



Bernoulli News

Newsletter of the *Bernoulli* Society For Mathematical Statistics and Probability

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A Word from the President

In this last contribution of mine to Bernoulli News as President of the Bernoulli Society, I would like to highlight some activities and report on some recent first steps approved by the Executive Committee and the Council during the last months.

The Council approved a new initiative for the creation of the Bernoulli Society Prize for Best Survey Papers in Mathematical Statistics and Probability. The goal is to recognize and communicate the importance of expertly written survey articles through a special award. Detailed information is featured in the current issue of Bernoulli News.

Also approved by the Council was the publication of a special issue of the Bernoulli Journal (BJ) in 2013, as part of the celebrations of the 300th Anniversary of the publication of the *Ars Conjectandi* by Jacob Bernoulli. Following a recommendation of the Executive and the Publications Committees, Thomas Mikosch and Richard Davis were appointed as guest editors of this special issue. It will consist of a series of invited papers to provide a glimpse at future directions in probability and statistics from new application areas, to the development of new models, to the emerging interfaces between statistics and probability with other sciences as well as essays on the future of probability and mathematical statistics. This issue will be published in addition to the four numbers of the annual volume and will have universal electronic open access.

The above initiative adds to a series of activities also planned for the year 2013. Among them are special open lectures in the program of the Bernoulli Society meetings during that year, namely the 59th ISI World Statistics Congress in Hong Kong; the 36th Conference on Stochastic Processes and their Applications in Boulder, Colorado, and the 29th European Meeting of Statisticians (EMS) in Budapest, Hungary. The EMS will also hold a Special Session to celebrate the 300 years of the St. Petersburg Paradox. Moreover, the IMS, one of our close society sisters, has kindly agreed to hold a Special Session for the *Ars Conjectandi* in its 2013 Annual Meeting in Montréal, Canada. It is also very fortunate that the Swiss Statistical Society is planning a conference in Basel, focusing on the history of the *Ars Conjectandi*, the impact on science and the development to date of the most important result in this book; the Law of Large Numbers. The Bernoulli Society is one of the organizations sponsoring the Basel Conference. Despite all this, I feel some activities of interest and visibility for a more general public outside our profession are still missing. Some colleagues of the European Regional Committee are currently considering some efforts in this direction.

Furthermore, at the time of writing, the ISI and some other statistical societies are brainstorming the possibility of jointly launching an International Year of Statistics, to which all the above described activities would be naturally added.

Prior to all of that, in July of 2012 the World Congress in Probability and Statistics will take place in Istanbul, Turkey. The Programme Committee chaired by Arnaldo Frigessi and the Local Organizing Committee headed by Mine Caglar and Elvan Cehyan have been working very hard to prepare an attractive and interesting congress. The Executive Committee has already approved to fund four Bernoulli Society Named Lectures (Bernoulli, Kolmogorov, Laplace and Tukey), the World Congress Public Lecture, two Special Invited Sessions (one in probability and one in mathematical statistics) as well as the use of the ISI-World Bank Funds for the participation of colleagues from developing countries in this World Congress.

.... Continued on page 1

Deadline for the next issue: September 30, 2011
send contributions to: victor.panaretos@epfl.ch

A Word from the President (continued from front cover)

Also in 2012, the XII Latin American Congress in Probability and Mathematical Statistics (CLAPEM) will take place in Valparaiso, Chile. The Executive Committee has also made some financial provisions to support this CLAPEM, as it was done for the previous CLAPEM in Venezuela.

Regarding strategies for publications, the last months have represented an intense period of discussions and negotiations for the renewal of expired publication agreements for the two Bernoulli Society official publications. Firstly, an ad-hoc-committee was formed to negotiate with Elsevier the terms on the new sponsorship of agreement for the publication of the journal *Stochastic Processes and their Applications* (SPA). This committee was successfully chaired by Frank den Hollander and included Thomas Mikosch, Michael Sørensen, Eulalia Vares and Ed Waymire. At the time of the writing of this contribution, the final negotiations have not been yet closed, but there are some important advances. For example, Elsevier has agreed a 10% annual decrease in the price of the SPA institutional subscription during the period of the new agreement, to increase resources for Bernoulli Society activities and initiatives, and the publication of special issues of SPA with universal free open access, among other matters. Most importantly, some key issues have been identified and clarified between Elsevier and the Bernoulli Society, although there are still other non-trivial matters to resolve in the future. I would like to thank Frank and the whole ad-hoc-committee for their excellent job in these negotiations and to recognize Elsevier's efforts and understanding in regard to some of the various sensitive issues raised by several members of the stochastic processes community.

With regard to the publication of the BJ, it has been recommended by the Publication and the Executive Committee to renew the publication agreement with the IMS, for a three year term beginning January 2012. It was also recommended to form an ad-hoc-committee to carefully study and suggest a long term proposal, which may include, as a possibility, the move to a commercial publisher. It was pointed out that an increasing number of professional societies in statistics have moved in to letting commercial publishers publish their journals. That is the case of the Royal Statistical Society, the ISI, and recently the American Statistical Association, among others. Moves in the other direction have also been observed, like the *Annales de L'Institut Henri Poincaré*.

The view on the problem of using commercial publishers, and perhaps also the needs, might be different in the mathematics (including probability, stochastic processes and mathematical statistics) and the statistics communities as well as in the different goal and scope of the portfolio of journals. Therefore the Bernoulli Society should investigate the potential benefits and dangers of this, including how it will be perceived by the mathematical statistics and probability communities. This is a matter that has to be carefully analyzed, considering and including the several and diverse points of view and positions, starting from constructing a Society vision on the future of the portfolio of publications and the role of scientific societies and commercial publishers in the new times of electronic communications, open access policies and dissemination of science.

Institutional subscriptions to the owned society journals are, jointly with membership dues, the most important income sources for a scientific society, but a balance between the goals should be reached. It is a fact that the agreement with the IMS for the publication of BJ has brought a healthier financial situation, as compared with the very critical moments of some years ago and when an alternative move was needed. This and revenues from organization of some conferences have allowed the Bernoulli Society to start modestly patronizing the organization of some congresses, conferences and meetings and, in particular, the participation of colleagues from developing countries in these events. This more stable income has also made it possible to continue supporting other publications like the five open access electronic journals co-sponsored with other societies. Whether the Bernoulli Society can do better is, of course, a question, for which the work and recommendations of the planned ad-hoc-committee will be a strategic achievement.

Finally, I would like to thank the Executives, Council members, Committee Chairs and Editors of the Bernoulli Society publications for their collaborative and team work during the last two years. Thanks also to the several Bernoulli Society members that sent criticisms, comments and suggestions to the several initiatives during the last two years. We will continue working until the next Bernoulli Society General Assembly in Dublin in August of this year. Those attending the Dublin ISI World Congress, write down in your agenda our General Assembly.

Víctor Pérez-Abreu, Guanajuato

Editorial

Dear Members of the Bernoulli Society,

Being editors of Bernoulli News has been a pleasure for us for almost two years now. We very much enjoy

redesigning our society's newsletter and the interaction with our contributors and readers.

However, time goes by fast and so our term as editors ends with this issue. Since we have just started to work at new places and new duties await us, we decided not

to stay editors for another term. Moreover, we think that it is always good if new people take over having new ideas. Therefore, we are very happy that the Bernoulli Society has appointed Victor Panaretos from EPF Lausanne as the new editor of Bernoulli News. We wish him all the best for his new job and we are looking forward to receive our copies of “his” future issues.

Likewise, we would like to thank all our contributors over the last two years. Without them we would not have been able to report anything in Bernoulli News. Moreover, we would like to thank all the officials of the Bernoulli Society for their trust and help. Especially, we thank the president Victor Pérez-Abreu, the treasurer José Manuel Corcuera and the publications committee

chair Michael Sørensen for always dealing immediately with our sometimes demanding requests and all issues related to Bernoulli News.

All comments on the current issue should, of course, still be sent to us. But please send all contributions for the next issue of Bernoulli News to Victor Panaretos victor.panaretos@epfl.ch.

Yours sincerely,

*Vicky Fasen, Zürich
Robert Stelzer, Ulm*

News from the Bernoulli Society

Recall: New Bernoulli Logo

The Bernoulli Society has a new logo:



Bernoulli Society
for Mathematical Statistics
and Probability

As you can see, the logo is a redesigned version of our traditional logo derived from the motto to be found on

the epitaph of Jakob Bernoulli in Basel (see <http://www.w-volk.de/museum/grave45.htm>).

Additionally, the text “Bernoulli Society for Mathematical Statistics and Probability” is now an integral part of our logo. Apart from the grayscale version depicted on the left, there is also a colored and a black and white version available.

High-quality graphics files of the new logo in several different formats are available on request from any of the Bernoulli officers.

Special Issue of the Bernoulli Journal

The Executive Committee and Council of the Bernoulli Society approved a special issue of the Bernoulli Journal for the year 2013 to commemorate the 300th anniversary of the publication of the *Ars Conjectandi* by Jacob Bernoulli. The guest editors will be Richard Davis and Thomas Mikosch. It will consist of a series of invited papers that will provide a glimpse at future directions in probability and statistics from new

application areas, to the development of new models, to the emerging interfaces between statistics and probability with other sciences, as well as essays on the future of probability and mathematical statistics. It will be in addition to the four numbers of the annual volume and will have electronic open access to everybody.

Victor Pérez-Abreu, President

Correction

A footnote has been added to the web page (http://isi.cbs.nl/bnews/10b/bn_01.html) publication of the talk on the future of the Bernoulli Society delivered at the SPA conference in Osaka, September 2010, by president-elect Ed Waymire. In particular, it is to be noted that “ISI was founded in 1885, but the international meetings organized by the

ISI started in 1887. Therefore this anniversary (2010) is in fact the celebration of 125 years of ISI Sessions.” This corrects the mention of 2013 as the 125th anniversary of ISI, and applies to the publication of the speech in the last issue (Vol. 17(2), 2010) of Bernoulli News as well. President-elect Ed Waymire thanks ISI Webmaster Hans Lucas for catching this error.

News from the Bernoulli Society Council

The Council of the Bernoulli Society approved the candidates for President-Elect 2011-2013 and ordinary Council members for 2011-2015 presented by the Nominating Committee. The Council provided no additional candidates. Since there is only one candidate

for an office, according to the Statutes, the candidates shall be declared elected in the General Assembly during the Dublin ISI World Statistics Congress in August 2011.

President-Elect: Wilfrid Kendall, Department of Statistics, Warwick University.

<http://www2.warwick.ac.uk/fac/sci/statistics/staff/academic-research/kendall/>

New Council members from 2011 are the following:

- Neville Weber
<http://www.maths.usyd.edu.au/u/neville/>
- Arturo Kohatsu-Higa
<http://elis.sigmath.es.osaka-u.ac.jp/~kohatsu/>
- Mikhail Lifshits
<http://sites.google.com/site/mlprobability/>

- Alejandro Ramirez
<http://www.mat.puc.cl/~aramirez/>
- Alice Guionnet
<http://www.umpa.ens-lyon.fr/~aguionne/>
- Martin Barlow
<http://www.math.ubc.ca/~barlow/>

The next official Nominating Committee will be proposed at this General Assembly.

Nakahiro Yoshida, Scientific Secretary

Awards and Prizes

Travel Awards for the Conference in Honour of Søren Asmussen – New Frontiers in Applied Probability

The conference in Honour of Søren Asmussen – “New Frontiers in Applied Probability” is to be held at Sandbjerg Estate, Sønderborg, Denmark, 1-5 August, 2011 and registration is now possible via the website

<http://www.thiele.au.dk/events/conferences/2011/asmussen>.

The publishing company Elsevier and the journal Stochastic Processes and Their Applications - An Official Journal of the Bernoulli Society - support the conference with two Elsevier Travel Grants. Each grant

amounts to 500 Euros. The grants were awarded to the following young researchers:

- Leonardo Rojas-Nandayapa (University of Queensland)
- Olivier Wintenberger (University Paris Dauphine).

Thomas Mikosch, Copenhagen

Announcement of the Itô Prize Winners 2011

The journal Stochastic Processes and Their Applications awards the 2011 Itô Prize to a paper published in 2009 or 2010, recognizing a significant contribution to the advancement of the theory or applications of stochastic processes. The prize honors the memory and celebrates the legacy of Professor Kiyosi Itô and his vast and seminal contributions to probability theory. The prize consists of a monetary award of 5000\$ and an invited lecture presenting the paper.

The 2011 winning article was selected by the Editorial Board of the journal:

Nathalie Eisenbaum and Haya Kaspi, *On permanent processes*, SPA, 119 (5), 1401-1415

The Editorial Board of SPA congratulates Haya and Nathalie. The Itô Prize Ceremony and the Itô Lecture are part of the Scientific Program of the 35th Conference on Stochastic Processes and Their Applications (19-24 June, 2011, Oaxaca, Mexico).

Thomas Mikosch, Copenhagen

New Bernoulli Prize Announcement

The increase in both the breadth and the mathematical technicality of many areas of specialization in probability and statistics can be mitigated by expertly written survey articles that will communicate an historic perspective on the successes, failures, and general health of important areas, as well as provide young researchers with a point of entry to the frontiers of a given field. To acknowledge the general importance of such efforts, the Bernoulli Society for Mathematical Statistics and Probability is pleased to announce the establishment of “The Bernoulli Prize for an Outstanding Survey Article in Probability or Mathematical Statistics”. A prize of

Euro 1000 and an official certificate will be awarded biennially, alternating between the respective areas of mathematical statistics and probability. Awards will be made by recommendations of a prize committee appointed by the Bernoulli Council, based on nominations solicited by the prize committee from the general membership. Look for future calls for nominations in Bernoulli Newsletter, Bernoulli E-Briefs, ISI Newsletter, and on Bernoulli and ISI web sites.

Edward Waymire, President-Elect

David's Musing: In search of a missing word: entropy and ???

One of my maxims for mathematicians is in public, curb the impulse to present mathematics as a pinnacle of human creative achievement. The profession is better served by being less arrogant, and instead portraying mathematics as useful intellectual infrastructure, analogous to the useful physical infrastructure of the internet. My point is that there's not a Windows exponential function and a different Linux exponential function and a different OSX exponential function, there's just **the** exponential function. That's infrastructure.

But there's a curious irony in this view. Many of the sciences have official bodies to decide on matters like the definition of a *kilogram* or the name of a new chemical element or the name of a species; this is analogous to the official bodies that determine what is correct French or German language. But Mathematics and Statistics have no official bodies to rule on what exactly a *topological group* or an *analysis of variance* are, just as English has no official body to rule on spelling or grammar or word meaning in the English language. It is perhaps remarkable that such superficial anarchy does not lead to chaos, but it doesn't. Occasionally confusion arises when a word has two meanings. Using the same phrase *standard deviation* for data and for theoretical probability distributions causes, in my opinion, unnecessary conceptual confusion in elementary statistics courses; and a man wearing suspenders is viewed differently in Britain and the U.S. But the topic of this article is one instance of an opposite annoyance, that a simple concept may not have a standard name.

Consider (p_1, \dots, p_n) , either relative frequencies or a probability distribution, in the context of categorical data. There are many summary statistics one could define to measure where a given distribution is on the spectrum from being thinly spread over many categories to being concentrated on one category. The two statistics that seem most fundamental are

$$E = -\sum p_i \log p_i$$

$$S = \sum p_i^2$$

For E everyone, or at least all readers of this article, surely uses the same name, *entropy*, or a variant like *Shannon entropy*. But what is the name of the statistic S ?

Let me digress for a short rant. Names of mathematical objects and theorems are just labels, just identifiers. Attributing theorems and other matters of substance to their discoverers is good scholarship, and the custom of naming them after the discoverers may (if initially done correctly) provide the double benefit of both attribution and a label. For instance, the Kolmogorov 0-1 law is a perfectly good name for that theorem. But asserting that objects like S **should** be named after the first person to write them down is frankly ridiculous. If the tail sigma-field featuring in the Kolmogorov 0-1 law had first been

defined by some Professor Wagstaff, does that mean we **should** rename it the Wagstaff sigma-field? In fact the academic preoccupation with identifying who did something first was well satirized four centuries ago. *He forgot to tell us who was the first man in the world that had a cold in his head ... but I give it accurately set forth, and quote more than five-and-twenty authors in proof of it, so you may perceive I have labored to good purpose and that the book will be of service to the whole world.* (Cervantes, Don Quixote).

Ideally, identifiers are unique, short and memorable; using people's names is an option, not a requirement; *entropy* and *tail sigma-field* and *ham sandwich theorem* work at least as well as *Kolmogorov 0-1 law* and *Riemann hypothesis* and *Stone-Tukey theorem*. End rant.

Anyway, what I am seeking is the name of S in **actual current usage**, since 2000 say. Given any candidate name, one can quickly use Google Scholar to get a rough idea of how extensively it is used. And it doesn't take long to find a relevant Diversity index page of Wikipedia, which contains a useful set of possibly relevant names. Using these to start a search (note I am not relying on Wikipedia as an authority, merely as a starting point) one very quickly discovers the following.

1. In ecology (e.g. populations of different species), S has long been called *Simpson's diversity index* or *Simpson's index*. Since 2000 the name *Gini-Simpson (diversity) index* has become more common, apparently stemming from a 1981 paper of C.R. Rao.
2. In demography (e.g. populations of different ethnicities) $D = 1 - S$ is called the *diversity index*, in particular by the U.S. census. (Intuitively, it is D not S that increases as diversity increases).
3. In economics (e.g. market shares of different companies) S is called the *Herfindahl index*.

At this point one suspects that another hour of searching would find yet more names used in other quantitative academic disciplines. Indeed I happen to have recently seen *susceptibility* used in graph theory (component sizes), the word indirectly derived from Ising models of magnetism. And Manjunath Krishnapur pointed out that in areas of information theory the quantity $-\log S$ is called *Renyi entropy* or *collision entropy*.

Anyway, this plethora of names for S demonstrates the disadvantages of naming **simple** mathematical concepts after people or in some application-specific way. A descriptive name such as L^2 *categorical diversity* would surely be much more desirable.

In case you wonder what prompted me to write about S in particular, here are three ways it came to my attention. Back in the 1990s, it arose in my own technical work on stochastic coalescence. In my current efforts at undergraduate/popular level exposition, I am creating a list (suggestions welcome) of the ten most interesting explicit formulas in applied probability. One of these is from population genetics; in a population of

constant size N and with chance θ of a mutation to a new neutral allelic type, the “effective number” $1/S$ of neutral alleles is approximately $1+4N\theta$. (Any summary statistic of diversity can be interpreted as an *effective number*, the number of categories for which the uniform distribution has the given value of the statistic; for our statistics the effective number is $1/S$ or $\exp(E)$). A third context involves my interest in reading popular expositions of probability, of which I regard Warren Weaver’s 1963 *Lady Luck* as a classic benchmark for comparison of subsequent works. Weaver only once mentions a new idea of his own, which is to measure the unlikeliness of a particular outcome i by the relative probability p_i/S , and then call its inverse S/p_i the *surprise index* associated with an outcome. This notion has not come into widespread use, though there is an interesting article *Surprise Index*, written by I.J. Good, in the *Encyclopedia of Statistical Sciences*. Good develops a little mathematics, in particular observing (as many others have) that S and E can be regarded as members of a certain one-parameter family of summary statistics – this family is often named *Renyi entropy*. Good also attributes the idea of S to Gini as the *Gini index* of homogeneity; but this name invites confusion with the *Gini coefficient* for quantitative data and does not seem to be in widespread use.

The entropy statistic E suffers from no such terminological confusion, but perhaps the prominence of the name (cf. the third law of thermodynamics) leads to an opposite problem – overuse. The *Wikipedia Diversity index* page describes the intuitive significance of

entropy for species abundance data as follows. *As we walk around and observe individual organisms, we call out (a binary codeword for their species). This gives a binary sequence. If we have used an (optimal) code, we will be able to save some breath by calling out a shorter sequence than would otherwise be the case. If so, the average codeword length we call out as we wander around will be close to the (entropy).* This is basically correct but is hardly a convincing argument for using E as a statistic of biological significance. Because there are specific contexts (e.g. data compression) where E really is the relevant statistic, and because E has nice mathematical properties, it is often used as a default statistic to quantify diversity, loosely analogous to the use of standard deviation as a default statistic to measure spread. But for a typical observed categorical data-set it is hard to give any positive justification or natural interpretation for E . Consider for instance the extensive data at <http://www.ssa.gov/oact/babynames/> on U.S. birth names. Any statistic would reveal the dramatic increase in diversity of names over the last 50 years. The statistic S has a natural interpretation – the chance two random babies have the same name. Can you think of an interpretation for E that is less artificial than the story of the breath-saving biologist above?

David Aldous, Berkeley

Editors’ note: This is the third installment of a regular opinion column.

Obituaries

Igor Vajda, 1942 – 2010

Igor Vajda, Principal Researcher at the Institute of Information Theory and Automation (ÚTIA) of the Academy of Sciences of the Czech Republic in Prague, and a leading figure in the field of information-theoretic statistical inference, passed away unexpectedly on May 2, 2010. He was born on October 20, 1942, in Martin, Czechoslovakia. After attending elementary and secondary school in Slovakia, he graduated in mathematics at Czech Technical University (CTU) in Prague in 1965, and received Candidate of Science and Doctor of Science degrees from Charles University in 1968 and 1990, respectively, with specializations in probability, statistics and mathematical informatics. He had been a key researcher at ÚTIA since 1965 and held a teaching position at CTU since 1969. For many years he was head of the Department of Stochastic Informatics of ÚTIA and served on the Scientific Boards of both ÚTIA and the Faculty of Electrical Engineering of CTU.

Although Igor Vajda had little opportunity to travel before 1989, apart from a one-year stay in Moscow in the 1960s and a two-year teaching appointment in Cairo in the 1970s, he developed many contacts abroad, especially in Western Europe, after the political

changeover in Czechoslovakia in 1989. Since 1991 he intensively cooperated in research with colleagues in Austria, Belgium, Denmark, France, Germany, Hungary, Spain, and the USA.



Igor Vajda recognized early the meaning of different types of distances between distributions in information theory and mathematical statistics. One of his major research directions was the investigation of f -divergences

$$Df(P \| Q) = \int qf(p/q)d\mu$$

of distributions P and Q with densities $p = dP/d\mu$ and $q = dQ/d\mu$, and their statistical applications. In early papers he studied the relations between f -divergences and variational distance, the approximation, monotonicity, topological properties of f -divergences and their minimization under constraints.

A first systematic theory of f -divergences was presented in the book *Convex Statistical Distances* by F. Liese and I. Vajda (Teubner, 1986), with applications to hypothesis testing, minimum distance estimation, and random processes. Igor Vajda's book *Theory of Statistical Inference and Information* (Kluwer, 1989) (a first version was published in Slovak language in 1982) provides a comprehensive treatment of the theory of statistical inference and information. This book is unique in the field, contains a wealth of research results and has become an indispensable source of reference for researchers in the domain.

Igor Vajda used special f -divergences to generalize the Cramer-Rao bound and the theorems of Chernoff and Stein. The extension of the likelihood ratio statistic to divergence-based statistics for testing composite hypotheses was the subject of many papers of which he was the author or a co-author. In order to compare the empirical distribution \hat{P}_n with the theoretical distribution P_θ from a parametric model, one must turn to a sequence of partitions of the sample space. Igor Vajda and co-authors characterized the suitable speed of refining, and studied sequences of partitions generated by the quantile function.

Another, closely related research topic of Igor Vajda was the divergence-based estimation and testing in mathematical statistics. He used the distance

$Df(\hat{P}_n \| \hat{P}_\theta)$ between the empirical distribution \hat{P}_n and the true distribution P_θ to introduce the minimum divergence estimator

$$\hat{\theta}_n = \arg \min_{\theta \in \Theta} Df(\hat{P}_n \| P_\theta)$$

and to construct the statistic

$$T_n = \min_{\theta \in \Theta} Df(\hat{P}_n \| P_\theta)$$

for testing a parametric hypothesis and for goodness of fit tests. He and co-authors showed that f -divergence based estimates have similar properties as the maximum likelihood estimator. These results, as well as the efficiency in the Pitman and Bahadur sense and large deviation results on tests based on T_n , were the subject of many papers of which Igor was the author or a co-author. Igor Vajda noticed the importance of the Barron distribution estimator, originally introduced for the consistent nonparametric estimation of an unknown probability distribution in the sense of information divergence and variational distance. In a series of papers, he and co-authors proved many other results concerning this estimator, such as consistency in chi-square divergence, and applied it to density estimation and parametric minimum distance point estimation.

Starting 2001, Igor Vajda developed a general theory of goodness-of-fit tests based on spacings from the viewpoint of disparity statistics. In joint work he showed that essentially all spacings-based statistics are asymptotically equivalent to a disparity statistic and proved limit laws for this class of statistics, with special attention to power divergence statistics, thereby obtaining closed-form expressions for the asymptotic parameters of these power divergence spacings-based statistics.

In recent papers Igor Vajda studied the Bregman distance, which provides the flexibility to find a compromise between efficiency and robustness of estimators based on it.

He also worked in applied areas such as the statistical analysis of optimal investments, financial mathematics, biostatistics, and stochastic systems and networks.

Igor Vajda was a passionate researcher, always exploring new ideas. His results were respected by the scientific community and influenced the research orientation of many of his younger colleagues. In his scientific work he continued the traditional Prague school of information theory, which dates back to the early 1950s. Igor was an author or co-author of four monographs and more than 100 publications in renowned international journals. He had over 300 officially registered citations.

Igor Vajda's work was awarded, among other distinctions, the Prize of the Czech Academy of Sciences, the Jacob Wolfowitz Prize, the Medal of the Merits of the First Degree from the Faculty of Nuclear and Physical Engineering of CTU and several Annual Prizes awarded by the Director of ÚTIA for the best paper of the year. In November 2010, at a special Colloquium held in his memory at Prague, Igor Vajda was honored posthumously with the Bolzano Medal from the Academy of Sciences of the Czech Republic. The high quality of his scientific results and the intensity of his international cooperation are expressed by the fact that since 1991 Igor Vajda obtained six research grants from the Czech National Grant Agency, one from the European Union (Copernicus), and one from the NSF of the USA. He participated as a co-investigator in several other grants. Since 1990 Igor Vajda was a Member and since 2001 a Fellow of the IEEE. He was a visiting professor at Katholieke Universiteit Leuven, Complutense Universidad Madrid, Université de Montpellier, and M. Hernández Universidad, Alicante.

Igor Vajda supervised many diploma projects and guided several PhD students both at home and abroad. He was a co-editor of the journals *Kybernetika*, *Problems of Control and Information Theory*, *Applications of Mathematics, Statistics and Decisions*, *Revista Matematica Complutense*, *Journal of Statistical Planning and Inference*, and *Test*.

Igor Vajda loved his native land Slovakia and visited it regularly throughout his life. He is survived by his wife Zdenka, his two daughters Tereza and Veronika, and four grandchildren. Igor Vajda was a man of many

ambitions and achieved a lot in his life. He worked tirelessly and inspired many. He enjoyed working with others. With him we lost a great friend and fine colleague. We all owe him much, miss him, and will honor his memory.

Martin Janzura, ÚTIA, Prague
Friedrich Liese, Univ. of Rostock
Edward van der Meulen, K. U. Leuven

Note: This obituary is an abridged and slightly modified version of the one which appeared in the April/May 2011 issue of the IMS bulletin.

Anatolii Vladimirovich Skorokhod, 1930 – 2011

Professor Anatolii Vladimirovich Skorokhod, who had been a member of the Department of Statistics and Probability at Michigan State University since 1994, died on January 3, 2011. His contributions in 230 published works are too numerous to cover in a short review. I try to enumerate his work with major impact in the subject.

Skorokhod decided to specialize in Probability and carried out investigations under the influence of B.V. Gnedenko and I.I. Gikhman at Kiev. In 1953, he was taken to Moscow State University by Gnedenko. He was advised by Professor A.N. Kolmogorov to work under the guidance of Professor E.B. Dynkin.

Skorokhod's first major work as a postgraduate researcher was to discover a topology on the space $D[0,1]$ of functions with discontinuities only of the first kind. He defined a metric d on $D[0,1]$ under which the space becomes a separable metric space and characterized the compact sets on $(D[0,1], d)$. This opened the door for generalization of Donsker's Invariance Principle. As the Skorokhod metric coincides with uniform metric on $C[0,1]$, Donsker's theorem can be derived from his work. However, Skorokhod soon produced an embedding theorem in stopped Brownian motion paths which allowed one to obtain Donsker's Theorem easily. This is included in his book "*Studies in the Theory of Random Processes*". In this book he also gives his approach to stochastic differential equations (SDE's) driven by Lévy Processes. Using the Lévy-Itô decomposition, he shows that it is enough to study SDE's driven by compensated Poisson Random measure and Brownian motion. Using

an idea of I.I. Gikhman he gives existence of solutions to SDE's with continuous coefficients. This was proven later by D. Stroock and S.R.S. Varadhan, who also proved the uniqueness of solution for the diffusion case. As this unique solution is Markov, their work advances the theory of PDEs. Their proof is non-trivial. Subsequently Gikhman and Skorokhod produced a proof based on Plancherel's theorem, which can be extended to infinite dimensions. The work of Skorokhod using solutions for reflected diffusion using local time in the solution has led to major impacts.

Skorokhod left a great legacy with more than 50 students and numerous books in addition to basic contributions to Probability Theory including the Skorokhod integral and differentiation.

- Skorokhod, A.V. (1956) Limit theorems for stochastic processes, TPA, 2, 289-319.
- Obloj, J. (2004) Skorokhod embedding theorem and its offspring, Prob. Surveys, 1, 321-390.
- Gikhman, I.I. and Skorokhod, A.V. (1974) The theory of stochastic processes, III, Springer.
- Mandrekar, V. and Skorokhod, A.V. (1998) An approach to Martingale problem for diffusion stochastic equations in Hilbert-space. Theory of Stochastic Processes, 4, 54-59.
- Dupuis, P. and Ramanan, K. (1999) Convexity duality and Skorokhod Problem I-II, PTRF, 115, 153-236.

Atmah Mandrekar, East Lansing

Past Conferences, Meetings and Workshops

Summer School in Stochastic Finance 2010

There were 49 participants from several European countries (Belgium, Germany, Hungary, Italy, Russia, UK).

The scientific program was very intensive. The lecturers and their courses are:

- Alexander Gushchin (Steklov Mathematical Institute, and Lomonosov Moscow State University, Russia), *Duality methods in robust utility maximization*,
- Michael Kalkbrener (Deutsche Bank AG, Frankfurt, Germany). *Correlation under stress in normal variance mixture models*,
- Rüdiger Kiesel (Duisburg-Essen University, Germany), *Introduction to energy markets*,
- Alexander Kulikov (Moscow Institute of Physics and Technology, and Gazprom Export, Russia), *One-dimensional and multi-dimensional coherent risk measures: examples, properties and applications to different problems in mathematical finance*,
- Aleksandar Mijatovic (University of Warwick, UK), *First passage in stochastic volatility models with jumps: applications in financial markets*,

- Ulrich Rieder (Ulm University, Germany), *Markov decision processes with applications to finance*,
- Albert Shiryaev (Steklov Mathematical Institute, and Lomonosov Moscow State University, Russia), *Optimal stopping with local time*.

Moreover, there was an additional lecture by A. Shiryaev, entitled “Probabilistic and algorithmic approaches to the concept of randomness” and contributed talks by Soren Christensen (Kiel) and Yaroslav Lyulko (Moscow). The financial support provided by the Faculty of Mathematics and Economics and the International Office of Ulm University is gratefully acknowledged.

This summer school is the second in the series of joint meetings organized in the framework of the cooperation between Lomonosov Moscow State University (Russia) and Ulm University (Germany). The previous summer academy was held in September of 2009 and was

devoted to stochastic geometry, spatial statistics, and random fields (organizer E. Spodarev).



The next summer academy will be devoted to stochastic analysis, modeling and simulation of complex structures (organizer V. Schmidt) and is planned for September 2011.

A. Shiryaev, Moscow

M. Urusov, Ulm

Young European Queuing Theorists (YEQT IV): Optimal Control in Stochastic Systems

EURANDOM – TU/e, November 25-27, 2010

This workshop was organized as the fourth in the series *Young European Queuing Theorists (YEQT)*, organized within the framework of EURANDOM's Queuing and Performance Analysis (QPA) program. The workshop was sponsored by EURANDOM, NWO (Netherlands Organization for Scientific Research), LOIS (Logistics and Information Systems), and STAR (Stochastics-Theoretical and Applied Research).

Within the YEQT series, the first meeting was devoted to transient and asymptotic analysis of queuing systems, the second focused on the stochastic analysis of modern communication networks, and the third one for scheduling and resource sharing in queuing networks. In this fourth meeting, the topic was *Optimal Control in Stochastic Systems*. Optimal control in stochastic systems is increasingly demanding more research due to their complexity and the inherent randomness encountered within their scopes. A wide variety of mathematical frameworks have been developed to enhance the optimal control of stochastic systems. The focus has been primarily on investigating appealing structures of the optimal policies in various application domains.

The importance of optimal policy structures is twofold; first they provide valuable insight regarding the behavior of the system through easy-to-interpret optimal policies, such as control limit policies. Second, they can be exploited to develop computationally efficient solution algorithms to compute the optimal policies. Optimal control of stochastic systems is of crucial importance across numerous application domains such

as manufacturing and production systems, service systems, communication systems, healthcare systems, and logistics. The workshop was very successful and the talks and presentations included excellent balance between theoretical works, and other works that focus on bridging the gap between theory and practice in optimal control. Attendance was quite satisfactory, with a number of attendees ranging between 15-25 for all talks. Discussions and Q&A sessions were quite constructive and inspiring. YEQT IV included the following sets of speakers:

1. Two Keynote Speakers:

- Prof. Chelsea (Chip) White, III Georgia Institute of Technology, USA*
- Prof. Semyon Meerkov University of Michigan Ann-Arbor, USA*

*The above programs possess rankings numbers 1 and 2, respectively, in the US News ranking of graduate programs in Industrial and Systems Engineering in the US.

2. Three Tutorial Speakers:

- Prof. Ger Koole, VU Amsterdam, Netherlands
- Prof. Ulrich Rieder, Universität Ulm, Germany
- Bernd Heidergott, VU Amsterdam, Netherlands

3. Fifteen Contributed Speakers:

- Zübül Atan, TU/e, Netherlands
- Rene Bekker, VU Amsterdam, Netherlands

- Çagdas Büyükkaramikli, TU/e, Netherlands
- Jan-Pieter Dorsman, TU/e - EURANDOM, Netherlands
- Taoying Farenhorst-Yuan, Erasmus University, Netherlands
- Nicolas Gast, Grenoble University – EPFL, France
- Itai Gurvich, Northwestern University, USA
- Rene Haijema, Wageningen Universiteit
- David Hodge, University of Nottingham, UK
- Gerard Hoekstra, Thales Nederland, Netherlands
- Oualid Jouini, Ecole Centrale Paris, France

- Dinard van der Laan, VU Amsterdam, Netherlands
- Flora Spieksma, Leiden University, Netherlands
- Sofia Villar, Carlos III Madrid University, Spain
- Sandra van Wijk, TU/e - EURANDOM, Netherlands

The organizing committee consisted of:

Sandjai Bhulai, Faculty of Sciences, VU University of Amsterdam, the Netherlands.

Alaa Elwany, Department of Industrial Engineering & Innovation Sciences, Eindhoven University of Technology, the Netherlands.

Patty Koorn, EURANDOM

7th International Iranian Workshop on Stochastic Processes

The 7th International Iranian Workshop on Stochastic Processes (IUST-IWSP7) was held at Iran University of Science and Technology, Tehran, Iran, November 30 and December 1-2, 2010.

The aim of the workshop was to bring together researchers and scientists working in the field of *stochastic processes and their applications* from academia and industry to exchange research ideas, discuss the most recent advances in all fields that concern with stochastic processes, to disseminate research findings of the participants in the scientific committee, and promote and encourage interaction between faculty from the region and worldwide. Organizing this workshop helped IUST to build bridges with other institution and the community.

The workshop was hosted by the IUST School of Mathematics and Co-sponsored by IPM, the Iranian Statistical Society and Statistical Research Center of Iran.

Technical sponsorship has been provided to the workshop by the IPM (especially by Professor Ahmad Reza Soltani and Professor Said Rezakhah); it exposed researchers from around the world to the high quality of research conducted in this part of the world.

The plenary talks were given by Richard Davis (Columbia University), Bijan Z. Zangeneh (Sharif University), A.R. Soltani (Kuwait University, Shiraz University).

Chairman, Rahman Farnoosh

Workshop in honor of Anestis Antoniadis

MASCOT NUM is a french research group on Stochastic Analysis Methods for COdes and NUMerical treatments, supported by CNRS. This year, the annual meeting of the group was held in Villard de Lans, near Grenoble (France) from March 23 to 25. The first day (March 23) was dedicated to the presentations (talks and posters) of PhD students. The prize of best student contribution was awarded to Nathalie Saint-Geours (AgroParisTech, UMR TETIS, Montpellier) for her work *Some properties of variance-based sensitivity indices for spatially distributed models*.



An opening lecture was given by Jérémie Bigot (Université Toulouse 3) on statistical shape and image

analysis. The two other days (March 24-25) were organized in honour of Professor Anestis Antoniadis (Université de Grenoble, France), who is one of the pioneer of our group, and who is a world recognized statistician.



This event gathered more than 110 participants. The Scientific Committee was composed by S. Tsybakov (ENSAE, Chair), P. Cattiaux (IMT, Toulouse 3), F. Gamboa (IMT, Toulouse 3), S. Lambert-Lacroix (Grenoble 2), P. Massart (Paris XI Orsay), C. Prieur (LJK/MOISE, Grenoble 1) and the members of the Organizing Committee were U. Amato (Napoli, Italy), J. Bigot (IMT, Toulouse 3), C. Helbert (LJK/MOISE, Grenoble 2), D. Herzog (INRIA Alpes), S. Lambert-Lacroix (Grenoble 2), F. Letué (LJK/SMS, Grenoble 2),

E. Maitre (LJK/EDP, Grenoble 1), A. Pierson (MOISE), C. Prieur (LJK/MOISE, Grenoble 1), A. Rousseau (LJK/MOISE, INRIA) and L. Viry (CIMENT/MOISE, Grenoble 1).

The scientific program included nine invited plenary lectures given by eminent statisticians and/or probabilists

- F. Abramovich, Université of Tel Aviv;
- U. Amato, University of Naples;
- R. Carmona, University of Princeton;
- J. Fan, University of Princeton;
- I. Gijbels, University of Leuven;
- S. Mallat, Ecole Polytechnique Paris;
- M. Pensky, University of Florida Exchange;
- J.M. Poggi, University Paris-Sud;
- V. Spokoiny, WIAS Berlin.

The opening lecture by Umberto Amato on Anestis Antoniadis' scientific life was warmfull and touching, it set the tone for the whole event.

The event was supported by Commissariat à l'Energie Atomique et aux Energies Alternatives (CEA), French National Scientific Research Council (CNRS), European Aeronautic Defence and Space Company EADS, Electricité de France (EDF), Italian National Research Council (IAC), Interuniversity Attraction Pole (IAP), Institut National de Recherche en Informatique et en Automatique (INRIA), Laboratoire Jean Kuntzman (LJK), Société Française de Statistique (SFDS), Unité de Formations et de Recherches en Informatique et Mathématiques Appliquées de Grenoble (UFR IMAG), Grenoble Universities 1 and 2.

*Sophie Lambert-Lacroix
Clémentine Prieur*

Young European Probabilists VIII 2011 Subject: Stochastic Models for Population Dynamics

The main focus of the workshop was on “Population Dynamics”, more precisely on stochastic models for population dynamics in ecology and evolution, particularly with a view towards spatial models. Population biology has long been a fruitful source of research problems and inspiration for probabilists, starting with classical branching processes, their diffusion approximations, ranging over interacting particle systems up to measure-valued processes. Processes in biological populations are often very complex and stochastic by nature, thus requiring and inspiring probabilistic modeling. The situation becomes especially intriguing when the role of space is taken into account, where this can refer to geographical space, with the two dimensional space being biologically most interesting and also posing the toughest mathematical challenges, or to a more abstract 'type space' or possibly to a combination of both. Examples of important questions that mathematical models can help to attack are in how far spatial distribution can promote survival of a population or coexistence of various types, how the populations tend to arrange themselves in space, or how new species can emerge through the interplay of mutations and competition of different types. In this

workshop we focused on such mathematical questions addressing challenging problems at the interface between probability theory and population dynamics. The workshop consisted of three courses, two problem sessions and 13 contributed talks.

Course 1: Limit theorems for voter model perturbations
Speaker: Ted Cox (Syracuse)

Course 2: Population dynamics and evolution in the trait space
Speaker: Amaury Lambert (Paris)

Course 3: Temporal and spatial scales in geographically structured population models
Speaker: Amandine Veber (Paris)

Problem session 1: Stochastic models in Ecology and Evolution
Speaker: Patsy Haccou (Leiden)

Problem session 2: Problems in population genetics involving selection, recombination and migration
Speaker: Feng Yu (Bristol)

Patty Koorn, Eurandom

Visions in Stochastics: Leaders and their Pupils



1st – 3rd November, 2010, the Steklov Mathematical Institute (Moscow) played as host for the International Symposium “Visions in Stochastics”. The idea of organizers was to collect together leaders of some directions in Stochastics and their students, coworkers, pupils.

Among 50 min plenary speakers (“leaders”) were: A. Bulinski, A. Dorogovtsev, E. Eberlein, H.-J. Engelbert, Yu. Kabanov, U. Küchler, H. Ouerdiane, G. Peskir, E. Valkeila, V. Vatutin, E. Yarovaya.

20 min contributed talks were presented by (“pupils”): E. Azmoodeh, M. Bedini, S. Blei, E.VI. Bulinskaya, J. Grépat, H. Mai, A. Muravlev, A. Papapantoleon, J. Sexton, A. Shamov, A. Shashkin, T. Sottinen, H. Tikanmäki, M. Urusov.

18 poster presentations were made. 4th of November was the day of excursions (Red Square, Kremlin, the Tretyakov Gallery).

A. Shiryayev, A. Muravlev, T. Tolozova

Forthcoming Conferences, Meetings and Workshops

8th Workshop on Bayesian Nonparametrics

June 26 – 30, 2011, Veracruz, Mexico

The 8th Workshop on Bayesian Nonparametrics will be held from June 26 to 30, 2011 in Veracruz, Mexico. The objective of the meeting is to bring together experts and young talented scientists devoted to the study and application of Bayesian nonparametric techniques. The workshop is organized under the auspices of the Mexican Statistical Association (AME) and the International Society for Bayesian Analysis (ISBA).

The meeting will be structured in 4 tutorials on special topics, a series of invited and contributed talks and contributed posters sessions. For those interested this event will be preceded by the Mexican Workshop on Bayesian Statistics (TAMEB) which will feature a day of introductory courses (in Spanish) to Bayesian statistics.

12 travel awards, consisting of 666 USD each, are available from the U.S. National Science Foundation to cover partial expenses of junior researchers, women,

and members of underrepresented minorities from the United States participating in the 8th Workshop on Bayesian Nonparametrics, June 26-30 in Veracruz, Mexico.

- Eligibility:
Advanced graduate students currently working on their Ph.D. dissertations
- Researchers who have received their Ph.D. in 2005 or later.

Further information about the workshop can be found on www.bnppworkshop.org

and the information on the application of the travel awards are on

www.bnppworkshop.org/scholarship.php

Ramses Mena, Mexico

ICORS 2011: International Conference on Robust Statistics

June 27 – July 1, 2011, Universidad de Valladolid, Spain

The International Conference on Robust Statistics will be held at Universidad de Valladolid (SPAIN), June 27th – July 1st, 2011. The aim of this conference is to be a forum for the developments and applications of robust statistical methods, and their interactions to other fields of statistics, and to science in general. It is an

opportunity to meet, exchange knowledge, and build scientific contacts for all people interested in the subject.

Further information: <http://www.icors11.uva.es>

Contact: congreso.icors2011@uva.es

16th INFORMS Applied Probability Society Conference

July 6 – 8, 2011, Royal Institute of Technology (KTH), Stockholm, Sweden

<http://meetings.informs.org/APS2011>

The conference focuses on the theory and applications of probability to stochastic systems arising in operations research, computer networks, biology and finance, and also draws specialists in related fields such as statistics and physics. There will be sessions related to operations research, random graphs, random algorithms, stochastic networks, stochastic control and games, mathematical finance, stochastic optimization, call centers, health care, simulation, etc.

On behalf of the INFORMS APS 2011 Organizing Committee, we invite you to submit a contributed session or a contributed talk. The submission deadline is March 1st. Authors will be notified of acceptance of their talk or session abstracts by April 1st. All

submissions must be submitted by email to: abstractaps2011@math.kth.se using the appropriate LaTeX templates available at:

<http://www.informs.org/Community/Conferences/APS2011/Abstract-submission>

Submission of Contributed Sessions: A contributed session consists of three 25 min talks. The length of a session is 90 min. A submission of a contributed session must include:

- a title of the session
- a brief description of the topic
- the names of the three speakers and

- titles and abstracts of the three talks.

The submission must be sent by email to: abstractaps2011@math.kth.se using the LaTeX template available at <http://www.informs.org/Community/Conferences/APS2011/Abstract-submission> Presenting authors are expected to register before May 1st, 2011. Failure to register by May 1st may lead to cancellation of the talk.

Submission of Contributed Talks: A contributed talk consists of a 25 min presentation, which will be held within a 90 min session. The submission must be sent by email to: abstractaps2011@math.kth.se using the LaTeX template available at <http://www.informs.org/Community/Conferences/APS2011/Abstract-submission> Presenting authors are expected to register before May 1st, 2011. Failure to register by May 1st may lead to cancellation of the talk.

Young Statisticians Meeting - YSI 2011

August 19 – 21, 2011, Dublin, Ireland

As a satellite meeting to the 2011 ISI World Congress, and the first of its kind, YSI 2011 seeks to promote the active participation of early career statisticians in the epicentre of the ISI World Congress. The meeting from August 19th to 21st, 2011, will give the opportunity for young statisticians to present their work in an encouraging and heartening environment, build scientific bonds with colleagues in their respective fields, and learn from and interact with some of the leaders of the discipline in an informal, compact and conducive environment.

Invited Speakers:

- Dianne Cook (Iowa State)

ISI World Statistics Congress, Dublin - August 2011 - Just Four Months Away

August 21 – 26, 2011, Dublin, Ireland

It is hard to believe that, having been involved in the planning of the 58th Congress since the beginning of 2005, that the WSC will take place in just four months' time, from 21st to 26th of August.

Preparations are at an advanced stage and we look forward to hosting a successful Congress from a scientific perspective and, at an overall level, an enjoyable experience. We have planned some exciting social events as the part of the WSC, which will give you a flavour of Irish hospitality. On Sunday, 21st of August, we will have the Opening Ceremony, with entertainment and reception afterwards. On the final night, the Gala Dinner will provide an opportunity to sample fine quality Irish food and what will be an exciting package of Irish entertainment. There will also be an Irish Night on one of the evening's during the Congress; tickets for this are available at an additional

Important dates:

- March 1st, 2011: Deadline for submission of contributed abstract/session.
- April 1st, 2011: Author notification for contributed abstract/session.
- May 1st, 2011: Early bird registration closes.
- May 31st, 2011: Closing date for reserving a hotel room with conference discount.
- July 6-8, 2011: Conference

We welcome your submission!

Organizing committee: Henrik Hult, Kavita Ramanan, Marty Reiman (co-chairs program committee) Tom Britton, Henrik Hult, Ingemar Kaj, Filip Lindskog (local committee)

- Sir David Cox (Oxford)
- Peter Guttorp (Washington)
- Valerie Isham (UCL)
- Rajan Patel (Google)
- Adrian Raftery (Washington)
- Jonathan Taylor (Stanford)
- Martin Wainwright (Berkeley)

Registration is now open; deadline: May 1st

<http://www.scss.tcd.ie/conferences/YSI2011>

charge. Other events are being planned by the ISI for Young Statisticians, ISI Elected Members and Women Statisticians.

At this stage, we anticipate that there will be in excess of 1,200 papers in over 250 different sessions. Preliminary programme details for the invited paper and special topic sessions have been published on the website <http://www.isi2011.ie>.

We formally invite you to participate in the Dublin Congress and urge you to register as soon as possible. The early bird registration fee is available until the end of May, after which the cost increases somewhat. We promise you a memorable experience.

*Paul J. Crowley, Executive Secretary,
ISI World Statistics Congress in Dublin*

Summer School in Financial Mathematics

August 22 – September 3, 2011, Ljubljana, Slovenia

Date: August 22 - September 3, 2011

Location: Faculty of Mathematics and Physics, Department of Mathematics, Jadranska ulica 21, SI-1000 Ljubljana, Slovenia

Organizing Committee: Tomaž Košir, Aleksandar Mijatović, Matjaž Omladič

Application deadline: June 15, 2011

Additional information:

finmat11@fmf.uni-lj.si

<http://www.fmf.uni-lj.si/finmath11>

Courses:

Nicholas Bingham (Imperial College London, UK): Introduction to Levy processes

David Hobson (University of Warwick, UK): Robust pricing of derivative securities

Alex Lipton (Merrill Lynch/Bank of America, London, UK): Stochastic volatility models and option pricing

Dilip Madan (University of Maryland, USA): Financial modelling with jumps

Martijn Pistorius (Imperial College London, UK): Stochastic volatility models with jumps

Christoph Schwab (ETH Zurich, Switzerland): Introduction to PDE option pricing beyond Levy

Albert Shiryaev (Steklov Institute of Mathematics, Russia): Introduction to Optimal Stopping

Mikhail Urusov (University of Ulm, Germany): Stochastic Differential Equations

Egon Zakrajšek (Federal Reserve, Washington, USA): Applied Financial Econometrics

Tomaz Kosir, Ljubljana

Workshop on Stochastic Methods in Financial Markets

August 26 – 27, 2011, Ljubljana, Slovenia

Date: August 26 – 27, 2011

Location: Faculty of Mathematics and Physics, Department of Mathematics, Jadranska ulica 21, SI-1000 Ljubljana, Slovenia

Organizer: Aleksandar Mijatović (University of Warwick, UK)

Scientific Committee: Mark Davis (Imperial College London, UK), Paul Glasserman (Columbia University, USA), Monique Jeanblanc (University of Évry, France), Aleksandar Mijatović (University of Warwick, UK), Xunyu Zhou (University of Oxford, UK)

Registration deadline: June 25, 2011

Abstract submission deadline: June 6, 2011

Additional information:

finmat11@fmf.uni-lj.si, <http://www.fmf.uni-lj.si/workshop11>

The aim of the workshop is to stimulate academic discussion among the participants. The schedule of the workshop and the friendly environment of the Department of Mathematics in Ljubljana will provide ample opportunity for informal interaction. Young

researchers are particularly encouraged to participate. There are limited funds to cover the travel costs of Ph.D. students and young researchers presenting at the workshop. The deadline for the submission of applications for financial support is June 6, 2011.

Topics covered in the workshop: Stochastic volatility models, Computational finance, Robust pricing of derivatives, Optimal stopping, Change point detection, Financial time series

Invited speakers

Nicholas Bingham (Imperial College London, UK), David Hobson (University of Warwick, UK), Alex Lipton (Merrill Lynch/Bank of America, London, UK), Dilip Madan (University of Maryland, USA), Martijn Pistorius (Imperial College London, UK), Christoph Schwab (ETH Zurich, Switzerland), Albert Shiryaev (Steklov Institute of Mathematics, Russia), Mikhail Urusov (University of Ulm, Germany)

Tomaz Kosir, Ljubljana

International Summer School on Stochastic 3D Analysis, Modelling and Simulation of Complex Structures

September 1 – 24, 2011, Hirschegg, Kleinwalsertal, Austria

<http://www.uni-ulm.de/mawi/summer-academy-2011/>

The aim of this Summer Academy is to give a concise introduction into methods, models and results of spatial stochastics. The focus will be put on applications of stochastic geometry and spatial statistics to quantitative, model-based description of microstructures which are investigated in science and engineering (e.g. the stochastic 3D modeling of transportation paths of

charges, gases or liquids in complex structured materials). In particular, the quantitative analysis, modeling and simulation of geometrically complex structures such as irregular point patterns, fibre systems, geometric graphs and particle systems are covered.

During the summer academy, leading international experts in the fields of spatial stochastic modeling and

its applications to science and engineering will share their knowledge with advanced students, graduates and PhD students as well as young researchers. There will be several cycles of lectures and tutorials given by the international experts.

Additionally, the Summer Academy will provide a forum for an active exchange of ideas and new joint research projects.

Participants are invited to actively contribute to the scientific program by presenting short talks and posters on their current research subjects.

The Summer Academy will take place in the Conference Center “Soellerhaus” in Hirschegg

(Kleinwalsertal) located in the nice surroundings of the Alps (www.soellerhaus.de). It is open to PhD students and post-docs interested in spatial stochastics and its applications as well as to advanced students and graduates completing mathematics oriented Diplom or Master’s degree programs.

Further details can be found at the webpage of the Summer Academy, see

<http://www.uni-ulm.de/mawi/summer-academy-2011/>

Volker Schmidt, Ulm

Oberwolfach Seminar: Statistics for Stochastic Differential Equations

October 16 - 22, 2011, Oberwolfach, Germany

In this week a course on “Statistics for Stochastic Differential Equation” is organized in the framework of the Oberwolfach Seminars at the Oberwolfach Research Institute, Germany. More details can be found below and on the Oberwolfach webpages <http://www.mfo.de>. Applications are encouraged from all international young researchers (PhD or

Postdoc) in the areas of stochastic processes or mathematical statistics. For scientific enquiries an email can be sent to the organizers. All administrative questions are handled by the institute.

Organizers: Susanne Ditlevsen (Copenhagen), Jean Jacod (Paris), Markus Reiß (Berlin), Michael Sørensen, (Copenhagen)

ISBA 2012 World Meeting

June 25 – 29, 2012, Kyoto, Japan

The ISBA 2012 World Meeting – the premier conference of the International Society for Bayesian Analysis (ISBA) – will be held in beautiful Kyoto, Japan, from June 25 to June 29, 2012. Preliminary program and announcements can be found at <http://www2.e.u-tokyo.ac.jp/~isba2012/>

The call for abstracts, including the call for special topic contributed sessions, will be coming out later in 2011.

Matteo Ruggiero, University of Pavia

New Executive Members in the Bernoulli Society

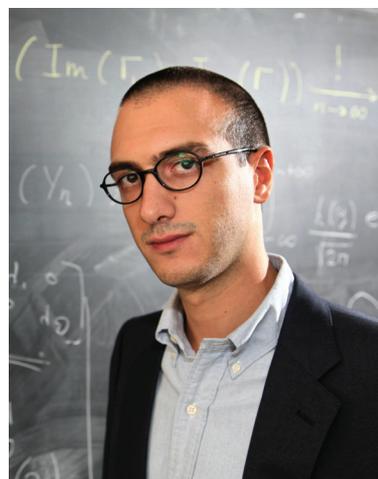
Editor Bernoulli News: Victor Panaretos

Victor Panaretos obtained his PhD in 2007 from the University of California at Berkeley, supervised by David Brillinger. Since then, he has been an Assistant Professor at the Institute of Mathematics of the EPFL, holding the Chair of Mathematical Statistics.

His research interests revolve around modeling and inference for geometrical and functional data and associated statistical inverse problems, with particular emphasis on problems arising in biophysics.

He has recently been awarded a Starting Grant Award from the European Research Council. He is also the recipient of an “Erich L. Lehmann Award for an Outstanding PhD Dissertation in Theoretical Statistics”, and an NSF Graduate Research Fellowship Award.

He is an elected member of the International Statistical Institute since 2008 and an Associate Editor for the Electronic Journal of Statistics.



Calendar of Events

This calendar lists all meetings which have been announced in this and previous issues of Bernoulli News together with forthcoming meetings organized under the auspices of the Bernoulli society or one of its Regional Committees (marked by ☉). A more comprehensive calendar of events is available on the ISI Website <http://isi.cbs.nl/calendar.htm>

June 2011

- June, 5th – 10th, 2011, *16th Workshop on Stochastic Geometry, Stereology and Image Analysis*, Sandbjerg Estate, Sønderborg, www.csgeb.au.dk/events/2011/sgsia11/
- ☉ June, 19th – 25th, 2011, *35th Conference on Stochastic Processes and their Applications*, Oaxaca, Mexico, <http://abalontico.matem.unam.mx/SPA/>
- June, 26th – 28th, 2011, *8th Workshop on Bayesian Nonparametrics*, Veracruz, Mexico, <http://www.bnppworkshop.org>
- June, 27th – July 1st, 2011, *ICOR: International Conference on Robust Statistics*, Universidad de Valladolid, Spain, <http://www.icors11.uva.es>

July 2011

- July, 3rd – 6th, 2011, *IMS Asia Pacific Rim Meetings*, Tokyo, Japan, <http://www.ims-aprm2011.org/>

August 2011

- August, 1st – 5th, *New Frontiers in Applied Probability: A Conference in Honour of Søren Asmussen*, Sønderborg, Denmark, <http://www.thiele.au.dk/asmussen>
- ☉ August, 17th – 19th, 2011, *ISI-satellite meeting: Dynamic Statistical Models*, Copenhagen, Denmark, www.statistics.ku.dk/isi-satellite/
- ☉ August, 19th – 21st 2011, *ISI Young Statisticians Meeting*, Dublin, Ireland, www.scss.tcd.ie/conferences/YSI2011/
- ☉ August, 21st – 26th, *58th ISI World Statistics Congress*, Dublin, Ireland, www.isi2011.ie

September 2011

- ☉ September, 5th – 9th, 2011, *European Young Statisticians Meeting*, Lisbon, Portugal, www.fct.unl.pt/17eysm
- September, 11th – 24th, 2011, *International Summer School on Stochastic 3D Analysis, Modelling and Simulation of Complex Structures*, Hirschegg, Austria, <http://www.uni-ulm.de/mawi/summer-academy-2011/>

October 2011

- October, 16th – 22nd, 2011, *Oberwolfach Seminar: Statistics for Stochastic Differential Equations*, Oberwolfach, Germany, <http://www.mfo.de>

March 2012

- ☉ March, 26th – 30th, *XII CLAPEM*, Valparaiso - Viña del Mar, Chile.

June 2012

- ☉ June, 19th – 22nd, 2012, *7th World Congress of the Bachelier Finance Society*, Sydney, Australia, <http://www.bfs2012.com/>
- June, 25th – 29th, 2012, *ISBA*, Kyoto, Japan, <http://www2.e.u-tokyo.ac.jp/~isba2012/>

July 2012

- ☉ July, 9th – 14th, 2012, *8th World Congress in Probability and Statistics*, Istanbul, Turkey, <http://www.worldcong2012.org/>

July 2013

- ☉ July, 20th – 25th, 2013, *European Meeting of Statisticians*, Budapest, Hungary, <http://www.math.elte.hu/probability/mar-kus/EMS2013.html>
- ☉ July, 29th – August 2nd, *36th Conference on Stochastic Processes and their Applications*, Boulder, Colorado, USA.

August 2013

- ☉ August, 25th – 30th, *The 59th World Statistics Congress of the International Statistical Institute*, Hong Kong, China, <http://www.isi2013.hk/>

About the Bernoulli Society

The Bernoulli Society for Mathematical Statistics and Probability was founded in 1975 as a Section of the International Statistical Institute ([ISI](#)). The objectives of the Bernoulli Society are the advancement of the sciences of probability (including stochastic processes) and mathematical statistics and of their applications to all those aspects of human endeavour which are directed toward the increase of natural knowledge and the welfare of mankind.

Among the activities of the Bernoulli Society are organizing, supporting or sponsoring international meetings and publications on its own or jointly with other professional societies that further the objectives and interests of the Society.

The Bernoulli Society has two official journals; *Bernoulli* and *Stochastic Processes and Their Applications* (Elsevier). In addition, the Society co-sponsors the following open access online publications: *Electronic Communications in Probability*, *Electronic Journal of Probability*, *Electronic Journal of Statistics*, *Probability Surveys* and *Statistics Surveys*.

Published twice a year, *Bernoulli News* (*BNews*) provides detailed information about activities and initiatives of the Society. In addition, Bernoulli Society contributes to the *ISI Newsletter* where a broad overview of ISI activities and additional information of interest to statisticians can be found.

Some of the international meetings organized or sponsored by the Bernoulli Society are the *World Congress in Probability and Statistics* every four years, the *Conference on Stochastic Processes and their Applications* (SPA) organized every year (except the years of the Bernoulli Society World Congress), *ISI World Statistics Congress* (formerly ISI Session), *European Meeting of Statisticians* (EMS) organized every year, and the *Latin American Congress in Probability and Mathematical Statistics* (CLAPEM) organized every two or three years.

The Elsevier journal *Stochastic Processes and Their Applications* sponsors the Itô Prize and the Lévy Lecture.

For additional information see the Bernoulli website <http://www.bernoulli-society.org/>

Journals of the Bernoulli Society

Official publications of the Bernoulli Society:

- Bernoulli
Editor: Richard Davis
<http://www.bernoulli-society.org/index.php/publications/bernoulli-journal/bernoulli-journal>
- Stochastic Processes and Their Applications
Editor: Thomas Mikosch
www.sciencedirect.com/science/journal/03044149

ISI Publications

- International Statistical Review
Editor: Ali S. Hadi
www.wiley.com/bw/journal.asp?ref=0306-7734

Journals Co-Sponsored with the Institute of Mathematical Statistics:

- Electronic Communications in Probability
Editor: Timo Seppäläinen
www.math.washington.edu/~ejpecp/ECP
- Electronic Journal of Probability
Editor: Bálint Tóth
www.math.washington.edu/~ejpecp/
- Electronic Journal of Statistics
Editor: David Ruppert
<http://www.imstat.org/ejs/>
- Probability Surveys
Editor: Geoffrey R. Grimmett
www.i-journals.org/ps/
- Statistics Surveys
Further cosponsors: American Statistical Association, Statistical Society of Canada
Coordinating Editor: Wendy L. Martinez
www.i-journals.org/ss/index.php

Who is Who in the Bernoulli Society

Executive Committee 2009-2011

<i>President</i>	Victor Pérez-Abreu (Guanajuato, Mexico)	pabreu@cimat.mx
<i>Past President</i>	Jean Jacod (Paris, France)	jean.jacod@upmc.fr
<i>President Elect</i>	Edward Waymire (Corvallis, USA)	waymire@math.orst.edu
<i>Executive Secretary</i>	Ada van Krimpen (ISI Office, Netherlands)	an.vankrimpen@cbs.nl
<i>Membership Secretary</i>	Josef Steinebach (Cologne, Germany)	jost@math.uni-koeln.de
<i>Scientific Secretary</i>	Nakahiro Yoshida (Tokyo, Japan)	nakahiro@ms.u-tokyo.ac.jp
<i>Treasurer</i>	José Manuel Corcuera (Barcelona, Spain)	jmcrcuera@ub.edu

Council Member 2007-2011

2007-2011	Adam Jakubowski (Torun, Poland)	adjakubo@mat.uni.torun.pl
2007-2011	Claudia Klüppelberg (Munich, Germany)	cklu@ma.tum.de
2007-2011	Alexander Novikov (Sydney, Australia)	alex.novikov@uts.edu.au
2007-2011	Philip Protter (Ithaca, USA)	pep4@cornell.edu
2007-2011	Peter Spreij (Amsterdam, Netherlands)	spreij@science.uva.nl
2007-2011	Maria Eulalia Vares (Rio de Janeiro, Brazil)	eulalia@cbpf.br

Council Member 2009-2013

2009-2013	Paolo Baldi (Rome, Italy)	baldi@mat.uniroma2.it
2009-2013	Probal Chaudhuri (Calcutta, India)	probal@isical.ac.in
2009-2013	Julia Breitschneider (Warwick, UK)	julia.breitschneider@warwick.ac.uk
2009-2013	Ricardo Fraiman (Buenos Aires, Argentina)	ricardo.fraiman@adinet.com.uy
2009-2013	Zenghu Li (Beijing, China)	lizh@bnu.edu.cn
2009-2013	Nancy Reid (Toronto, Canada)	reid@utstat.utoronto.ca

Committee Chairs

<i>Conferences on Stochastic Processes Probability and Statistics in the Physical Sciences</i>	James Norries (Cambridge, United Kingdom)	J.R.Norris@statslab.cam.ac.uk
<i>Publications Committee Stochastic Science Institutes</i>	N.N. Michael Sørensen (Copenhagen, Denmark) N.N.	michael@math.ku.dk

Regional Committee Chairs

<i>European</i>	Laszlo Markus (Győr, Hungary)	markus@cs.elte.hu
<i>East-Asian and Pacific</i>	Tim Brown (Canberra, Australia)	tim.brown@latrobe.edu.au
<i>Latin America</i>	Claudio Landim (Rio de Janeiro, Brazil)	landim@impa.br

Editors

<i>Bernoulli</i>	Richard Davis (New York, USA)	rdavis@stat.columbia.edu
<i>Stochastic Processes and Their Applications</i>	Thomas Mikosch (Copenhagen, Denmark)	mikosch@math.ku.dk
<i>International Statistical Review</i>	Ali Hadi (Cairo, Egypt)	ahadi@aucegypt.edu
<i>Bernoulli News</i>	Victor Panaretos (Lausanne, Switzerland)	victor.panaretos@epfl.ch
<i>Bernoulli E-Briefs</i>	Carenne Ludena (Venezuela) Ramses H. Mena (Mexico)	cludena@ivic.gob.ve ramses@sigma.iimas.unam.mx

Web Editor

<i>Bernoulli Society</i>	Björn Böttcher (Dresden, Germany)	bjoern.boettcher@tu-dresden.de
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Becoming a Member of the Bernoulli Society

The Bernoulli Society for Mathematical Statistics and Probability is a section of the International Statistical Institute. It is an autonomous society which seeks to

Membership Fees for 2011:

- Regular BS membership fee is EUR 70
This includes access to the online versions of the *Bernoulli Journal* and *Stochastic Processes and Their Applications*. New BS members receive half price (only one reduction possible).
- Entrance fee for BS *extraordinary membership* is EUR 19.
- Joint IMS-BS membership fee is USD 151.
- Joint BS-IMS-ISI fee is EUR 146.

Specials

As an incentive to become a member, the Bernoulli Society offers:

- 50% fee reduction for the first year of membership of new members
- Ph.D. Students join for free
- 50% fee reduction for the first two years for postdocs
- 50% fee reduction for retired persons and couples from developed countries
- Members from developing countries (please refer to the list at <http://www.icce2010.org/docs/developingCountries.pdf>) receive an *70% fee reduction*.

All the above members receive the full membership benefits of a regular member. More details about the benefits of joining the Bernoulli Society as reduced registration fees for meetings can be found on

<http://www.bernoulli-society.org/index.php/membership/membership-information>

The Bernoulli Society has partnered with some societies

Online Application Forms

Bernoulli Society membership:

<http://isi.cbs.nl/bern-form.asp>

Joint IMS-BS membership: <https://secure.imstat.org/secure/orders/IndMember.asp>

Contact Information

Applications for *reduced membership* fees or *extraordinary status* should be sent to:

J. Steinebach (Membership Secretary)
Mathematical Institute
University of Cologne
Weyertal 86-90
D-35931 Köln, Germany
Tel.: +49 221 4702891
Fax: +49 221 4706073
e-mail: jost@math.uni-koeln.de

develop and improve statistical and stochastic methods and their applications through the promotion of international activity and cooperation.

Subscription Rates for "Bernoulli" in 2011

- online for *BS members* is included in the membership fee.
- hardcopy for *BS members* is EUR 25 (reduced membership: EUR 13).
- online for *non-BS members* is EUR 33.
- hardcopy and online for *non-BS members* is EUR 58.
- online for *BS extraordinary members* is EUR 19.
- hardcopy and online for *BS extraordinary members* is EUR 34.

to offer joint membership with reduction in dues by joining both organizations at the same time. Regular members who would also like to be members of the *Institute of Mathematical Statistics* (IMS) can apply for a joint BS-IMS membership. You will also receive full IMS membership benefits. If you are an *elected member of ISI*, you have the option to apply for a BS-IMS-ISI joint membership.

Permanent residents of developing countries can apply for membership with '*extraordinary*' status. There are no annual dues, but an entrance fee is charged to cover administrative costs of membership, but otherwise extraordinary members will enjoy the usual benefits of individual membership of the Bernoulli Society such as voting rights, eligibility to offices of the Bernoulli Society, lower registration fees at conferences of the Bernoulli Society, and reductions to journal subscriptions. However, members with extraordinary status will not receive the official publications of the Bernoulli Society free of charge, but may subscribe to them at special rates.

Joint BS-IMS-ISI membership:

http://isi.cbs.nl/Bern_IMS_ISI-form.asp.

Applications for *regular* or *retired memberships* should be sent to:

Margaret de Ruyter-Molloy (Membership Officer)
c/o ISI
P.O. Box 24070
2490 AB The Hague, The Netherlands
Tel.: +31 70 337 5726
Fax: +31 70 386 0025
e-mail: mmlly@cbs.nl

ISI 2011

58th Congress - Aug 21st - 26th

DUBLIN



www.isi2011.ie

The ISI has held biennial Congresses since 1853 and recent sessions have attracted over 2,500 delegates. Participants include academics, government and private sector statisticians and related experts from various institutes.

The Central Statistics Office, Ireland, invites you to participate in the 58th World Statistics Congress of the International Statistical Institute (ISI) which will be held in Dublin from 21st to 26th August 2011.

The Scientific Programme of the 58th Congress will offer delegates innovative and stimulating topics with well-balanced presentations. A key feature of the 58th Congress will be the special Theme Day to be held on Wednesday 24th August, where papers will be devoted to statistical issues relating to Water and Water Quality.

The 58th Congress will be held in the Convention Centre Dublin (CCD), Ireland's new world-class, purpose-built international conference and event venue. The CCD is located in Dublin's city centre, on the banks of the River Liffey.

