions. Contributions may be in the area of development and evaluation of statistical methods, teaching of statistics, application of statistics, or any other activity that can arguably be said to have advanced the field of statistical science. Self-nominations are acceptable.

Please send nominations to Charity Morgan, PhD, Assistant Professor, Biostatistics: cjmorgan@uab.edu. The deadline for receipt of nominations is June 23, 2017. Electronic submissions of nominations are encouraged. The winner will be announced by July 3.

Previous recipients of the award, starting in 2002, are: Jane F. Gentleman, Nan M. Laird, Alice S. Whittemore, Clarice R. Weinberg, Janet Turk Wittes, Marie Davidian, Xihong Lin, Nancy Geller, L. Adrienne Cupples, Lynne Billard, Nancy Flournoy, Kathryn Roeder, Judith D. Singer, Judith D. Goldberg and Francesca Dominici.

Ulf Grenander Prize

The American Mathematical Society's Ulf Grenander Prize in Stochastic Theory and Modeling is a new prize that recognizes exceptional theoretical and applied contributions in stochastic theory and modeling. It is awarded for seminal work, theoretical or applied, in probabilistic modeling, statistical inference, or related computational algorithms, especially for the analysis of complex or high-dimensional systems. The prize was established by colleagues of Ulf Grenander, who died in 2016. A longtime faculty member and chair of the Brown University Department of Applied Mathematics, Grenander received many honors. He was a fellow of IMS, the American Academy of Arts and Sciences and the National Academy of Sciences, as well as a member of the Royal Swedish Academy. See http://bulletin.imstat.org/2017/04/obituary-ulf-grenander-1923-2016/

Nominations are open until June 30 for the first Grenander Prize, which will be awarded in January 2018. For details and to nominate, please visit the AMS website at http://www.ams.org/profession/prizes-awards/ams-prizes/grenander-prize

AMS Bertrand Russell Prize

The AMS has also created the Bertrand Russell Prize, to honor research or service contributions of mathematicians in promoting good in the world and to recognize how mathematics furthers human values. Nominate by June 30: http://www.ams.org/profession/prizes-awards/russell-prize

Recent papers

Annales de l'Institut Henri Poincaré (B), Probabilités et Statistiques

The Probability and Statistics section of the *Annales de l'Institut Henri Poincaré* is an international journal that publishes high quality research papers. The journal, which is supported by the IMS, deals with all aspects of modern probability theory and mathematical statistics, as well as with their applications. The editors are Gregory Miermont and Christophe Sabot.
Access papers at https://projecteuclid.org/aihp

Volume 53, Number 2, May 2017

Rate of convergence to equilibrium of fractional driven stochastic differential equations with some multiplicative noise . . . JOAQUIN FONTBONA AND FABIEN PANLOUP; 503–538
Decomposition of Lévy trees along their diameter . . . THOMAS DUQUESNE AND MINMIN WANG; 539–593
Simple CLE in doubly connected domains . . . SCOTT SHEFFIELD, SAMUEL S. WATSON, AND HAO WU; 594–615
Scaling limits of coalescent processes near time zero . . . BATI ŞENGÜL; 616–640
Path-dependent infinite-dimensional SDE with non-regular drift: An existence result . . . DAVID DEREUDRE AND SYLVIE RŒLLY; 641–657
A dynamical Curie–Weiss model of SOC: The Gaussian case . . . MATTHIAS GORNY; 658–678
Poisson approximation of point processes with stochastic intensity, and application to nonlinear Hawkes processes . . . GIOVANNI LUCA TORRISI; 679–700
Any orthonormal basis in high dimension is uniformly distributed over the sphere . . . SHELDON GOLDSTEIN, JOEL L. LEBOWITZ, RODERICH TUMULKA, AND NINO ZANGHÌ; 701–717
Typical behavior of the harmonic measure in critical Galton–Watson trees . . . SHEN LIN; 718–752
One-dependent coloring by finitary factors . . . ALEXANDER E. HOLROYD; 753–765
Supercritical behavior of asymmetric zero-range process with sitewise disorder . . . C. BAHADORAN, T. MOUNTFORD, K. RAVISHANKAR, AND E. SAADA; 766–801
Point process convergence for branching random walks with regularly varying steps . . . AYAN BHATTACHARYA, RAJAT SUBHRA HAZRA, AND PARTHANIL ROY; 802–818
Moment asymptotics for parabolic Anderson equation with fractional time-space noise: In Skorokhod regime . . . XIA CHEN; 819–841
Conditional speed of branching Brownian motion, skeleton decomposition and application to random obstacles . . . MEHMET ÖZ, MINE ÇAĞLAR, AND JÁNOS ENGLÄNDER; 842–864
SPDEs on narrow domains and on graphs: An asymptotic approach . . . SANDRA CERRAI AND MARK FREIDLIN; 865–899
Scaling limits of random outerplanar maps with independent link-weights . . . BENEDIKT STUFLER; 900–915
Unimodality for free Lévy processes . . . TAKAHIRO HASEBE AND NORIYOSHI SAKUMA; 916–936
Maximal inequalities for stochastic convolutions driven by compensated Poisson random measures in Banach spaces . . . JIAHUI ZHU, ZDZISŁAW BRZEŹNIAK, AND ERIKA HAUSENBLAS; 937–956
Strong stationary times for one-dimensional diffusions . . . LAURENT MICLO; 957–996
Homogenization via sprinkling . . . ITAI BENJAMINI AND VINCENT TASSION; 997–1005

Observational Studies

Observational Studies, an IMS-affiliated journal, is an open-access, peer-reviewed journal that publishes manuscripts on all aspects of observational studies, including study protocols for observational studies, methodologies for observational studies, descriptions of data sets for observational studies, software for observational studies and analyses of observational studies. The editor is Dylan Small.
Read it at http://obsstudies.org/index.php

2016 papers

Article 1: Review of "Explanation in Causal Inference: Mediation and Interaction" (author T.J. Vanderweele) Book review . . . LUKE KEELE
Article 2: Large Sparse Optimal Matching with R package rcbalance . . . SAMUEL PIMENTEL
Article 3: Electronic Health Records to Evaluate and Account for Non-response Bias: A Survey of Patients Using Chronic Opioid Therapy . . . SUSAN SHORTREED, MICHAEL VON KORFF, STEPHEN THIELKE, LINDA LERESCHE, KATHLEEN SAUNDERS, DORI ROSENBERG AND JUDITH TURNER
Article 4: Patient Centered Hazard Ratio Estimation Using Principal Stratification Weights: Application to the NORCCAP Randomized Trial of Colo-rectal Cancer Screening . . . TODD MACKENZIE, MAGNUS LOBERG AND A. JAMES O'MALLEY
Article 5: Cohort Restriction Based on Prior Enrollment: Examining Potential Biases in Estimating Cancer and Mortality Risk . . . SUSAN SHORTREED, ERIC JOHNSON, CAROLYN RUTTER, ARUNA KAMINENI, KAREN WERNLI & JESSICA CHUBAK
Article 6: An Interim Sample Size Recalculation for Observational Studies . . . SERGEY TARIMA, PENG HE, TAO WANG AND ANIKO SZABO

Continues on **page 10**

Special Lectures in 2017

Over the next few pages we preview some of the special lectures featuring at various IMS meetings this year (with more previews in the next issue). This year the IMS lectures are to be given at two meetings: the **39th Stochastic Processes and their Applications** conference in Moscow (July 24–28), and the **Joint Statistical Meetings** in Baltimore (July 29–August 4). At the SPA meeting, Richard Kenyon will be delivering the **Schramm Lecture** (see page 6) and Takashi Kumagai and Marta Sanz-Solé will deliver **Medallion Lectures** (see pages 7 & 8). At JSM the **COPSS Fisher Lecturer** is Rob Kass (see below), the **Wald lecturer** is Emmanuel Candès (see next page), and one of the five **Medallion lecturers** is Mark Girolami (see page 9). The other IMS lecturers at JSM are Martin Wainwright (**Blackwell lecture**), Jon Wellner (**Presidential Address**), and Edo Airoldi, Emery Brown, Subhashis Ghosal and Judith Rousseau (**Medallion lectures**)—look out for previews in the next issue. [Note that Thomas Mikosch was due to give his **Medallion lecture** at the APS meeting in Evanston (July 10–12), but this has been rescheduled to next year's IMS annual meeting, in Vilnius.]

COPSS Fisher Lecturer: Robert E. Kass

Robert E. (Rob) Kass is the Maurice Falk Professor of Statistics and Computational Neuroscience at Carnegie Mellon University. Rob received his PhD in Statistics from the University of Chicago in 1980. His early work formed the basis for his book *Geometrical Foundations of Asymptotic Inference*, co-authored with Paul Vos. His subsequent research has been in Bayesian inference and, since 2000, in the application of statistics to neuroscience. Rob Kass is known for his methodological contributions, and for several major review articles, including one with Adrian Raftery on Bayes factors (*JASA*, 1995), one with Larry Wasserman on prior distributions (*JASA*, 1996), and a pair with Emery Brown on statistics in neuroscience (*Nature Neuroscience*, 2004, also with Partha Mitra; *Journal of Neurophysiology*, 2005, also with Valerie Ventura). His book *Analysis of Neural Data*, with Emery Brown and Uri Eden, was published in 2014. Kass has also written widely-read articles on statistical education. Recently, he and several co-authors published "Ten Simple Rules for Effective Statistical Practice" (*PLOS Computational Biology*, 2016).

Kass has served as Chair of the Section for Bayesian Statistical Science of the American Statistical Association, Chair of the Statistics Section of the American Association for the Advancement of Science, founding Editor-in-Chief of the journal *Bayesian Analysis*, and Executive Editor of *Statistical Science*. He is an elected Fellow of IMS, ASA and AAAS. He has been recognized by the Institute for Scientific Information as one of the 10 most highly cited researchers, 1995–2005, in the category of mathematics (ranked #4). In 2013 he received the Outstanding Statistical Application Award from the ASA for his 2011 paper in the *Annals of Applied Statistics* with Ryan Kelly and Wei-Liem Loh. In 1991 he began the series of eight international workshops, Case Studies in Bayesian Statistics, which were held every two years at Carnegie Mellon, and was co-editor of the six proceedings volumes that were published by Springer. He also founded and has co-organized the international workshop series Statistical Analysis of Neural Data, which began in 2002; the eighth iteration takes place in May, 2017. In 2014 Kass chaired an ASA working group that produced the forward-looking report Statistical Research and Training Under the BRAIN Initiative.

Kass has been on the faculty of the Department of Statistics at Carnegie Mellon since 1981; he joined the Center for the Neural Basis of Cognition (CNBC, run jointly by CMU and the University of Pittsburgh) in 1997, and the Machine Learning Department (in the School of Computer Science) in 2007. He served as Department Head of Statistics from 1995 to 2004 and was appointed Interim CMU-side Director of the CNBC in 2015.

COPSS R.A. Fisher Lecture
JSM 2017 in Baltimore, MD, USA
Wednesday, August 2: 4:00 PM to 5:50 PM

The Importance of Statistics: Lessons from the Brain Sciences

Rob Kass

The brain's complexity is daunting, but much has been learned about its structure and function, and it continues to fascinate: on the one hand, we are all aware that our brains define us; on the other hand, it is appealing to regard the brain as an information processor, which opens avenues of computational investigation.

While statistical models have played major roles in conceptualizing brain function for more than 50 years, statistical thinking in the analysis of neural data has developed much more slowly. This seems ironic, especially because computational neuroscientists can—and often do—apply sophisticated data analytic methods to attack novel problems. The difficulty is that in many situations, trained statisticians proceed differently than those without formal training in statistics.

What makes the statistical approach different, and important? I will give you my answer to this question, and will go on to discuss a major statistical challenge, one that could absorb dozens of research-level statisticians in the years to come.

Wald Lectures: Emmanuel Candès

Emmanuel Candès is the Barnum-Simons Chair in Mathematics and Statistics, and professor of Electrical Engineering (by courtesy) at Stanford University, where he currently chairs the Department of Statistics. Emmanuel's work lies at the interface of mathematics, statistics, information theory, signal processing and scientific computing: finding new ways of representing information and of extracting information from complex data. Candès graduated from the Ecole Polytechnique in 1993 with a degree in science and engineering, and received his PhD in Statistics from Stanford in 1998. He received the 2006 NSF Alan T. Waterman Award, the 2013 Dannie Heineman Prize from Göttingen, SIAM's 2010 George Pólya Prize, and the 2015 AMS-SIAM George David Birkhoff Prize in Applied Mathematics. He is a member of the National Academy of Sciences and the American Academy of Arts and Sciences.

The 2017 Wald Lectures: What's happening in Selective Inference?

For a long time, science has operated as follows: a scientific theory can only be tested empirically, and only after it has been advanced. Predictions are deduced from the theory and compared with the results of decisive experiments so that they can be falsified or corroborated. This principle, formulated independently by Karl Popper and by Ronald Fisher, has guided the development of scientific research and statistics for nearly a century. We have, however, entered a new world where large data sets are available prior to the formulation of scientific theories. Researchers mine these data relentlessly in search of new discoveries and it has been observed that we have run into the problem of irreproducibility. Consider the April 23, 2013 *Nature* editorial: "Over the past year, *Nature* has published a string of articles that highlight failures in the reliability and reproducibility of published research." The field of Statistics needs to re-invent itself and adapt to this new reality in which scientific hypotheses/theories are generated by data snooping. In these lectures, we will make the case that statistical science is taking on this great challenge and discuss exciting achievements.

An example of how these dramatic changes in data acquisition that have informed a new way of carrying out scientific investigation is provided by genome-wide association studies (GWAS). Nowadays we routinely collect information on an exhaustive collection of possible explanatory variables to predict an outcome or understand what determines an outcome. For instance, certain diseases have a genetic basis and an important biological problem is to find which genetic features (e.g., gene expressions or single nucleotide polymorphisms) are important for determining a given disease. Even though we believe that a disease status depends on a comparably small set of genetic variations, we have a priori no idea about which ones are relevant and therefore must include them all in our search. In statistical terms, we have an outcome variable and a potentially gigantic collection of explanatory variables, and we would like to know which of the many variables the response depends on. In fact, we would like to do this while controlling the false discovery rate (FDR) or other error measures so that the results of our investigation do not run into the problem of irreproducibility. The lectures will discuss problems of this kind.

We introduce "knockoffs," an entirely new framework for finding dependent variables while provably controlling the FDR in finite samples and complicated models. The key idea is to make up fake variables—knockoffs—which are created from the knowledge of the dependent variables alone (not requiring new data or knowledge of the response variable) and can be used as a kind of negative control to estimate the FDR (or any other error of type 1). We explain how one can leverage haplotype models and genotype imputation strategies about the distribution of alleles at consecutive markers to design a full multivariate knockoff processing pipeline for GWAS!

The knockoffs machinery is a selective inference procedure in the sense that the methods finds as many relevant variables as possible without having too many false positives, thus controlling a type 1 error averaged over the selected. We shall discuss other approaches to selective inference, where the goal is to correct for the bias introduced by a model constructed after looking at the data as is now routinely done in practice. For example, in the high-dimensional linear regression setup, it is common to use the lasso to select variables. Now it is well known that if one applies classical techniques after the selection step—as if no search has been performed—inference is distorted and can be completely wrong. How then should one adjust the inference so that it is valid? We plan on presenting new ideas from Jonathan Taylor and his group to resolve such issues, as well as from a research group including Berk, Brown, Buja, Zhang and Zhao on post-selection inference.

Some of the work I will be presenting is joint with many great young researchers including Rina Foygel Barber, Lucas Janson, Jinchi Lv, Yingying Fan, Matteo Sesia as well as many other graduate students and post-docs, and also with Professor Chiara Sabatti who played an important role in educating me about pressing contemporary problems in genetics. I am especially grateful to Yoav Benjamini: Yoav visited Stanford in the Winter of 2011 and taught a course titled "Simultaneous and Selective Inference". These lectures inspired me to contribute to the enormously important enterprise of developing statistical theory and tools adapted to the new scientific paradigm—*collect data first, ask questions later.*

Schramm Lecture preview: Rick Kenyon

Richard Kenyon received his PhD from Princeton University in 1990 under the direction of William Thurston. After a postdoc at IHES, he held positions at CNRS in Grenoble, Lyon, and Orsay, before becoming a professor at UBC for 3 years and then moving to Brown University where he is currently the William R. Kenan Jr. University Professor of Mathematics. He was awarded the CNRS bronze medal, the Rollo Davidson prize and the Loève prize; he is a member of the American Academy of Arts and Sciences, and is currently a Simons Investigator.

Richard Kenyon's 2017 Schramm lecture will be given at the 39th Conference on Stochastic Processes and their Applications (SPA) in Moscow (July 24–28, 2017). See http://www.spa2017.org/

Limit shapes beyond dimers

The boxed plane partition (see Figure 1) is a tiling of a hexagon with side length n by "lozenges": tiles consisting of 60° rhombi in one of the three possible orientations; one can also think of it as a projection of a stack of cubes stacked into an $n \times n \times n$ box in such a way that the surface of the stack projects monotonically to the plane $x + y + z = 0$.

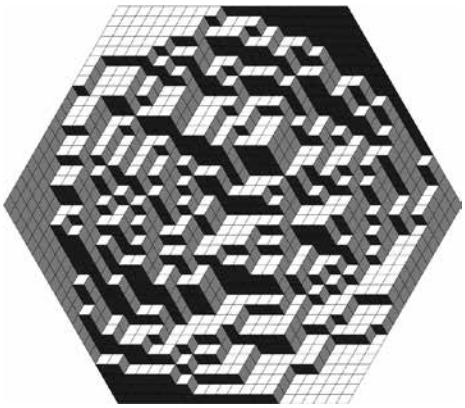


Fig. 1: The boxed plane partition

In the limit $n \to \infty$ under rescaling there is a well-known "limit shape phenomenon" [**1**, **2**] under which this surface in $\mathbb{R}^3$, defined by a uniform random boxed plane partition, when scaled by n, converges to a nonrandom surface. This surface is the unique surface spanning the boundary and minimizing a certain surface tension, which we can write as

$$\iint_H \sigma(\nabla h)\, dx\, dy,$$

where H is the hexagon, and $h : H \to \mathbb{R}$ is the function giving the height of the surface above the plane $x + y + z = 0$.

There is a similar limit shape phenomenon for tilings of any other region, obtained by minimizing the surface tension with other boundary conditions [**2**, **4**].

The main tool for studying the lozenge tiling model is the determinantal formula describing the correlations between individual tiles. These are based on the formula due to Kasteleyn [**3**] which shows that the number of lozenge tilings of a simply connected polygonal region is the determinant of the adjacency matrix of an underlying graph.

In joint work with Jan de Gier and Sam Watson we consider a generalization of the lozenge tiling model, which we call the **five-vertex model** since it is a special case of the well-known six-vertex model in which one of the six local configurations is disallowed. This model is, concretely, a different measure on the same space of lozenge tilings: we simply give a configuration a weight probability proportional to r to the power of the number of adjacencies between two of the three types of tiles. The lozenge tiling model is the case $r = 1$ of this model.

This new measure is no longer determinantal. Thus we must rely on the *Bethe Ansatz method* for counting the number of configurations and computing correlations. This is notoriously difficult to carry out and indeed the solution to the general six-vertex model is a well-known open problem. Somewhat remarkably, this calculation can be performed for the five-vertex model to get a complete limit shape theory: we can give an explicit PDE describing the limit shapes associated to the model.

Like the lozenge model, limit shapes are obtained by minimizing a surface tension $\sigma_r(\nabla h)$ for given boundary values. Again $\nabla h = (s, t)$ varies over the triangle $\mathcal{N} = cvx\{(0, 0), (1, 0), (0, 1)\}$. The surface tension $\sigma_r : \mathcal{N} \to \mathbb{R}$ is an explicit smooth convex function involving the dilogarithm

$$\mathrm{Li}_2(z) := -\int_0^z \frac{\log(1-\zeta)}{\zeta}\, d\zeta,$$

see Figure 3. Unlike the lozenge case there is a certain curve in $\mathcal{N}$

$$\gamma = \{(s, t) : 1 - s - t + (1 - r^2)st = 0\}$$

along which σ is not analytic; for (s,t) on the side of γ near the line $s+t=1$ the underlying Gibbs measure $\mu_{s,t}$ is not *extremal*. Physically, we think of the paths consisting of the white and light gray lozenges as *attracting* each other; for typical configurations the paths clump together. On the other side of the curve these lines repel each other. The surface tension is conveniently written in terms of a pair of auxiliary complex variables z, w lying on the *spectral curve* $0 = P(z,w) = 1 - z - w + (1 - r^2)zw$. The relation between (s,t) and (z,w) is described in Figure 2.

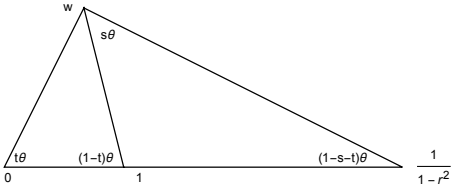


Fig. 2: Given r and a point $(s,t) \in \mathcal{N}$ (on the left side of the curve γ), there is a unique w in the upper half plane satisfying the property that $t = \arg(w) / \arg(\frac{w}{1-w})$ and $s = \arg(z) / \arg(\frac{z}{1-z})$. Here $\overline{z}$ is the reflection of w in the circle of radius $r/(1-r^2)$ centered at $1/(1-r^2)$.

The Euler–Lagrange equation for the variational problem is the PDE that any minimizer will satisfy. In this case the PDE, when written in terms of the variables z, w with $P(z, w) = 0$, (each of which is a function of x, y) reduces to the wonderfully simple form

$$\frac{\partial B(w)}{\partial w} w_y - \frac{\partial B(z)}{\partial z} z_x = 0.$$

where $B(z) = \arg z \log|1-z| + \mathrm{Im}\,\mathrm{Li}(z)$ is a nonanalytic function.

This research was supported by the NSF and the Simons foundation.

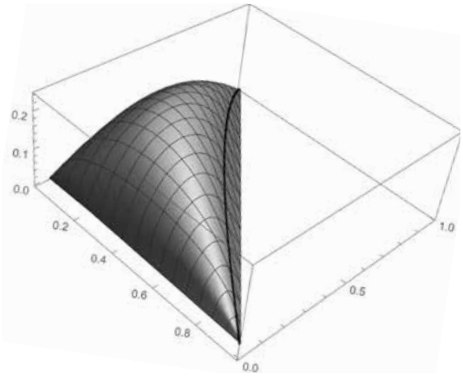


Fig. 3: Minus surface tension as a function of $(s,t) \in \mathcal{N}$ with $r = .8$. The black line is the curve γ.

References

[1] H. Cohn, M. Larsen, J. Propp, The shape of a typical boxed plane partition, *New York J. Math.* **4** (1998), 137–165.

[2] H. Cohn, R. Kenyon, J. Propp, A variational principle for domino tilings. *J. Amer. Math. Soc.* **14** (2001), no. 2, 297–346.

[3] P. Kasteleyn, Dimer statistics and phase transitions. *J. Mathematical Phys.* **4** 1963 287–293.

[4] R. Kenyon, A. Okounkov, Limit shapes and the complex Burgers equation. *Acta Math.* **199** (2007), no. 2, 263–302.

Medallion Lecture preview: Takashi Kumagai

Takashi Kumagai studied at Kyoto University, where he defended his PhD thesis in 1994 (supervisor: Shinzo Watanabe). After working at Osaka University and Nagoya University, he went back to Kyoto University in 1998. He is now a professor at the Research Institute for Mathematical Sciences (RIMS), Kyoto University. His research areas are anomalous diffusions on disordered media such as fractals and random media, and potential theory for jump processes on metric measure spaces. He gave St. Flour 2010 lectures, was a plenary speaker at SPA 2010 in Osaka, invited speaker at the International Congress of Mathematicians in Seoul 2014.

Takashi Kumagai's Medallion Lecture will be given at SPA 2017 in Moscow, July 2017.

Heat kernel estimates and parabolic Harnack inequalities for symmetric jump processes

There has been a long history of research on heat kernel estimates and Harnack inequalities for diffusion processes. Harnack inequalities and Hölder regularities for harmonic/caloric functions are important components of the celebrated De Giorgi-Nash-Moser theory in harmonic analysis and partial differential equations. In early 90's, equivalent characterizations for parabolic Harnack inequalities (that is, Harnack inequalities for caloric functions) that are stable under perturbations were obtained by Grigor'yan and Saloff-Coste independently, and later extended in various directions.

Such stability theory has been developed only recently for symmetric jump processes, despite of the fundamental importance in analysis. In 2002, Bass and Levin obtained heat kernel estimates for Markov chains with long-range jumps on the d-dimensional lattice. Motivated by the work, Chen and Kumagai (2003) obtained two-sided heat kernel estimates and parabolic Harnack inequalities for symmetric stable-like processes, which are perturbations of symmetric stable processes, on Ahlfors regular subsets of Euclidean spaces. The results include equivalent stable condition for the two-sided stable type heat kernel estimates. There has been vast amount of work related to potential theory on symmetric stable-like processes since around that time. Definite answers are given in the recent trilogy by Chen, Kumagai and Wang on the stability of heat kernel estimates and parabolic Harnack inequalities for symmetric jump processes on general metric measure spaces. While both of them are stable under perturbations, unlike diffusion cases, heat kernel estimates are not equivalent to parabolic Harnack inequalities for jump cases.

In the talk, I will summarize developments of the De Giorgi-Nash-Moser theory for symmetric jump processes and discuss its applications. The applications include discrete approximations of jump processes and random media with long-range jumps. The talk is based on joint works with my collaborators; M.T. Barlow, R.F. Bass, Z.-Q. Chen, A. Grigor'yan, J. Hu, P. Kim, M. Kassmann and J. Wang.

Medallion Lecture preview: Marta Sanz-Solé

Marta Sanz-Solé is a professor of Mathematics at the University of Barcelona. She is a member of the Institute of Catalan Studies and a Fellow of the IMS. Her research interests are in the field of stochastic analysis, specially Malliavin calculus and stochastic partial differential equations. She is, and has been, member of editorial boards of several journals, including the Annals of Probability. Marta Sanz-Solé has served on international scientific committees, advisory boards and evaluation panels. During the period 2011–2014, she held the position of President of the European Mathematical Society.

Marta's Medallion lecture will be given at the 39th Conference on Stochastic Processes and their Applications (SPA) in Moscow (July 24–28, 2017). See http://www.spa2017.org/

Stochastic partial differential equations: trajectories and densities

The theory of stochastic partial differential equations (SPDEs) emerged about thirty years ago and since then, it has been undergoing a dramatic development. This new field of mathematics is at the crossroad of probability and analysis, combining tools from stochastic analysis and the classical theory of partial differential equations. Motivations for the study of SPDEs arise both within mathematics, as well as from applications to other scientific settings possessing an inherent component of randomness. This randomness can be, for example, in the initial conditions, in the environment, or as an external forcing. Fundamental problems in the theory of SPDEs are the existence and uniqueness of solutions, and the properties of their sample paths. In the relevant examples, these are non-smooth random functions.

A basic question in probabilistic potential theory is to determine whether a random field ever visits a fixed deterministic set A. This leads to a quantitative analysis of the hitting probabilities in terms of geometric measure notions, like the Hausdorff measure or the Bessel–Riesz capacity of the set A. For Gaussian (and also for Lévy) processes, the subject (initiated in the 40's) has reached a state of maturity. Over the last decade, the study of hitting probabilities relative to sample paths of systems of SPDEs has been in the focus of interest. Substantial progress has been made, thereby contributing to the understanding of qualitative features of SPDEs. There are however many unsolved problems for further investigations.

In my lecture, I will describe the mathematical approach to obtaining upper and lower bounds for hitting probabilities of random fields in terms of Hausdorff measure and Bessel–Riesz capacity, respectively. The roles of the dimensions, the roughness of the sample paths, the one-point and two-point joint distributions and particularly, the structure of the covariance, will be highlighted. Then I will focus on a class of SPDEs defined through linear partial differential operators, with nonlinear Gaussian external forcing. The random field solutions to systems of such equations are random vectors on an abstract Wiener space. Except in very simple cases, they are not Gaussian stochastic processes.

Malliavin calculus provides a powerful toolbox to tackle many questions about probability laws on abstract Wiener spaces. The existence and properties of densities relative to our SPDEs can be proved using this calculus. In particular, the qualitative behaviour of the covariance of two-point joint distributions when these points get close to each other, can be achieved by a detailed analysis of the Malliavin matrix –an infinitesimal covariance type matrix on the Wiener space.

I will illustrate the implementation of this approach with two classical examples: the nonlinear stochastic heat and wave equations. Finally, I will mention some on-going work and open questions.

Recent papers: *Observational Studies*

2016 papers (continued from page 5)

Article 7: Review of "Causality in a Social World" (author Guanglei Hong) Book review . . . . . KEN FRANK, GUAN KUNG SAW AND RAN XU

Article 8: Assessing the Dose-Response Relationship Between Maternal Use of Inhaled Corticosteroids Therapy and Birth Weight: A Generalized Propensity Score Approach . . . . . MARIIA SAMOILENKO, LUCIE BLAIS, BENOÎT COSSETTE, AMÉLIE FORGET, & GENEVIÈVE LEFEBVRE

Article 9: Reprint "Regression-Discontinuity Analysis: An Alternative to the Ex-Post Facto Experiment" . . . . . DONALD THISTLEWAITE AND DONALD CAMPBELL followed by **comments** . . . . . PETER ARONOW, NICOLE BASTA, M. ELIZABETH HALLORAN; MATIAS CATTANEO AND GONZALO VAZQUEZ-BARE; GUIDO IMBENS; . . . . . ALESSANDRA MATTEI AND FABRIZIA MEALLI; JASJEET SEKHON AND ROCÍO TITIUNIK; AND VIVIAN WONG AND COADY WING

2017 papers (so far)

Article 1: Study Protocol for the Evaluation of a Vocational Rehabilitation . . . . . PHILIP FOWLER, XAVIER DE LUNA, PER JOHANSSON, PETRA ORNSTEIN, SOFIA BILL AND PEJE BENGTSSON

Medallion Lecture preview: Mark Girolami

Mark Girolami is an EPSRC Established Career Research Fellow (2012–2018) and was previously an EPSRC Advanced Research Fellow (2007–2012). He is the Director of the Lloyds Register Foundation Turing Programme on Data Centric Engineering, and previously led the EPSRC-funded Research Network on Computational Statistics and Machine Learning which is now a Section of the UK's Royal Statistical Society. In 2011 he was elected Fellow of the Royal Society of Edinburgh and also awarded a Royal Society Wolfson Research Merit Award. He was one of the founding Executive Directors of the Alan Turing Institute for Data Science from 2015 to 2016, before taking leadership of the Data Centric Engineering Programme at The Alan Turing Institute. His paper on Riemann Manifold Hamiltonian Monte Carlo methods was Read before the Royal Statistical Society, receiving the largest number of contributed discussions of a paper in its 183-year history.

Mark Girolami's Medallion lecture will be given at the 2017 Joint Statistical Meetings in Baltimore (July 29–August 4, 2017). See the online program at http://ww2.amstat.org/meetings/jsm/2017/onlineprogram/index.cfm

Probabilistic Numerical Computation: a Role for Statisticians in Numerical Analysis?

Consider the consequences of an alternative history. What if Leonhard Euler had happened to read the posthumous publication of the paper by Thomas Bayes on "An Essay towards solving a Problem in the Doctrine of Chances"? This paper was published in 1763 in the *Philosophical Transactions of the Royal Society*, so if Euler had read this article, we can wonder whether the section in his three volume book *Institutionum calculi integralis,* published in 1768, on numerical solution of differential equations might have been quite different.

Would the awareness by Euler of the "Bayesian" proposition of characterising uncertainty due to unknown quantities using the probability calculus have changed the development of numerical methods and their analysis to one that is more inherently statistical?

Fast forward the clock two centuries to the late 1960s in America, when the mathematician F.M. Larkin published a series of papers on the definition of Gaussian Measures in infinite dimensional Hilbert spaces, culminating in the 1972 work on "Gaussian Measure on Hilbert Space and Applications in Numerical Analysis". In that work the formal definition of the mathematical tools required to consider average case errors in Hilbert spaces for numerical analysis were laid down and methods such as Bayesian Quadrature or Bayesian Monte Carlo were developed in full, long before their independent reinvention in the 1990s and 2000s brought them to a wider audience.

Now in 2017 the question of viewing numerical analysis as a problem of Statistical Inference in many ways seems natural and is being demanded by applied mathematicians, engineers and physicists who need to carefully and fully account for all sources of uncertainty in mathematical modelling and numerical simulation.

Now we have a research frontier that has emerged in scientific computation founded on the principle that error in numerical methods, which for example solves differential equations, entails uncertainty that ought to be subjected to statistical analysis. This viewpoint raises exciting challenges for contemporary statistical and numerical analysis, including the design of statistical methods that enable the coherent propagation of probability measures through a computational and inferential pipeline.

Call for Nominations: IMS Special Lectures

The IMS Committee on Special Lectures is now accepting nominations for the following IMS Named and Medallion Lectures.

- **2019 Wald Lecturer:** *The Wald Memorial Lectures honor Professor Abraham Wald. The Wald Lecturer gives two, three or four one-hour talks on one subject. This gives sufficient time to develop material in some detail and make it accessible to non-specialists.*
- **2019 Rietz Lecturer:** *The Rietz Lectures are named after the first President of the IMS, Henry L. Rietz. The lectures are intended to be of broad interest and serve to clarify the relationship of statistical methodology and analysis to other fields.*
- **2020 Medallion Lecturers:** *The Committee on Special Lectures invites eight individuals to deliver Medallion Lectures annually.*

The deadline for nominations is October 1, 2017. To nominate someone, you will need a nomination letter (half a page, including your name, the nominee's name and the name of the IMS lecture for which the nominee is nominated), and a list of five of their most relevant publications, with a URL where these publications are accessible.

For more information visit: http://imstat.org/awards/lectures/nominations.htm

Obituary: Charles M. Stein

1920–2016

Charles M. Stein, one of the most original statisticians and probabilists of the 20th century died in Fremont, California on November 24th, 2016. Stein's paradox showing the classical least squares estimates of several parameters can be usefully improved by combining seeming unrelated pieces of information is one of the most surprising and useful contributions of decision theory to statistical practice. Stein's method for proving approximation theorems such as the central limit and Poisson approximation theorems for complicated, dependent sums of random variables now permeates modern probability.

Born in Brooklyn New York in 1920, Stein was a prodigy who started university of Chicago at age 16. There, he fell under the spell of abstraction through Saunders Mac Lane and Adrian Albert. His first applied statistical work was done making weather forecasts during World War 2. Working with another youngster, Gil Hunt, Stein studied the interaction of invariance and accuracy, a lifetime theme.

Suppose that $P_\theta(dx)$, $\theta \in \Theta$ is a family of probabilities on a space X, and suppose that a group G acts on X, taking X to X^g (think of taking Fahrenheit to Celsius). The group is said to act on the family if, for every g, there is $\overline{g}$ so that $P_\theta(x^g) = P_{\theta\overline{g}}(x)$. An estimator $\hat{\theta}(x)$ is equivariant if $\hat{\theta}(x^g) = \overline{g}\,\hat{\theta}(x)$. If $L(\theta, \hat{\theta})$ is a loss function, an estimator θ^* is minimax if

$$\inf_{\hat{\theta}} \sup_\theta EL(\hat{\theta}, \theta) = \sup_\theta EL(\theta^*, \theta).$$

The Hunt–Stein theorem shows that if an estimator θ^* is minimax among all equivariant estimators, then it is minimax among all estimators, provided that the group is amenable. This is a remarkable piece of work: often it is straightforward to write down all equivariant estimators and find the best one. Showing such an estimator has global optimality and the intervention of amenability is remarkable. That it was done during wartime conditions by two college kids is astounding.

Stein's work on invariance under a group energized Erich Lehmann, who wrote up the Hunt-Stein theorem in the first edition of his testing book (the original manuscript is lost) and established equivariance as a general statistical principle.

After the war, Stein entered graduate school at Colombia to work with Abraham Wald. Following Wald's tragic death in an airplane accident, Stein's thesis was read by Harold Hotelling and Ted Anderson.

Stein's thesis [1] solved a problem posed by Neyman: find a fixed-width confidence interval for a normal mean when the variance is unknown. The usual t-interval has random width governed by the sample standard deviation and George Danzig had proved that no such confidence interval exists based on a fixed sample of size n. Stein introduced a two-step procedure: a preliminary sample is taken, this is used to determine the size of a second sample and that finally yields the estimator. Combining these ideas to get an exact procedure takes a very original piece of infinite dimensional analysis, still impressive 70 years later.

Stein taught at UC Berkeley from 1947 to 1950, then, having refused to sign Berkeley's loyalty oath during the McCarthy era, he moved from Berkeley to Chicago and then to Stanford University's Department of Statistics in 1953, where he spent the rest of his career.

A celebrated contribution to decision theory is Stein's necessary and sufficient condition for admissibility. Roughly, this says that any admissible procedure in statistical decision problem is a limit of Bayes rules. The setting is general enough

Charles Stein in 1984

to encompass both estimation and testing. Stein had a lifetime aversion to the "cult of Bayes": in the *Statistical Science* interview with de Groot [2] he said, "The Bayesian point of view is often accompanied by an insistence that people ought to agree to a certain doctrine, even without really knowing what that doctrine is". He told us that it took him five years to publish—until he could find a non-Bayesian proof of the result. He softened in later years: when discussing his estimate of the multivariate mean, the theory allows shrinkage towards any point. Stein said, "I guess you might as well shrink towards your best guess at the mean." He made one further philosophical point to us regarding his theorem: the theory says that good estimators are Bayes but it is perfectly permissible to use one prior to estimate one component of a vector of parameters and a completely different prior to estimate other coordinates. For Stein, priors could suggest estimators but their properties should be understood through the mathematics of decision theory.

Stein contributed to several other areas of statistics: "Stein's lemma" [3] for bounding the tails of stopping times in sequential analysis is now a standard tool. His work in nonparametrics: where he showed that to estimate θ given $X_i = \theta + \epsilon_i$, where the law of ϵ_i is unknown; one first estimates the law of ϵ using nonparametric density, then combines that with a Pitman-type estimator. This has remarkable optimality properties.

Continues on **page 13**

The "Sherman–Stein–Cartier–Fell–Meyer" theorem formed the basis of Stein's (unpublished) Wald lecture. This started the healthy field of comparison of experiments, brilliantly developed by Lucien Le Cam [4]. Two brief but telling notes [5, 6] show Stein's idiosyncratic use of clever counter-examples to undermine preconceptions that everyone believed true.

Throughout his statistical work, Stein preferred "properties over principles". Here is the way he explained the content of his shrinkage estimate to us: if you ask a working scientist if estimators should obey natural transformation rules (changing from feet to meters), they should agree this mandatory. Most would prefer an estimator which always has a smaller expected error. **Stein's paradox** shows that these two principles are incompatible (shrinkage estimators are not equivariant).

Roughly, the second half of Stein's research career was spent developing a new method of proving limit theorems (usually with explicit finite sample error bounds): what is now called **Stein's method**. This separation is artificial because Stein saw the subjects of statistics and probability as intertwined. For example, in working out better estimates of an unknown covariance matrix, Stein discovered, independently, Wigner's semi-circle law for the eigenvalues of the usual sample estimator. His estimator shrank those to make them closer to the true eigenvalues. Then he proved that this estimator beats the naive one. Stein's method of exchangeable pairs seems to have been developed as a new way of proving Hoeffding's combinatorial central limit theorem whose starting point is a non-random n by n matrix A. Forming a random diagonal $W_\pi = \sum_{i=1}^n A_{i\pi(i)}$, where π is a uniformly chosen permutation of $\{1, 2, \ldots, n\}$. Under mild conditions on A, this W_π has an approximately normal limit. This unifies the normality of sampling without replacement from an urn, limit theorems for standard nonparametric tests and much else. Stein compared the distribution of W_π and $W_{t\pi}$ where t is a random transposition. He showed these differ by a small amount and was able to show this mimicked his famous characterization of the normal: a random variable W has a normal distribution if and only if $E(Wf(W)) = E(f'(W))$ for all smooth bounded f. The W_π satisfy this identity approximately and Stein proved this was enough. The earliest record of this work is in class notes taken by Lincoln Moses in 1962 (many faculty regularly sat in Stein's courses). His first publication on this approach used Fourier analysis and is recorded in [7]. The Fourier analysis was dropped and the method expanded into a definitive theory, published as a book by the IMS in the monograph series [8].

Two important parts of Stein's life were family and politics. Charles met Margaret Dawson while she was a graduate student at UC Berkeley. She shared his interest in statistics; they translated A. A. Markov's letters to A. A. Chuprov [9] and worked together as political activists. While Charles almost always had his head in the clouds, Margaret made everything work and guided many of his professional decisions. Their three children, Charles Jr, Sarah and Anne, grew up to be politically active adults. Margaret passed away a few months before her husband. He is survived by two daughters: Sarah Stein, her husband, Gua-su Cui, and their son, Max Cui-Stein, of Arlington, Massachusetts; by Anne Stein and her husband, Ezequiel Pagan, of Peekskill, NY; and by his son Charles Stein Jr. and his wife, Laura Stoker, of Fremont, California.

Politics of a very liberal bent were a central part of the Steins' world. Charles led protests against the war (and was even arrested for it), Margaret was a singing granny and a community organizer. The family traveled to the Soviet Union and the kids went around to churches and schools upon returning to try to humanize the USSR's image.

Charles shared his ideas and expertise selflessly. He read our papers, taught us his tools and inspired all of us by his integrity, depth and humility. All of our worlds are a better place for his being.

Persi Diaconis and Susan Holmes, Stanford, CA

References

[1] Stein C.M. (1953) *A two-sample test for a linear hypothesis having power independent of the variance*. PhD, Columbia University.

[2] DeGroot M.H. (1986) A conversation with Charles Stein. *Statistical Science* **1**: 454–462.

[3] Stein C. (1946) A note on cumulative sums. *Ann Math Statist* **17**: 498–499.

[4] Le Cam L., Yang G.L. (2012) *Asymptotics in statistics: some basic concepts.* Springer Science & Business Media.

[5] Stein C (1959) An example of wide discrepancy between fiducial and confidence intervals. *Ann Math Statist* 30:877–880.

[6] Stein C. (1962) A remark on the likelihood principle. *J Roy Statist Soc Ser A* **125**:565–568.

[7] Stein C. (1972) A bound for the error in the normal approximation to the distribution of a sum of dependent random variables. Proc. *Sixth Berkeley Symp. Math. Statist. Probab.* **2**: 583–602.

[8] Stein C. (1986) *Approximate computation of expectations*, volume 7 of *IMS Lecture Notes–Monograph Series.*

[9] Markov A., Chuprov A. (1971) *The correspondence on the theory of probability and mathematical statistics.* Springer-Verlag. Translated from the Russian by Charles M. and Margaret D. Stein.

2017 IMS Fellows

Congratulations to the 20 new IMS Fellows elected this year! They will be presented at the IMS Presidential Address and Awards session at the Presidential Address and Awards session at JSM Baltimore, on Monday, July 31 at 8:00pm.

Moulinath Banerjee, Professor of Statistics, University of Michigan, Ann Arbor: *For influential contributions to the theory of non-standard asymptotics and shape-restricted inference.*

Denise Applewhite

David M. Blei, Professor, Department of Statistics and Department of Computer Science, Columbia University: *For outstanding contributions to statistical machine learning and Bayesian methodology.*

Florentina Bunea, Professor, Department of Statistical Science, Cornell University: *For fundamental contributions to the theory and methodology of high-dimensional inference and model selection.*

Arnaud Doucet, Professor of Statistics, University of Oxford: *For deep contributions to the development of stochastic simulations methods, especially in the case of particle filters.*

Nathalie Eisenbaum, CNRS, Université Paris 6, France: *For influential contributions to the study of local times of Markov processes, infinite divisibility, permanental processes and isomorphism theorems.*

Andreas Greven, Professor Dr., Friedrich-Alexander Universität, Erlangen-Nürnberg, Germany: *For fundamental contributions to stochastic models in population genetics and ecology, and to stochastic analysis of tree-valued processes, interacting spatial systems, and systems in random media.*

Wenceslao González-Manteiga, Univ. Santiago de Compostela: *For influential contributions to the theory of nonparametric inference, the bootstrap and functional data analysis, and for outstanding service to the community, especially in Galicia and Spain.*

Eric D. Kolaczyk, Professor, Boston Univ.: *For fundamental contributions to wavelet-based and multi-scale methods, and statistical inference of network data, with applications to image segmentation, remote sensing, computer traffic and biological networks.*

Yufeng Liu, Professor, University of North Carolina at Chapel Hill: *For outstanding research in statistical learning, especially with respect to multiclass classification, thresholding, and for applications of statistical methods to genomics.*

Dan Sears / UNC-Chapel Hill

Thomas A. Louis, Professor of Biostatistics, Johns Hopkins Bloomberg School of Public Health: *For seminal research contributions to Bayesian and Empirical Bayes methodology, and for exceptional service and leadership in the profession.*

Yanyuan Ma, Professor, Pennsylvania State University: *For influential and original contributions to the development of dimension reduction techniques, and to semiparametric theory and methodology.*

Marloes H. Maathuis, Professor of Statistics, ETH Zürich: *For influential and original contributions to the theory and methodology for high-dimensional graphical modeling, algorithms for structure search, and causal inference.*

ETH Zürich / Giulia Marthaler

Jeffrey Morris, McCarthy Distinguished Professor, University of Texas M.D. Anderson Cancer Center: *For influential and original work in functional data analysis and functional regression, and in Bayesian modeling of complex, high-dimensional data.*

Gareth Roberts, Professor of Statistics, University of Warwick: *For outstanding and seminal research contributions to the rigorous theory and practice of Monte Carlo methodology, and for exceptional service and leadership in the profession.*

Jason Schweinsberg, Professor of Mathematics, University of California San Diego: *For deep contributions to the theory of coalescent processes, loop erased random walks, and branching processes with selection arising in population genetics.*

Lan Wang, Professor, University of Minnesota: *For influential contributions to high dimensional statistical theory and methodology in quantile regression and variable selection.*

Mei-Cheng Wang, Professor, Department of Biostatistics, Johns Hopkins University: *For influential contributions to survival analysis, including theory and application of random truncation and recurrent event processes.*

Lijian Yang, Professor, Tsinghua University, China: *For influential contributions to nonparametric function estimation, semiparametric time series analysis and functional data analysis, and for outstanding service to the community, especially in China.*

Fang Yao, Department of Statistical Sciences, University of Toronto: *For seminal contributions to the theory and practice of functional data analysis, especially by establishing connections to longitudinal studies.*

Linda Zhao, Professor of Statistics, University of Pennsylvania: *For influential research contributions to statistical theory and methodology, especially for Empirical Bayes methods.*

Statistics Surveys seeks submissions

Statistics Surveys is an online journal for expository papers about specific statistical methodology. It is an outlet for papers that are deep and magisterial reviews of subfields within statistics, such as bootstrap methodology for finite populations, spatial prediction with Big Data, or causal inference. The journal is jointly owned by IMS, the American Statistical Association, Bernoulli Society and Statistical Society of Canada. Access is free and there is no publication fee. To benefit readers and authors, the review process is swift. The journal's editorial board deplores long delays and indecisiveness and is committed to quick and constructive feedback. Board members referee the papers they are sent, rather than the papers they wish had been written, and ties always go to the runner.

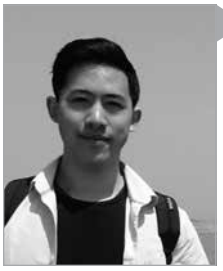
Statistics Surveys seeks more high-quality submissions. The first chapter of nearly every PhD thesis, for example, is a literature review. Generally, the effort spent in writing that chapter falls upon rocky ground, and does not lead to any publication. But with light editing, such a chapter could be an ideal submission for *Statistics Surveys*. We are not seeking papers that show methodological novelty, but rather the distilled wisdom of prior publications.

If you have any questions or need more information, contact one of the editorial board members.

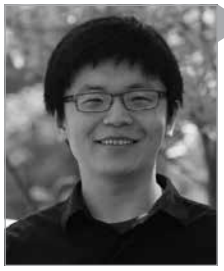
IMS Travel Awards recipients

This year's six recipients of the IMS Travel Awards

The IMS Travel Awards provide funding for travel to present a paper or a poster at an IMS sponsored or co-sponsored meeting, for New Researchers who would not otherwise be able to attend. See http://www.imstat.org/awards/travel.html. We present the six recipients of this year's IMS Travel Awards: Stephen Chan, Ethan X. Fang, Zijian Guo, Gül İnan, Chengchun Shi and Zifeng Zhao.



Stephen Chan
School of Mathematics, University of Manchester, UK



Ethan X. Fang
Pennsylvania State University, USA

Zijian Guo
Department of Statistics and Biostatistics, Rutgers University, USA

Gül İnan
Middle East Technical University, Turkey

Chengchun Shi
Department of Statistics, North Carolina State University, USA

Zifeng Zhao
Department of Statistics, University of Wisconsin–Madison, USA

All six of these IMS Travel Awards recipients will be traveling to the **Joint Statistical Meetings** in Baltimore (July 29–August 4, 2017) to present a paper.

Stephen Chan will be presenting a poster, *Statistical Analysis of the Exchange Rate of Bitcoin and Other Cryptocurrencies*, in the Scientific and Public Affairs Advisory Committee (SPAAC) Poster Competition on Wednesday, August 2, 2017.

Ethan Fang is chairing a session on Advancing Translational Research Using Novel Statistical Analyzes for Complex and Omics Data, on the Monday morning at 10:30am.

Zijian Guo is presenting a paper, *Optimal Estimation of Co-Heritability in High-Dimensional Linear Models*, in the New Challenges in High-Dimensional Statistical Inference session at 8:30am on the Thursday.

Gül İnan's paper, *A Score Test for Over-Dispersion in Marginalized Zero-Inflated Poisson Regression Models*, is in the Model/Variable Selection session on the Wednesday morning at 10:30am.

Chengchun Shi will present *On Testing Conditional Qualitative Treatment Effects* in the Causal Inference in Biometric Data session, at 8:30am on the Thursday.

On Sunday, July 30, at 2:00pm the contributed paper session, Methods in Financial Risk Assessment, includes Zifeng Zhao's paper, *Modeling Maxima in Financial Time Series with Dynamic Generalized Extreme Value Distribution.*

If you are attending any of these sessions, do go and introduce yourselves!

Apply for next year

If you are a new researcher interested in attending an IMS sponsored or co-sponsored meeting (other than the New Researchers Conference, which is funded separately), check out the information on how to apply at http://www.imstat.org/awards/travel.html

Call for Submissions: APS Inaugural Best Student Paper Competition

The Applied Probability Society seeks to identify and honor outstanding papers in the field of applied probability, that are written by a student. We define applied probability broadly, as any paper related to the modeling, analysis, and control of stochastic systems. The paper's contribution may lie in the formulation of new mathematical models, in the development of new mathematical or computational methods, in the innovative application of existing methods, or in the opening of new application domains. There will be a first prize, and possibly some additional finalist papers, depending on the number and quality of submissions.

Deadline for submissions: July 1, 2017.

For more information visit http://connect.informs.org/aps/apsawards/awards

XL-Files: Bayesian, Fiducial and Frequentist: BFF4EVER

Xiao-Li Meng writes: I always enjoy making new friends, but I didn't know the acronym "BFF" until June 17, 2014, when I attended ICSA-KISS Applied Statistical Symposium (acronym wisely avoided) in Portland, OR. A group of us got together after presenting and attending talks on distributional inferences because of our closely related topics: Confidence Distribution (Min-ge Xie of Rutgers), Generalized Fiducial Inference (Jan Hannig of UNC; Thomas Lee of UC Davis), Inferential Model (Ryan Martin of NC State), Objective Bayes (Dongchu Sun of Missouri), and Individualized Inference (my student Keli Liu, now at Stanford, and myself). Our shared interests motivated us to contemplate an annual workshop to explore foundational issues that are at the core of statistics as a vital underpinning of data science. Identifying a venue and funding source turned out to be easy thanks to Dongchu's connections with East China Normal University (ECNU). But it took a bit longer to come up with a crisp title. "Well, we want to connect Bayesian, Fiducial and Frequentist, so BFF," I was mumbling, "but what's *that*?" "Oh, my younger son talks about BFF all the time," Min-ge exclaimed, "That stands for *Best Friends Forever!*"

The rest is happy history. After the appetizing BFF1 (November 10–14, 2014: http://www.bayes.ecnu.edu.cn/BFF2014/) and BFF2 (July 4–5, 2015: http://www.bayes.ecnu.edu.cn/BFF2015/) both at ECNU, BFF3 (April 11–13, 2016: http://stat.rutgers.edu/bff2016) took place at Rutgers. The hosts, Regina Liu and Min-ge, served a delicious full course. Keynote speakers included Jim Berger, David Cox, Brad Efron and Nancy Reid. All household names for sure, but can you guess their BFF identities (hint: some are bi-inferential)? With the blessing of these preeminent leaders, and many penetrating presentations from researchers of almost every generation, BFF3 showcased the broad and deep interests in statistical principles and foundations.

Greatly encouraged, and with tremendous help from the expanded BFF community and my multi-talented student Robin Gong and assistant Madeleine Straubel, I carried on the BFF torch. BFF4 (May 1–3, 2017: https://statistics.fas.harvard.edu/bff4) took place at Harvard, with six featured discussion sessions pairing statisticians with philosophers, computer scientists, probabilists, etc., three featured panels, and 15 invited talks. A common theme of many presentations was to explore different constructions of probability, with the goal of producing probabilities that will be most useful for scientific investigations and decision-making.

The opening session featured Art Dempster and Glenn Shafer—yes, as in Dempster–Shafer Theory. Art's talk, "What Bayes Did and What Bayes Did Not Do" was meant to stimulate, but Glenn's discussion was even more provocative: "Dempster–Shafer is Fiducial…and so are you." Glenn argued that use of any kind of probability involves making a "fiducial move," i.e., to intentionally ignore some relevant but hard-to-use information. Art, however, felt that Glenn's notion of "fiducial" differs from R.A. Fisher's original intent, however that was (un)defined.

This was just one of many thought-provoking exchanges that occurred during the opening and other featured discussions: "Using Rates of Incoherence to Refresh some old 'Foundational' Debates" by philosopher Teddy Seidenfeld, who was challenged by Christian Robert; "BFF Four—Are We Converging?" by Nancy Reid, with scrutiny from philosopher Deborah Mayo; "Randomisation isn't perfect but doing better is harder than you think" by Stephen Senn, expanded upon by philosopher Ned Hall; and "Modeling Imprecise Degrees of Belief" by philosopher Susanna Rinard, with questions from Andrew Gelman.

One featured session that invoked no debate was Sandy Zabell's fascinating account of "The Secret Life of I.J. Good," which reasoned that Good became an important Bayesian of the twentieth century because his work with Alan Turing on Bayesian methods had played a decisive role in cracking the Enigma code. The discussant, Cynthia Dwork, a leading computer scientist on differential privacy, gave an equally fascinating account on the evolution of cryptographic research, and how it informs the development of data privacy research today.

The animated discussions continued in the three panels: "Views from Rising Stars" (Robin, Jan, Keli, Ryan, and Tyler VanderWeele), led by Pierre Jacob; "Perspectives of the Pioneers" (Jim Berger, Larry Brown, David Cox, Don Fraser, and Nancy Reid), moderated by Vijay Nair; and "Scientific Impact of Foundational Thinking" (Emery Brown, Paul Edlefsen, Andrew Gelman, Regina Liu, and Don Rubin), chaired by Min-ge.

Of course, such a richly historical (and historic) workshop would be incomplete without a banquet speech by Steve Stigler, who declared that conducting any kind of BFF inference is a "Risky Business." But if you, too, are of the adventurous kind, please join BFF5 at University of Michigan in Ann Arbor in May 2018 (contact Peter Song at pxsong@umich.edu), so we can be best friends forever!

Treasurer's Report 2016

Introduction

This report details membership and subscription data for calendar year end 2016. The 2016 fiscal year end audit report will be published separately in the Fall of 2017 after the auditors have completed the annual process.

In 2016, the total number of IMS paid members increased, but the total number of members decreased. This is because student members pay no dues and their numbers were down last year. Subscriptions by institutions also decreased this past year. The financial status of the Institute continues to be stable, and actions are in place to ensure its long-term stability. Details of the events of the past year, membership and subscription data, sales data are given below.

Publications

The following is a list of all current IMS core, co-sponsored, supported and affiliated journals:

IMS Core Print/Electronic Publications

Annals of Applied Probability; Annals of Probability; Annals of Applied Statistics; Annals of Statistics; Statistical Science; Current Index to Statistics; IMS Collections; IMS Monographs; IMS Textbooks; IMS Bulletin

Co-sponsored Print/Electronic Publications

Electronic Communications in Probability; Electronic Journal of Probability; Electronic Journal of Statistics; Journal of Computational and Graphical Statistics; NSF–CBMS Series in Probability and Statistics; Probability Surveys; Statistics Surveys

Supported Publications

ALEA: Latin American Journal of Probability and Mathematical Statistics; Annales de l'Institut Henri Poincaré (B); Bayesian Analysis; Bernoulli; Bernoulli News; Brazilian Journal of Probability and Statistics; Stochastic Systems

Affiliated Publications

Probability and Mathematical Statistics

Membership Data

Total individual paid membership in the Institute as of December 31, 2016 increased 0.3% from December 31, 2015. Table 1 presents the membership data back to 2010. The IMS had a peak in paid membership of 3156 in 2008 and has been decreasing since then. This trend is similar to that of other professional societies. Nevertheless, this is clearly an area of concern, and the Executive Committee continues to look for ways to address this issue.

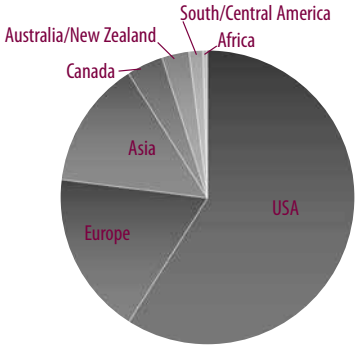
TABLE 1: Membership, by Calendar Year

	2010	2011	2012*	2013	2014	2015	2016	% change
Regular	1,970	1,863	1,792	1,737	1,616	1,587	1,565	-1.4%
Life/Retired Life	477	495	498	501	516	528	541	2.5%
Reduced Country/Retired/IMS China	399	401	395	369	364	376	337	-10.4%
New Graduate	149	113	112	110	87	58	113	94.8%
Student	1,160	1,116	1,023	1,036	1,187	1,236	1,094	-11.5%
Total	4,155	3,988	3,820	3,753	3,770	3,785	3,650	-3.6%
Total excluding free members (students, and in 2008–9 IMS China)	2,995	2,872	2,797	2,717	2,583	2,549	2,556	0.3%

* *2012 member figures contain some estimates*

Geographic Distribution of Members.

The IMS membership is currently distributed as follows (see pie chart, right): 59% United States; 18% Europe; 14% Asia; 4% Canada; 3% Australia and New Zealand; <2% South America, Mexico and the Caribbean; <1% Africa.



Subscription Data

Selection of Journals by Members:

Print subscriptions by members continued to decrease in 2016, as expected, because members are opting to reduce their use of print while enjoying free electronic access to all journals. Members are charged actual cost for print copies of journals, so there is no net loss or gain to the bottom line from changes in print subscriptions by members. Table 2 (below) shows the current selection of print journals by members.

TABLE 2: Member subscriptions, by calendar year

PRINT (paid)	2010	2011	2012	2013	2014	2015	2016	% change
AAP	280	197	126	84	100	80	68	-15.0%
AOP	298	218	184	99	108	97	75	-22.7%
AOAS	714	480	379	232	171	141	107	-24.1%
AOS	763	555	447	265	284	262	220	-16.0%
STS	1,310	1,035	869	532	534	464	386	-16.8%
Total	3,365	2,485	2,005	1,212	1,197	1,044	856	-18.0%
Members setting up electronic access to IMS journals	1,761	1,435	1,572	1,294	1,234	1,226	1,183	-3.5%

The IMS offers joint membership opportunities with: the Bernoulli Society (BS); International Chinese Statistical Association (ICSA); International Statistical Institute+Bernoulli Society (ISI/BS); International Society for Bayesian Analysis (ISBA); and Applied Probability Society/ INFORMS (APS/INFORMS).

Institutional Subscription Data

Table 3 (right) presents comparative subscription data for institutions to each of our scientific journals for 2016 and previous years. Almost all journals experienced subscription decreases in 2016. Overall institutional subscriptions decreased by 1.4%. The decrease to IMS journals, specifically, was 1.0%. We are continuing to see increases in our bundled offerings, which are discounted on the whole. Approximately 60% of the non-member subscribers to IMS journals are in USA and Canada, with the remaining subscribers distributed throughout the world.

TABLE 3: Institutional paid subscriptions, by calendar year

PRINT	2010	2011	2012	2013	2014	2015	2016	% change
AAP	684	645	687	632	600	591	580	-1.9%
AOP	967	901	908	839	795	779	769	-1.3%
AOAS	320	331	380	342	346	368	349	-5.2%
AOS	1,158	1,127	1,132	1,008	985	948	962	1.5%
STS	899	861	865	769	753	717	708	-1.3%
Bulletin	166	142	128	169	102	96	90	-6.3%
CIS	267	273	249	229	216	199	182	-8.5%
AIHP[s]	286	289	326	324	297	305	304	-0.3%
Bernoulli[s]	278	280	321	307	292	299	298	-0.3%
BJPS[s]	78	88	117	119	124	135	135	0.0%
Total	5,101	4,966	5,001	4,738	4,510	4,437	4,377	-1.4%
Total IMS journals	4,028	3,865	3,888	3,590	3,479	3,403	3,368	-1.0%

[s] *denotes IMS-supported journals. Numbers in* [brackets] *are prior to journal becoming IMS-supported.*

Book Sales Data

Tables 4 and 5 (below) present sales data for all IMS book series.

In 2010, the IMS published its first volumes in a cooperative arrangement with Cambridge University Press to publish two series, *IMS Monographs* and *IMS Textbooks*. Sales of these volumes are going very well. The *NSF–CBMS Regional Conference Series* published no new volumes in 2016. The *IMS Collections* series and the *IMS Lecture Notes–Monograph Series* have ceased publication.

Financial and Audit Report

The fiscal year ended December 31, 2016. The external audit of the IMS will be completed in August 2017.

The full auditor's report will appear in the *IMS Bulletin* in the Fall.

Conclusion

The IMS Executive Committee has reviewed all data in this report. A long term financial plan is already in place and the IMS continues to be strong and stable financially. The decrease in institutional subscriptions is being felt across the market and is not unexpected. The IMS leadership began planning for these decreases over 12 years ago and has ensured that IMS resources are shored up to protect the long-term stability and growth of the society.

Zhengjun Zhang
IMS Treasurer

TABLE 4: *Total sales from the* NSF-CBMS Regional Conference Series, *the* Lecture Notes–Monograph Series, *and* IMS Collections

	to 2009	2010	2011	2012	2013	2014	2015	2016	TOTAL
Total *NSF-CBMS* sales (9 volumes)	6,019	108	57	13	40	12	5	1	**6,255**
Total *LNMS* sales (58 volumes)	28,276	297	124	40	9	19	15	9	**28,789**
Total *IMS Collections* sales (10 volumes)	9	3	5	3	7	4	4	1	**36**

TABLE 5: *Total sales of* IMS Monographs *and* IMS Textbooks

Book	to 2009	2010	2011	2012	2013	2014	2015	2016	TOTAL
IMS Monographs (six volumes published to date)	n/a	660	586	789	604	1046	543	4,115	**8,343**
IMS Textbooks (six volumes published to date)	n/a	639	491	326	636	1093	1254	777	**5,216**
Total Monographs & Textbooks sales	n/a	**1,299**	**1,077**	**1,115**	**1,240**	**2,139**	**1,797**	4,892	**13,559**

IMS meetings around the world

Joint Statistical Meetings: 2017–2022

IMS sponsored meeting

IMS Annual Meeting @ JSM 2017:
July 29–August 3, 2017
Baltimore, MD

Registration and housing now open. Book early to avoid disappointment.

w https://www.amstat.org/meetings/jsm/2017/index.cfm

Join us in Baltimore, Maryland, for one of the biggest statistical events of the year: with more than 6,000 attendees (including over 1,000 students) from 52 countries, and over 600 sessions, it's a busy few days! The theme is *"Statistics: It's Essential."*

Registration and housing reservations are open.

IMS sponsored meetings: JSM dates for 2018–2022

JSM 2018	**IMS Annual Meeting @ JSM 2019**	**JSM 2020**	**IMS Annual Meeting @ JSM 2021**	**2022 Joint Statistical Meetings**
July 28–August 2, 2018	**July 27–August 1, 2019, Denver, CO**	**August 1–6, 2020**	**August 7–12, 2021,**	**August 6–11, 2022**
Vancouver, Canada		**Philadelphia, PA**	**Seattle, WA**	**Washington, D.C.**

IMS co-sponsored meeting

Seventh IMS-FIPS Conference NEW
July 27–28, 2017. Baltimore, MD, USA

w www.umbc.edu/circ/hosting/IMS-FIPS2017

Just before JSM, there is the Seventh IMS-FIPS Conference, a workshop on Finance, Insurance, Probability and Statistics. It takes place at University of Maryland, Baltimore County (UMBC).

By bringing together a global cast of leading experts and junior researchers from academia, industry and government, this workshop, held annually since 2011, underscores the contributions of Probability and Statistics, particularly recent developments in big data and high-dimensional statistical methods, networks, reinforcement learning and dynamic optimization, to the fields of Finance and Insurance. It is also a satellite workshop of this year's JSM: Baltimore Convention Center is accessible by public transportation.

Confirmed plenary speakers: Alain Bensoussan (Univ. Texas and City University of Hong Kong), Siddhartha Dalal (AIG Science), Jianqing Fan (Princeton), Mark Flood (US Treasury), Helyette Geman (Johns Hopkins and Birkbeck, London), Paul Glasserman (Columbia).

IMS sponsored meetings

ENAR dates, 2018–2020
March 25–28, 2018: in Atlanta, GA
March 24–27, 2019: in Philadelphia, PA
March 22–25, 2020: in Nashville, TN

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

IMS co-sponsored meeting

19th Meeting of New Researchers in Statistics and Probability
July 27–29, 2017
Johns Hopkins University, Baltimore, MD

w http://groups.imstat.org/newresearchers/conferences/nrc.html

Each year the IMS sponsors the New Researchers Conference (NRC) during the week preceding the Joint Statistical Meeting (JSM). This year, with JSM in Baltimore, the 19th NRC will be hosted by Johns Hopkins University from July 27–29.

IMS sponsored meeting

Joint 2018 IMS Annual Meeting and 12th International Vilnius Conference on Probability Theory & Mathematical Statistics
July 2–6, 2018
Vilnius, Lithuania

w TBC

The Program Co-chairs are Peter Bühlmann (IMS) and Vygantas Paulauskas (Vilnius). The Local Chair is Remigijus Leipus. Details to follow.

At a glance:

forthcoming IMS Annual Meeting and JSM dates

2017

IMS Annual Meeting @ JSM: Baltimore, MD, **July 29 – August 3, 2017**

2018

IMS Annual Meeting: Vilnius, Lithuania, **July 2–6, 2018**

JSM: Vancouver, Canada, **July 28–August 2, 2018**

2019

IMS Annual Meeting @ JSM: Denver, CO, **July 27–August 1, 2019**

2020

IMS Annual Meeting/ 10th World Congress: Seoul, South Korea, **August 17–21, 2020**

JSM: Philadelphia, **August 1–6, 2020**

2021

IMS Annual Meeting @ JSM: Seattle, WA, **August 7–12, 2021**

IMS co-sponsored meeting

Bayesian Inference in Stochastic Processes (BISP)
June 13–15, 2017. Milan, Italy
w http://www.unibocconi.eu/bisp10

The workshop will provide an opportunity to review, discuss and explore developments on Bayesian inference in stochastic processes, gathering leading experts and talented young scholars working on the theory and the applications of stochastic processes, in a Bayesian framework. BISP is a biannual international workshop, now in its 10th edition. BISP-10 is endorsed by IMS, ISBA and the Italian Statistical Society (SIS). BISP10 is dedicated to Pietro Muliere, on his 70th birthday. It will be preceded by a one-day conference on **Recent Developments in Bayesian Theory and Stochastic Processes** in his honor, to celebrate his influential research contributions in these fields: www.unibocconi.eu/mulierereconference

IMS co-sponsored meeting

2018 IMS Asia Pacific Rim Meeting
June 26–29, 2018. Singapore
w TBC

The next IMS Asia Pacific Rim meeting (IMS-APRM) will be held in Singapore from June 26–29, 2018. Details are forthcoming. Please mark the date in your diaries!

IMS sponsored meeting

WNAR/IMS Meeting
June 24–28, 2017. Santa Fe, New Mexico, USA
NEW w http://www.wnar.org/WNAR-2017-Meeting

IMS co-sponsored meeting

39th Conference on Stochastic Processes and their Applications (SPA)
July 24–28, 2017. Moscow, Russia
w http://www.spa2017.org/

Registration is now open for the 39th Conference on Stochastic Processes and their Applications (SPA 2017) in Moscow. The abstract submission deadline is May 1.

The conference will feature the following keynote lectures:

- **Lévy lecture**: Grigorii Olshanski
- **Doob lecture**: Vladimir Bogachev
- **IMS Medallion lectures**: Takashi Kumagai and Marta Sanz-Solé
- **Schramm lecture**: Richard Kenyon
- **Döblin Prize lecture**: Allan Sly
- **Itô prize lecture**: Noemi Kurt

Plenary speakers are Sandra Cerrai, Massimiliano Gubinelli, Nicolas Curien, Mikhail Lifshits, Charles Bordenave, Dmitry Chelkak, Shi Zhan and Xicheng Zhang.

IMS co-sponsored meeting

Bayesian Nonparametrics
June 26–30, 2017
Ecole Normale Supérieur, Paris, France
w https://www.ceremade.dauphine.fr/~salomond/BNP11

The Bayesian Nonparametrics conference (BNP) is a bi-annual international meeting bringing together leading experts and talented young researchers working on applications and theory of nonparametric Bayesian statistics.

IMS co-sponsored meeting

2017 IMS-China International Conference on Statistics and Probability
June 28–July 1, 2017
Nanning, Guangxi Province, China
NEW w http://2017ims-china.gxun.edu.cn/index.htm

The plenary speakers are **Mufa Chen**, Beijing Normal University, China, and **Bin Yu**, UC Berkeley, USA. The special invited speakers are **Peter Bühlmann**, ETH Zürich, Switzerland; **Krzysztof Burdzy**, University of Washington, USA; **Tony Cai**, University of Pennsylvania, USA; **Jon Wellner**, University of Washington, USA; **Cui-hui Zhang**, Rutgers University, USA; and **Xicheng Zhang**, Wuhan University, China.

IMS co-sponsored meeting

Statistics Meets Friends:
From Inverse Problems to Biophysics and back
November 29–December 1, 2017
Göttingen, Germany
w TBC

This workshop is held on the occasion of the 50th birthday of Axel Munk. Web page coming soon.

IMS co-sponsored meeting

40th Conference on Stochastic Processes and their Applications (SPA)
June 11–15, 2018. Gothenburg, Sweden
w TBC

The 40th Conference on Stochastic Processes and their Applications (SPA 2018) will be held June 11–15, 2018, at the Chalmers University of Technology in Gothenburg, Sweden.

IMS co-sponsored meeting

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

The next World Congress in Probability and Statistics will be in Seoul, South Korea.

Other meetings and events around the world

XXXIV International Seminar on Stability Problems for Stochastic Models
August 25–29, 2017
Debrecen, Hungary
w https://arato.inf.unideb.hu/isspsm2017/

The XXXIV International Seminar on Stability Problems for Stochastic Models is organized under the auspices of Faculty of Informatics, University of Debrecen, Lomonosov Moscow State University, and Institute of Informatics Problems of the Russian Academy of Sciences. The Seminar is sponsored by the Bernoulli Society.

The main sessions are: Limit Theorems and Stability Problems; Stochastic Processes; Statistics of Time Series and Stochastic Processes; Finance, Insurance, Risk; Spatial Statistics; Applied Statistics and Data Analysis; Stochastic Dynamics; Random Graphs; Queuing Theory and Modeling Information Systems; Probability Distributions; Discrete Probability Models; Nonparametric Statistics; Statistical Learning.

Preliminary list of plenary speakers: István Berkes (Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences, Graz University of Technology); Siegfried Hörmann (Université libre de Bruxelles); Jean Jacod (Laboratoire de Probabilités, Université Paris VI); Thomas Mikosch (University of Copenhagen); Bálint Tóth (Budapest University of Technology and Economics, University of Bristol); Vladimir Uchaikin (Ulyanovsk State University).

The deadline for abstract submission is 16 July 2017. See https://arato.inf.unideb.hu/isspsm2017/index.php/participants/abstract-submission

Sequential Monte Carlo workshop NEW
August 30–September 1, 2017
Uppsala, Sweden
w http://www.it.uu.se/conferences/smc2017

Sequential Monte Carlo methods, also known as particle filters, have over the past two decades emerged as very successful tools for computational inference in statistical models, including (but not limited to) nonlinear dynamical systems. The workshop will bring together researchers in this area to discuss recent contributions, applications, and current challenges related to Sequential Monte Carlo. In connection with the workshop there will also be an intensive PhD course on Sequential Monte Carlo (SMC) on August 24–29.

Conference on Learning Theory (COLT) NEW
July 7–10, 2017
University of Amsterdam, The Netherlands
w www.learningtheory.org/colt2017/

We would like to draw your attention to the fact that the Conference on Learning Theory (COLT), which is one of the main international machine learning conferences, will be held in Amsterdam this year, from July 7–10 (with a welcome reception and special celebration in honor of Manfred Warmuth on July 6). This may be a very convenient opportunity to get an impression of topics that theoretically oriented people in machine learning are interested in.

Registration for the conference is open: see http://www.learningtheory.org/colt2017/for-participants/registration/.

Whereas other ML conferences (e.g. NIPS, ICML) cover a mix of theoretical and applied results, COLT is a relatively small conference (~220 people) that is exclusively about theory. All submitted papers are peer reviewed, with ~30% of the papers accepted for presentation + inclusion in the conference proceedings.

The organization behind COLT is the Association for Computational Learning (ACL). Their website says: Learning Theory is a research field devoted to studying the design and analysis of machine learning algorithms. In particular, such algorithms aim at making accurate predictions or representations based on observations. The emphasis in COLT is on rigorous mathematical analysis using techniques from various connected fields such as probability, statistics, optimization, information theory and geometry. While theoretically rooted, learning theory puts a strong emphasis on efficient computation as well.

For an impression, take a look at last year's schedule (http://easychair.org/smart-program/COLT2016/) and proceedings (http://proceedings.mlr.press/v49/).

The 11th Seminar on Probability and Stochastic Processes NEW
August 30–31, 2017
Qazvin, Iran
w https://spsp11.conf.ikiu.ac.ir

The seminar is organized by the Iranian Statistical Society. Scheduled every two years, the seminar is a major Iranian event for Probability and Stochastic Processes, covering all their branches including Stochastic Processes, Stochastic Analysis, Limit Theorems, Statistical inference in Stochastic processes, and other related topics.

Biostatistics in the Modern Computing Era

NEW

September 28–30, 2017

Medical College of Wisconsin, Milwaukee, WI.

w http://www.mcw.edu/Biostatistics-National- Conference.htm

The Division of Biostatistics at the Medical College of Wisconsin announces a conference titled Biostatistics in the Modern Computing Era, co-sponsored by the Division, the ASA Section on Bayesian Statistical Science and the Wisconsin Chapter of the ASA. It will include invited presentations by leading statisticians from both Bayesian and frequentist perspectives. Presentations will focus on clinical trials, high-dimensional statistics, survival analysis, precision medicine and population health. A grant-writing workshop and a Bayesian additive regression trees short course are also included. The conference will be held September 28–30, 2017 at the Medical College of Wisconsin in Milwaukee, WI. Travel awards may be available for PhD students and junior faculty. The autumn weather in Milwaukee is historically very pleasant and enjoyable. Beer-making, bratwurst and Oktoberfest are great German traditions brought to Milwaukee and Wisconsin by waves of immigrants. There will be social events featuring beer, bratwurst and biostatistics hosted at idyllic beer gardens on the "cheese coast". One event will include an exclusive engagement of polka-palooza with The Polkaholics led by Don Hedeker with a guest appearance by Brad Carlin. For speaker list and other information visit the website.

UseR!2017 Conference

NEW

July 4–7, 2017

Brussels, Belgium

w www.user2017.brussels

We are expecting over a thousand R language fans in Brussels and registration is still open. People can register for the useR!2017 Conference on https://user2017.brussels/registration/

Modern Methods in Insurance Pricing and Industrial Statistics

NEW

September 3–5, 2017

Bu Ali Sina University, Hamedan, Iran

w http://thiele.au.dk/events/conferences/2017/modernmethods/

The purpose of the conference is to bring together young and senior academics and people working in insurance and other areas of industrial applications of statistics, and to strengthen the links between the respective communities in Iran and abroad.

Deadline for abstract submission: June 22, 2017

NIMBioS Tutorial: RevBayes: Bayesian Inference of Phylogeny

NEW

August 7–11, 2017

NIMBioS at the University of Tennessee, Knoxville

w http://www.nimbios.org/tutorials/TT_revbayes

This course features RevBayes, an exciting new program for Bayesian inference of phylogeny. RevBayes is the successor to the popular program MrBayes, but represents both a complete rewrite of the computer code and a fundamental re-conception of phylogenetic models. Specifically, RevBayes adopts a 'graphical-model' framework that views all statistical models as comprised of components that can be assembled in myriad configurations to explore a corresponding array of questions. This graphical-model approach to phylogenetic inference provides effectively infinite flexibility. Moreover, the graphical models are specified using an R-like language, Rev, that empowers users to construct arbitrarily complex phylogenetic models from simple component parts (i.e. random variables, parameter transformations and constants of different sorts).

This course is focused on phylogenetic trees and comparative-phylogenetic methods, including divergence-time estimation, morphological evolution, lineage diversification, and historical biogeography. Instruction is based on a combination of carefully tailored lectures introducing the theoretical and conceptual basis of each inference problem and hands-on computer tutorials demonstrating how to explore these questions using RevBayes (see http://revbayes.github.io/tutorials.html).

Participation in NIMBioS tutorials is by application only. Individuals with a strong interest in the topic are encouraged to apply, and successful applicants will be notified within three weeks after the application deadline. The application deadline was May 14, 2017 but applications received after the deadline will be considered if space is available.

The 6th International Statistical Ecology Conference

NEW

July 2–6, 2018

St Andrews, Scotland, UK

w http://www.isec2018.org

After a successful Seattle edition earlier this year ISEC returns to Europe—in fact, to ISEC's birthplace, dating back to 2008—to celebrate its 10th anniversary. It will be a landmark and we hope you will be able to join us in the celebration. We are working on putting together an interesting and stimulating program, with a range of confirmed plenary speakers including Tara Martin (UBC), Steve Ellner (Cornell), Steve Buckland (St A), Jennifer Hoeting (CSU) and Bill Link (USGS Patuxent).

More meetings around the world

European Meeting of Statisticians (EMS 2017)
NEW

July 24–28, 2017
Helsinki, Finland

w http://ems2017.helsinki.fi/

The European Meeting of Statisticians (EMS), sponsored by the European Regional Committee of the Bernoulli Society, is the main conference in statistics and probability in Europe. EMS is a conference where statisticians of all ages and from all regions meet to exchange ideas and talk about the newest developments in the broad field of statistics and probability theory. The conference is organized every other year. The very first EMS meeting was held in Dublin in 1962, and this 31st EMS will take place in Helsinki, the capital of Finland. In 2017 we also celebrate the 100th anniversary of independent Finland!

Opening lecturer: Martin Wainwright (Berkeley, USA). Plenary speakers: John Aston (Cambridge, UK), Gerda Claeskens (Leuven, Belgium), Alison Etheridge (Oxford, UK), Hannu Oja (Turku, Finland). Forum: Mark Girolami (Warwick, UK). Closing lecturer: Yann LeCun (New York, USA).

Registration is open: http://ems2017.helsinki.fi/payment.php

Non- and Semiparametric Statistics
NEW

July 21–22 2017 ***(immediately before the EMS, see above)***
Düsseldorf, Germany

w http://math.hhu.de/ems2017/duesseldorf

On July 21–22 2017, prior to the EMS, a satellite workshop on Non- and Semiparametric Statistics, in honour of Arnold Janssen's 65th birthday, will take place in Düsseldorf. (There are direct flights from Düsseldorf to Helsinki for participants who want to attend this satellite workshop and the EMS). Invited speakers are Tasio del Barrio (Valladolid); Rudy Beran (Davis); Lutz Dümbgen (Bern); Estate Khmaladze (Wellington); David Mason (Delaware); Hartmut Milbrodt (Rostock); Helmut Strasser (Vienna); Aad van der Vaart (Leiden) and Jon Wellner (Seattle).

Ninth Workshop on Random Dynamical Systems
NEW

June 14–17, 2017. Bielefeld, Germany

w https://www.math.uni-bielefeld.de/~gentz/pages/SS17/RDS17/RDS17.html

The purpose of the workshop is to bring together participants working on different aspects of stochastic dynamics, ranging from statistical mechanics models to the analysis of random perturbations of dynamical systems and SPDES and the numerical analysis of these systems.

The Sixth Symposium on Conformal and Probabilistic Prediction with Applications (COPA 2017)
NEW

June 14–16, 2017. Stockholm, Sweden

w http://clrc.rhul.ac.uk/copa2017/index.html

Invited Talk: "Intelligent Methods of Learning" by Prof Vladimir Vapnik, AI Research Facebook, Columbia University, and Royal Holloway, University of London, UK

Quantifying the uncertainty of the predictions produced by classification and regression techniques is an important problem in the field of Machine Learning. Conformal Prediction is a framework for complementing the predictions of Machine Learning algorithms with reliable measures of confidence. The methods developed based on this framework produce well-calibrated confidence measures for individual examples without assuming anything more than that the data are generated independently by the same probability distribution (i.i.d.). Since its development the framework has been combined with many popular techniques, such as support vector machines, k-nearest neighbours, neural networks, ridge regression etc., and has been successfully applied to many challenging real world problems, such as the early detection of ovarian cancer, the classification of leukaemia subtypes, the diagnosis of acute abdominal pain, the assessment of stroke risk, the recognition of hypoxia in electroencephalograms (EEGs), the prediction of plant promoters, the prediction of network traffic demand, the estimation of effort for software projects and the back-calculation of non-linear pavement layer moduli. The framework has also been extended to additional problem settings such as semi-supervised learning, anomaly detection, feature selection, outlier detection, change detection in streams and active learning. The aim of this symposium is to serve as a forum for the presentation of new and ongoing work and the exchange of ideas between researchers on any aspect of conformal prediction and its applications.

Bayes Comp 2018
NEW

March 26–29, 2018. Barcelona, Spain

w https://www.maths.nottingham.ac.uk/personal/tk/bayescomp/

Bayes Comp 2018 is a biannual conference sponsored by the ISBA section of the same name. The conference and the section both aim to promote original research into computational methods for inference and decision making and to encourage the use of frontier computational tools among practitioners, the development of adapted software, languages, platforms, and dedicated machines, and to translate and disseminate methods developed in other disciplines among statisticians.

High Dimensional Statistics, Theory and Practice NEW
October 1–6, 2017
Fréjus, France
w http://ecas2017.sfds.asso.fr/
This course presents recent advances in high dimensional statistics, with a special emphasis on main concepts of variable selection, nonparametric estimation, supervised and unsupervised classification and multiple testing. It will address theoretical, methodological and practical aspects of this field. The three courses are by **Vincent Rivoirard** (*Estimation in the high-dimensional setting*); **Franck Picard** (*Empirical properties of penalized estimators in high-dimensional linear models*); and **Tristan Mary-Huard** (*Supervised classification in the high-dimensional setting*).

Quantum Probability and Information Theory, 35 years of research. On the occasion of the 66th birthday of Hans Maassen NEW
June 22–23, 2017. Radboud University Nijmegen, The Netherlands
w http://www.ru.nl/wiskunde/events-news-calendar/events/@1070639/june-22-23-workshop-quantum-probability-and/
On the 22nd and 23rd of June, 2017, a workshop will be held on the non-commutative or "quantum" theory of probability and information. This workshop is supported by the clusters STAR and GQT. Everyone interested is welcome. Please register on the website if you wish to take part in lunches and/or the workshop dinner.

Elegance in Probability NEW
A conference honoring Russell Lyons's 60th birthday
September 3–7, 2017. Tel Aviv, Israel
w http://www.tau.ac.il/~russfest/
A conference honoring Russell Lyons's 60th birthday and his important contributions to mathematics will take place in Tel Aviv University, Israel, September 3-7, 2017. Details forthcoming.

Environmental Risk Modeling and Extreme Events NEW
August 28–31, 2017. CRM, Montréal, Québec, Canada
w http://www.crm.umontreal.ca/2017/Extreme17/index_e.php
Statistical modeling is essential to forecast the size and impact of extreme events, and to mitigate their effects in the light of global change. This workshop will bring together statisticians, environmental scientists, and members of other stakeholder communities with a view to sharing new developments and identifying current challenges in environmental risk modeling. The program will feature 20 leading researchers in this area and will offer many opportunities for interaction. Visit the website for details and register early!

Risk Measurement and Regulatory Issues in Business NEW
September 11–14, 2017. CRM, Montréal, Québec, Canada
w http://www.crm.umontreal.ca/2017/Affaires17/index_e.php
In banking and insurance, risk assessment is a major concern for managers and regulators. This workshop will bring together leading researchers from academia and industry interested in the development and use of stochastic models and statistical tools that can shed light on, and assist in, risk assessment, risk aggregation, risk analysis, and regulatory capital calculations. The program, which features 20 invited talks, will offer ample opportunity for discussion and interaction. See the website for details and register early!

Measurement and Control of Systemic Risk NEW
September 25–28, 2017. CRM, Montréal, Québec, Canada
w http://www.crm.umontreal.ca/2017/Financier17/index_e.php
This workshop will provide a forum for the exchange of ideas on state-of-the-art theoretical approaches and operational techniques for modeling, measuring, and controlling systemic risk in finance. It will foster a dialogue between financial analysts, regulators and researchers in statistics, finance, actuarial science and quantitative risk management concerned with these issues. The program will feature 20 leading experts in this field.

Dependence Modeling Tools for Risk Management NEW
October 2–5, 2017. CRM, Montréal, Québec, Canada
w http://www.crm.umontreal.ca/2017/Dependence17/index_e.php
This workshop will address current dependence modeling issues in quantitative risk management, such as the construction of hierarchical dependence structures in high-dimensional and spatiotemporal contexts, inference for copula models and graphical models, as well as applications in econometrics, finance, and insurance. The workshop will provide a venue for participants to meet leading dependence modelers from academia and industry, with ample opportunities for interaction.

Risk Modeling, Management and Mitigation in Health Sciences NEW
December 11–14, 2017. CRM, Montréal, Québec, Canada
w http://www.crm.umontreal.ca/2017/Sante17/index_e.php
This workshop will address aspects of risk quantification and risk mitigation in the health sciences. Statistical methods which will be discussed in this context include spatial and causal modeling, clinical trial design, and personalized treatment strategies. The workshop will provide a venue for participants to meet leading researchers in this field, with ample opportunities for one-on-one interactions.

IMS urges US leaders to reject research budget cuts

The Institute of Mathematical Statistics was among hundreds of leading business, science and engineering, medical and health and higher education organizations urging US House and Senate leaders to quickly complete action on the fiscal 2017 spending bills and to reject the steep spending cuts the Trump administration has proposed for scientific research programs and agencies for fiscal 2018.

"Our nation's research enterprise is among the most powerful engines for American prosperity," the group said in a letter sent to House Speaker Paul Ryan (R-Wis.), House Minority Leader Nancy Pelosi (D-Calif.), Senate Majority Leader Mitch McConnell (R-Ky.) and Senate Minority Leader Charles E. Schumer (D-N.Y.). "One of the consistent areas of bipartisan agreement over the past 70 years has been the importance of the federal government's role in supporting research and innovation."

The letter, signed by 286 organizations including the American Association for the Advancement of Science, presented a robust defense of the nation's research and development enterprise, saying it has elevated the United States to be "the world's preeminent, most effective and sought-after partner for innovation."

In particular, the letter urges lawmakers to avoid a year-long continuing resolution to fund government programs for the current fiscal 2017 spending, which expired on April 28, and complete action on those pending fiscal 2017 appropriations measures. It also calls on Congress to rebuff the administration's proposed cuts to R&D programs in fiscal 2018, which begins October 1, and instead to increase investment in R&D programs to "sustain our nation's status as the world's innovation leader."

Scientists and engineers account for 4% of America's workforce, yet they help create jobs for 96% of the nation's population, noted the letter, citing a National Academies of Sciences, Engineering and Medicine report (https://www.nap.edu/catalog/12999/rising-above-the-gathering-storm-revisited-rapidly-approaching-category-5). "Scientists' discoveries and insights extend beyond the research laboratory, impacting and employing people in many other sectors, from designers to builders to salespeople to consumers."

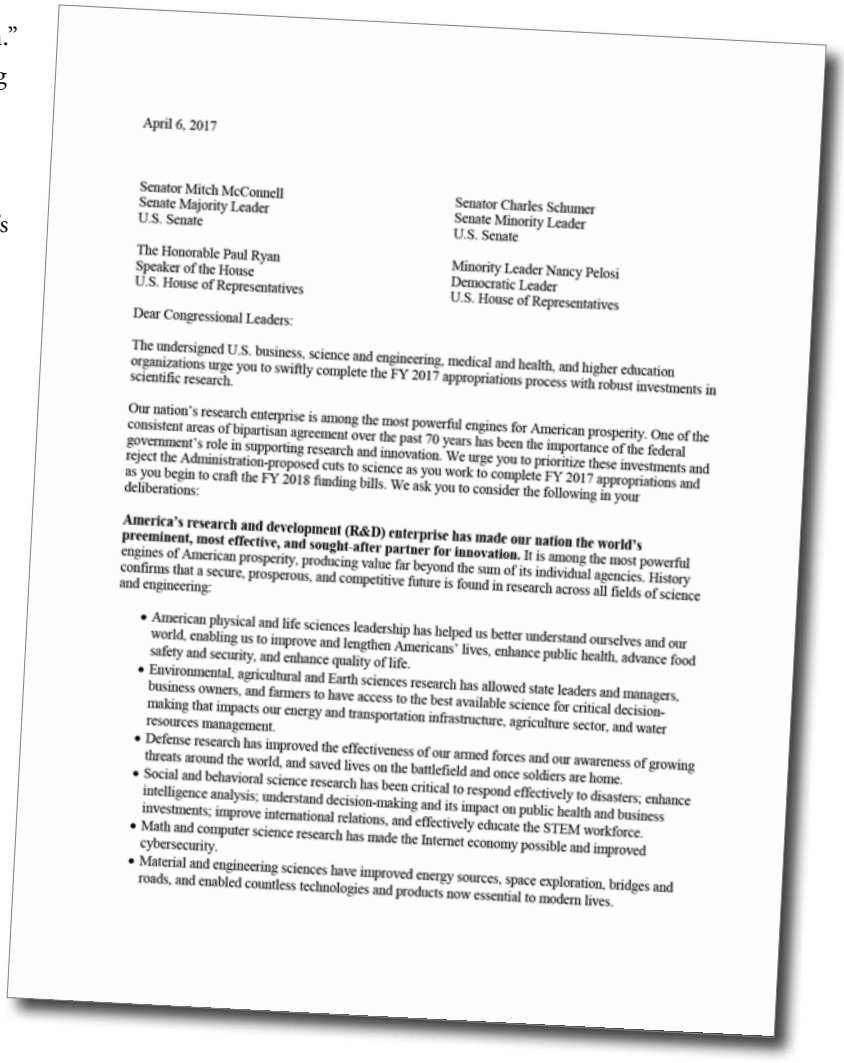
The letter's signatories warn that reductions in science spending cannot be easily reversed, noting that rebuilding diminished science and engineering programs would be "expensive and slow." Already, the letter said, reduced investment in scientific research threatens the nation's long-term competitiveness and comes when the growth of annual R&D investments of China, South Korea, Russia, Singapore and Germany outpaced US levels from 2000 to 2013.

Leadership in physical and life sciences research has advanced public health and improved food safety, while Earth sciences research, including in agriculture and the environment, has given state authorities, businesses and farmers access to information critical to decision making about energy and transportation systems and water resources.

The letter further spells out the beneficial impact of a broad swath of scientific research on military effectiveness, disaster response, intelligence analysis, cybersecurity, technological development and space exploration.

"US investments in science R&D have created millions of jobs in public and private sectors, enhanced state economies and generated commercial growth," said the business, science and engineering, medical and health and higher education signatories. "We urge America to support its research and innovation infrastructure."

See https://www.aaas.org/news/letter-congress-act-current-spending-reject-proposed-rd-cuts



April 6, 2017

Senator Mitch McConnell
Senate Majority Leader
U.S. Senate

Senator Charles Schumer
Senate Minority Leader
U.S. Senate

The Honorable Paul Ryan
Speaker of the House
U.S. House of Representatives

Minority Leader Nancy Pelosi
Democratic Leader
U.S. House of Representatives

Dear Congressional Leaders:

The undersigned U.S. business, science and engineering, medical and health, and higher education organizations urge you to swiftly complete the FY 2017 appropriations process with robust investments in scientific research.

Our nation's research enterprise is among the most powerful engines for American prosperity. One of the consistent areas of bipartisan agreement over the past 70 years has been the importance of the federal government's role in supporting research and innovation. We urge you to prioritize these investments and reject the Administration-proposed cuts to science as you work to complete FY 2017 appropriations and as you begin to craft the FY 2018 funding bills. We ask you to consider the following in your deliberations:

America's research and development (R&D) enterprise has made our nation the world's preeminent, most effective, and sought-after partner for innovation. It is among the most powerful engines of American prosperity, producing value far beyond the sum of its individual agencies. History confirms that a secure, prosperous, and competitive future is found in research across all fields of science and engineering:

- American physical and life sciences leadership has helped us better understand ourselves and our world, enabling us to improve and lengthen Americans' lives, enhance public health, advance food safety and security, and enhance quality of life.
- Environmental, agricultural and Earth sciences research has allowed state leaders and managers, business owners, and farmers to have access to the best available science for critical decision-making that impacts our energy and transportation infrastructure, agriculture sector, and water resources management.
- Defense research has improved the effectiveness of our armed forces and our awareness of growing threats around the world, and saved lives on the battlefield and once soldiers are home.
- Social and behavioral science research has been critical to respond effectively to disasters; enhance intelligence analysis; understand decision-making and its impact on public health and business investments; improve international relations, and effectively educate the STEM workforce.
- Math and computer science research has made the Internet economy possible and improved cybersecurity.
- Material and engineering sciences have improved energy sources, space exploration, bridges and roads, and enabled countless technologies and products now essential to modern lives.

Employment Opportunities around the world

New Zealand: Auckland

The University of Auckland

Lecturer/ Senior Lecturer/ Associate Professor - Department of Statistics

http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=34108370

United Kingdom: London

Imperial College London

Reader/Chair in Biostatistics

http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=34633588

United States: Berkeley, CA

UC Berkeley

Lecturer

http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=30782008

United States: Champaign, IL

University of Illinois at Urbana-Champaign, Department of Statistics

College of Liberal Arts and Sciences: Clinical and Visiting Faculty (all ranks)

http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=34195124

United States: Somerville, MA

NMR Group, Inc.

Statistical Analyst

http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=34634038

United States: Princeton, NJ

Princeton University, Operations Research & Financial Engineering

Senior Lecturer in Operations Research & Financial Engineering

http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=34633971

United States: Reno, NV

University of Nevada, Reno

Professor/Chair, Mathematics & Statistics

http://jobs.imstat.org/c/job.cfm?site_id=1847&jb=33959352

International Calendar of Statistical Events

IMS meetings are highlighted in maroon with the IMS logo, and new or updated entries have the NEW or UPDATED symbol.
Please submit your meeting details and any corrections to Elyse Gustafson: erg@imstat.org

June 2017

June 1–2: Brussels, Belgium. **Sparsity in Applied Mathematics and Statistics** w http://homepages.ulb.ac.be/~majansen/workshopSAMS2017/

June 5–7: Fort Collins, CO, USA. **14th Graybill Conference on Statistical Genetics and Genomics** w http://graybill.wolpe2.natsci.colostate.edu/

June 5–30: Vancouver, BC, Canada. **PIMS-CRM Summer School in Probability** w http://www.math.ubc.ca/Links/ssprob17/

June 6–9: London, UK. **17th Applied Stochastic Models and Data Analysis (ASMDA)** w www.asmda.es

June 6–9: Yorktown Heights, NY, USA. **ISBIS 2017: Statistics in Business Analytics** w www.isbis2017.org

NEW June 14–16: Stockholm, Sweden. **6th Symposium on Conformal and Probabilistic Prediction with Applications (COPA 2017)** w http://clrc.rhul.ac.uk/copa2017/index.html

NEW June 14–17: Bielefeld, Germany. **9th Workshop on Random Dynamical Systems** w https://www.math.uni-bielefeld.de/~gentz/pages/SS17/RDS17/RDS17.html

June 15–19: Guanajuato, Mexico. **Perspectives on High-dimensional Data Analysis (HDDA-VII)** w http://hddavii.eventos.cimat.mx/node/651

June 19–22: Turin, Italy. **1st Italian Meeting on Probability and Mathematical Statistics** w http://calvino.polito.it/~probstat/torino2017

June 19–23: Amsterdam, The Netherlands. **8th General AMaMeF Conference** w http://8amamef.nl

June 19–23: Beverly, MA, USA. **Quantitative Approaches to Biomedical Data Science Challenges in our Understanding of the Microbiome** w http://bigdatau.org/innovationlab2017

International Calendar *continued*

June 2017 *continued*

June 19–23: New York, USA. **Dynamics, aging and universality in complex systems** w http://cims.nyu.edu/conferences/gba60/

June 20–23: Rouen, France. **Sixth International Workshop in Sequential Methodologies** w http://lmrs.univ-rouen.fr/RMR17/

June 20–23: Riverside, CA, USA. **10th International Conference on Multiple Comparison Procedures** w http://www.mcp-conference.org/hp/2017

NEW June 22–23: Nijmegen, The Netherlands. **Quantum Probability and Information Theory, 35 years of research. On the occasion of the 66th birthday of Hans Maassen** w http://www.ru.nl/wiskunde/events-news-calendar/events/@1070639/june-22-23-workshop-quantum-probability-and/

June 24–28: Santa Fe, NM, USA. **2017 WNAR/IMS Meeting** w http://www.wnar.org/WNAR-2017-Meeting

June 25–28: Cairns, QLD, Australia. **37th International Symposium on Forecasting** w https://forecasters.org/isf/

June 25–July 15: Park City, Utah, USA. **Random Matrix Theory Summer Session** w https://pcmi.ias.edu/upcoming

June 26–28: Leeds, UK. **LASR Workshop: Biostatistics and machine learning methods in -omics research** w http://www1.maths.leeds.ac.uk/statistics/workshop/lasr2017/

June 26–30: Paris, France. **Bayesian Nonparametrics** w https://www.ceremade.dauphine.fr/~salomond/BNP11/index.html

June 26–30: Delft, The Netherlands. **10th Conference on Extreme Value Analysis: EVA 2017** w www.eva2017.nl

June 28–July 1: Nanning, Guangxi Province, China. **2017 IMS-China International Conference on Statistics and Probability** w http://2017ims-china.gxun.edu.cn/index.htm

July 2017

July 2–7: Groningen, The Netherlands. **IWSM 2017** w http://iwsm2017.webhosting.rug.nl/

July 3–7: Wollongong, NSW, Australia. **ICORS 2017** w http://niasra.uow.edu.au/icors2017/index.html

NEW July 4–7: Brussels, Belgium. **UseR!2017 Conference** w www.user2017.brussels

NEW July 7–10: Amsterdam, The Netherlands. **Conference on Learning Theory (COLT)** w www.learningtheory.org/colt2017/

July 9–13: Vigo, Spain. **38th Annual Conference of the International Society for Clinical Biostatistics** w TBC

July 10–22: Como, Italy. **Bocconi Summer School in Statistics & Probability: Statistical Causal Learning** w http://spas.lakecomoschool.org

July 16–21: Marrakech, Morocco. **61st ISI World Statistics Congress 2017** w http://www.isi2017.org/

NEW July 21–22: Düsseldorf, Germany. **Non- and Semiparametric Statistics** [EMS satellite meeting] w http://math.hhu.de/ems2017/duesseldorf

NEW July 24–28: Helsinki, Finland. **European Meeting of Statisticians (EMS 2017)** w http://ems2017.helsinki.fi/

July 24–28: Moscow, Russia. **39th Conference on Stochastic Processes and their Applications (SPA)** w http://www.spa2017.org/

NEW July 27–28: Baltimore, USA. **7th IMS-FIPS Conference** w http://www.umbc.edu/circ/hosting/IMS-FIPS2017

July 29 – August 3: Baltimore, USA. **IMS Annual Meeting at JSM 2017** w http://amstat.org/meetings/jsm/

Come to JSM 2017: *this is Baltimore Inner Harbor at night (photo by Mitch Lebovic)*

August 2017

NEW August 7–11: NIMBioS, Knoxville, TN, USA. **NIMBioS Tutorial. RevBayes: Bayesian Inference of Phylogeny** w http://www.nimbios.org/tutorials/TT_revbayes

August 12–14: St Louis, MO, USA: **Second Workshop on Higher-Order Asymptotics and Post-Selection Inference (WHOA-PSI)^{2}** w http://www.math.wustl.edu/~kuffner/WHOA-PSI-2.html

August 16–20: Houghton, Michigan, USA. **Bayesian Inference in**

Statistics and Statistical Genetics w http://kliak.mtu.edu/2017/

August 25–29: Debrecen, Hungary. **XXXIV International Seminar on Stability Problems for Stochastic Models** w https://arato.inf.unideb.hu/isspsm2017/index.php

NEW August 28–31: CRM, Montréal, Canada. **Environmental Risk Modeling and Extreme Events** w http://www.crm.umontreal.ca/2017/Extreme17/index_e.php

August 28–September 1: Paris, France. **Data Science Summer School (DS³)** w http://www.ds3-datascience-polytechnique.fr/

August 28–September 1: New York, USA. **Dyson–Schwinger equations, topological expansions, and random matrices** w http://www.math.columbia.edu/department/probability/seminar/guionnet.html

August 28–September 1: Vienna, Austria. **CEN-ISBS Vienna 2017 Joint Conference on Biometrics & Biopharmaceutical Statistics** w www.cenisbs2017.org

NEW August 30–31: Qazvin, Iran. **11th Seminar on Probability and Stochastic Processes** w https://spsp11.conf.ikiu.ac.ir

NEW August 30–September 1: Uppsala, Sweden. **Sequential Monte Carlo workshop** w http://www.it.uu.se/conferences/smc2017

September 2017

NEW September 3–5: Hamedan, Iran. **Modern Methods in Insurance Pricing and Industrial Statistics** w http://thiele.au.dk/events/conferences/2017/modernmethods/

NEW September 3–7: Tel Aviv, Israel. **Elegance in probability: conference honoring Russell Lyons's 60th birthday** w http://www.tau.ac.il/~russfest/

September 4–7: Glasgow, UK. **RSS 2017 International Conference** w www.rss.org.uk/conference2017

NEW September 11–14: CRM, Montréal, Canada. **Risk Measurement and Regulatory Issues in Business** w http://www.crm.umontreal.ca/2017/Affaires17/index_e.php

September 11–15: Leuven, Belgium. **Summer School on Advanced Bayesian Methods** w https://ibiostat.be/seminar/summerschool2017/Summer2017Bayesian

September 19–21: Cambridge, UK. **IMA Conference on Inverse Problems from Theory to Application** w https://ima.org.uk/3536/ima-conference-inverse-problems-theory-application/

September 19–22: Rostock, Germany. **Annual Meeting of the German Statistical Society** w http://www.statistische-woche.de/index.php?id=1&L=1

September 25–27: Washington DC. **2017 ASA Biopharmaceutical Section Regulatory-Industry Statistics Workshop** w http://ww2.amstat.org/meetings/biopharmworkshop/2017/

NEW September 25–28: CRM, Montréal, Canada. **Measurement and Control of Systemic Risk** w http://www.crm.umontreal.ca/2017/Financier17/index_e.php

NEW September 28–30: Milwaukee, WI. **Biostatistics in the Modern Computing Era** w http://www.mcw.edu/Biostatistics-National- Conference.htm

October 2017

NEW October 1–6: Fréjus, France. **High Dimensional Statistics, Theory and Practice** w http://ecas2017.sfds.asso.fr/

NEW October 2–5: CRM, Montréal, Canada. **Dependence Modeling Tools for Risk Management** w http://www.crm.umontreal.ca/2017/Dependence17/index_e.php

October 4–6: Västerås, Stockholm, Sweden. **Stochastic Processes and Algebraic Structures: From Theory Towards Applications** w https://spas2017blog.wordpress.com/

October 11–13: Bethesda, MD, USA. **ASA Symposium on Statistical Inference** w http://ww2.amstat.org/meetings/ssi/2017/

October 12–14: Los Angeles, CA, USA. **Design and Analysis of Experiments (DAE 2017) Conference** w http://www.stat.ucla.edu/~hqxu/dae2017/

October 16–19: Fields Institute, Toronto, ON, Canada. **2017 Fields Medal Symposium: Martin Hairer** w http://www.fields.utoronto.ca/activities/17-18/fieldsmedalsym

October 19–21: La Jolla, CA, USA. **2017 ASA Women in Statistics and Data Science Conference** w TBC

October 23–27: Moscow, Russia. **Analytical and Computational Methods in Probability Theory and its Applications** w http://acmpt.ru/

November 2017

ims November 29–December 1: Göttingen, Germany. **Statistics Meets Friends: From Inverse Problems to Biophysics and Back** w TBC

Continues on **page 30**

International Calendar *continued*

December 2017

NEW December 11–14: CRM, Montréal, Canada. **Risk Modeling, Management and Mitigation in Health Sciences** w http://www.crm.umontreal.ca/2017/Sante17/index_e.php

December 11–15: Manipal, India. **Linear Algebra and its Applications** w http://iclaa2017.com

February 2018

February 5–16: National University of Singapore. **Meeting the Statistical Challenges in High Dimensional Data and Complex Networks** w http://www2.ims.nus.edu.sg/Programs/018wstat/index.php

March 2018

ims March 25–28: Atlanta, GA, USA. **ENAR Spring Meeting** w http://www.enar.org/meetings/future.cfm

NEW March 26–29: Barcelona, Spain. **Bayes Comp 2018** w https://www.maths.nottingham.ac.uk/personal/tk/bayescomp/

June 2018

ims June 26–29: Singapore. **2018 IMS Asia Pacific Rim Meeting (IMS-APRM)** w TBC

July 2018

ims July 2–6: Vilnius, Lithuania. **Joint 2018 IMS Annual Meeting and 12th International Vilnius Conference on Probability Theory & Mathematical Statistics** w TBC

NEW July 2–6: St Andrews, UK. **Sixth International Statistical Ecology Conference** w http://www.isec2018.org

July 9–13: Edinburgh, UK. **ISBA 2018 World Meeting** w TBC

July 16–20: Bristol, UK. 33rd International Workshop on Statistical Modelling w http://www.statmod.org/workshops.htm

ims July 28 – August 2: Vancouver, Canada. **JSM 2018** w http://amstat.org/meetings/jsm/

August 2018

August 1–9: Rio de Janeiro, Brazil. **International Congress of Mathematicians 2018 (ICM 2018)** w http://www.icm2018.org/

March 2019

ims March 24–27: Philadelphia, PA, USA. **ENAR Spring Meeting** w http://www.enar.org/meetings/future.cfm

July 2019

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

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

March 2020

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

July 2020

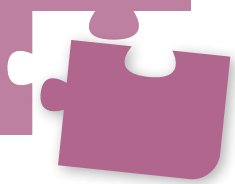
July 5–11: Portoroz, Slovenia. **8th European Congress of Mathematics.** w http://www.8ecm.si/

August 2020

ims August 1–6: Philadelphia, PA, USA. **JSM 2020** w http://amstat.org/meetings/jsm/

ims August 17–21: Seoul, Korea. **Bernoulli/IMS World Congress on Probability and Statistics** w TBC

Are we missing something? If you know of any statistics or probability meetings which aren't listed here, please let us know. You can email the details to Elyse Gustafson at erg@imstat.org, or you can submit the details yourself at http://www.imstat.org/submit-meeting.html We'll list them here in the Bulletin, and on the IMS website too, at www.imstat.org/meetings/



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 $79 is added to the dues of members for each scientific journal selected ($49 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 2017 are available to *The Annals of Applied Probability* ($194), *The Annals of Applied Statistics* ($194), *The Annals of Probability* ($194), *The Annals of Statistics* ($194), *Statistical Science* ($164), and *IMS Bulletin* ($115). **General subscriptions** are for libraries, institutions, and any multiple-readership use. Institutional subscriptions for 2017 are available to *The Annals of Applied Probability*, *The Annals of Applied Statistics*, *The Annals of Probability*, and *The Annals of Statistics* (each title $490 online only / $522 print+online), *Statistical Science* ($280/$296), and *IMS Bulletin* ($123 print). Airmail rates for delivery outside North America are $140 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.

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 $295.00. 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 in the *Bulletin* and on the IMS website at http://imstat.org/meetings/ are free. Send them to Elyse Gustafson; see http://www.imstat.org/program/prog_announce.htm

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
⅓ page	4.9" wide x 4" high (125 x 102 mm)	$260
½ page	7.5" wide x 4" high (190 x 102 mm)	$325
⅔ page	4.9" wide x 8" high (125 x 203 mm)	$380
Full page (to edge, including ⅛" bleed)	8.75" wide x 11.25" high (222 mm x 286 mm)	$430
Full page (within usual *Bulletin* margins)	7.5" wide x 9.42" high (190 mm x 239 mm)	$430

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

Volume 46 · Issue 4

the **next** issue is

August 2017

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

DEADLINES for submissions

July 1,
then **August 15**

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

5364 (print)
066 (online)

THE ANNALS *of* STATISTICS

An Official Journal of the Institute of Mathematical Statistics

Articles

Mimicking counterfactual outcomes to estimate causal effects . . . . . Judith J. Lok 461
Likelihood-based model selection for stochastic block models
Y. X. Rachel Wang and Peter J. Bickel 500
Multiple testing of local maxima for detection of peaks in random fields
Dan Cheng and Armin Schwartzman 529
A rate optimal procedure for recovering sparse differences between high-dimensional means under dependence . . . . . Jun Li and Ping-Shou Zhong 557
Online estimation of the geometric median in Hilbert spaces: Nonasymptotic confidence balls . . . . . Hervé Cardot, Peggy Cénac and Antoine Godichon-Baggioni 591
Confidence intervals for high-dimensional linear regression: Minimax rates and adaptivity . . . . . T. Tony Cai and Zijian Guo 615
Estimating the effect of joint interventions from observational data in sparse high-dimensional settings . . . . . Preetam Nandy, Marloes H. Maathuis and Thomas S. Richardson 647
Identifiability of restricted latent class models with binary responses . . . . . Gongjun Xu 675
A Bernstein-type inequality for some mixing processes and dynamical systems with an application to learning . . . . . Hanyuan Hang and Ingo Steinwart 708
Consistency of likelihood estimation for Gibbs point processes
David Dereudre and Frédéric Lavancier 744
Tests for high-dimensional data based on means, spatial signs and spatial ranks
Anirvan Chakraborty and Probal Chaudhuri 771
Inference on the mode of weak directional signals: A Le Cam perspective on hypothesis testing near singularities . . . . . Davy Paindaveine and Thomas Verdebout 800
Asymptotic behaviour of the empirical Bayes posteriors associated to maximum marginal likelihood estimator . . . . . Judith Rousseau and Botond Szabo 833
Statistical consistency and asymptotic normality for high-dimensional robust M-estimators . . . . . Po-Ling Loh 866
Interaction pursuit in high-dimensional multi-response regression via distance correlation . . . . . Yinfei Kong, Daoji Li, Yingying Fan and Jinchi Lv 897

Vol. 45, No. 2—April 2017