



Bernoulli News

Newsletter of the Bernoulli Society for Mathematical Statistics and Probability

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† Bernoulli News is the official newsletter of the Bernoulli Society, publishing news, calendars of events, and opinion pieces of interest to Bernoulli Society members, as well as to the Mathematical Statistics and Probability community at large. The views and opinions expressed in editorials and opinion pieces do not necessarily reflect the official views of the Bernoulli Society, unless explicitly stated, and their publication in Bernoulli News in no way implies their endorsement by the Bernoulli Society. Consequently, the Bernoulli Society does not bear any responsibility for the views expressed in such pieces.

A VIEW FROM THE PRESIDENT



Dear Members of the Bernoulli Society,

The external circumstances remain essentially the same as half of a year ago, when the previous View of the President was written. The cruel war in Ukraine lasts and nobody can predict when it will be finished. The pandemic is still present in many regions of the world. Even if in some countries the restrictions are essentially relaxed (like in most European countries) it is easy to catch COVID while attending a scientific conference. I experienced this personally in July and from many signals I know that I was not the only one.

But there are definitely positive news to be communicated. While the call for organization of 34th European Meeting of Statisticians in 2023 was unsuccessful, later negotiations with Polish statisticians resulted in decision to have this conference in Warsaw, from July 3rd to July 7th, 2023. We should be really grateful to the organizers! It is not easy to arrange things within less than a year. Let me point out that there was a threat of a seven (!) years long gap in the impressive tradition of EMS, as - according to the rules - the next conference is to be organized in 2026.

Another positive news is about the secretariat of the Bernoulli Society in Toruń (see the photo!). Dr. Kamila Siuda, the archivist employed in the secretariat, is currently cataloguing and indexing our paper archive. We are also trying to revitalize the chronicle of the Bernoulli Society – archival issues of *Bernoulli News*. The idea is to have the complete collection accessible in pdf format.

It is important to stress that from September 1st, 2022, our web page works under the new address

<https://www.bernoullisociety.org>

Why have we moved to another domain name? The answer is simple: the previous one was not our property. As the negotiations with the owner were unsuccessful, we decided to stabilize the situation by a step that was drastic but necessary. [...]

... Continued on p. 1

Deadline for the next issue: 31 March, 2023
Send contributions to: manuele.leonelli@ie.edu

A View from the President (continued from front cover)

The very sad news is that on June 26th, 2022, Ole Barndorff-Nielsen passed away at the age of 87. He was President of the Bernoulli Society in years 1993-95 and the first Editor in Chief of *Bernoulli*. But these two dry facts are not enough to see in a proper light the importance of Ole's contributions. Please read an interesting article written by Wilfrid Kendall (p. 7)

There are more historical considerations in the present issue of *Bernoulli News*. Klaus Krickeberg, our President in years 1977-79, brings a behind-the-scenes look at the organization of the First Bernoulli Society World Congress in Tashkent, 1986 (p. 9). This is a fascinating trip to a world that does not exist any more. In the meantime our world congresses changed the formula and now we are approaching 11th Bernoulli-IMS

World Congress in Probability and Statistics, to be held in Bochum in 2024. On p. 2 you can find a call for organization of the 12th World Congress.

Yet another longer article is devoted to recent progress on genealogical processes and is authored by Jere Koskela, one of the Bernoulli New Researcher Awardees in 2022. Summarizing, the content of the present issue is interesting and goes much beyond the standard list of news, reports and announcements. In my personal opinion the present issue of Bernoulli News is an impressive achievement of the Editor. Congratulations, Manuele!

Adam Jakubowski
President of the Bernoulli Society
Toruń

PS. Send your archival materials in electronic way to:
secretariat@bernoullisociety.org

News from the Bernoulli Society Committee on Statistical Network Science

The Bernoulli Society has agreed to form a committee on Statistical Network Science. A major challenge in many modern economic, epidemiological, ecological and biological questions is to understand the randomness in the network structure of the entities they study. Although analysis of data on networks goes back to at least the 1930s, the importance of statistical network modelling for many areas of substantial science has become more pronounced since the turn of the century. This Committee on Statistical Network Science (CSNS) will focus on promoting and fostering research in statistical and probabilistic network analysis, in the wider sense. This remit includes graphical models, random graph models as well complex functional network models.

The current committee members are

- Professor Vlado Batagelj, Professor Emeritus of Mathematics, University of Ljubljana;
- Professor Anuska Ferligoj, Professor Emeritus, Faculty of Social Sciences, University of Ljubljana;
- Professor Claire Gormley, Full Professor, School of Mathematics and Statistics, University College Dublin;
- Professor Sarika Jalan, Professor, Complex Systems Lab, Indian Institute of Technology Indore;
- Professor Goeran Kauermann, Chair of Applied Statistics in Social Sciences, Economics and Business, Department of Statistics, Ludwig-Maximilians-University Munich;
- Professor Eric D. Kolaczyk, Professor of Statistics, Department of Mathematics and Statistics, McGill University;
- Professor Gesine Reinert (Chair of the committee), Research Professor, Department of Statistics, University of Oxford;
- Professor Clelia Di Serio, Professor of Statistics, Università della Svizzera Italiana, Lugano & San Raffaele Vita-Salute University, Milano;
- Professor Veronica Vinciotti, Associate Professor, Department of Mathematics, University of Trento;
- Professor Ernst C. Wit, Professor of Statistics and Data Science, Università della Svizzera Italiana, Lugano;

Gesine Reinert
Chair of the Committee
Oxford

34th EMS will be held in Warsaw in 2023!

I am pleased to inform that the community of Polish statisticians will organize the 34th European Meeting of Statisticians. The meeting is organised by the University of Warsaw, the Warsaw University Technology and the Polish Mathematical Society. The conference

will be held at the campus of the University of Warsaw from July 3rd till July 7th, 2023.

For details please consult EMS2023.org.

*The President
Toruń*

Call for Hosting the 12th Bernoulli-IMS World Congress in Probability and Statistics in 2028

Bernoulli Society and IMS call for preliminary bids/expressions of interest from academics interested in running a Bernoulli-IMS World Congress at their institution in 2028. The deadline for submission is March 31st, 2023. The location of the 2028 meeting will be announced during the 11th Bernoulli-IMS World Congress in Probability and Statistics in Bochum in 2024.

The bids should be sent to the two society presidents

- Adam Jakubowski (adjakubo@mat.umk.pl)
- Peter Bühlmann (buhlmann@stat.math.ethz.ch)

and copied to the two society presidents-elect

- Victor Panaretos (victor.panaretos@epfl.ch)
- Michael Kosorok (kosorok@unc.edu)

The following is an excerpt from the “*World Congress Handbook*” and is intended to aid key potential organizers in formulating a preliminary proposal.

“A preliminary bid should specify names and affiliations of academics who have provisionally agreed to serve on the Local Organizing Committee. It is important that this team contains sufficiently many energetic people to cover fully the oversight of this big event, but in particular the team should also include a couple of senior academics in probability and statistics who have strong research records and international profiles, and who are prepared to commit to ensure the proposed congress will successfully add great distinction to their institution. Note that in most cases the Local Organizing Committee will obtain the services of conference organizing professionals; however our experience is that it is important that the Local Organizing Committee is strong enough and proactive enough to work constructively and creatively with the professionals in administration of the congress.

IMS and Bernoulli Society are very willing to help in terms of offering relevant advice and experience; however primary responsibility for the event lies with the Local Organizing Committee - and also of course the

primary credit. The actual formation of the scientific programme is the responsibility of the Scientific Programme Chair, who will be appointed jointly by IMS and Bernoulli Society. Typically there is very close liaison between the Scientific Programme Chair and the Chair of the Local Organizing Committee: however programme formation activity typically occurs at a much later date (for the current Congress, from about 2.5 years beforehand).

It is helpful if preliminary bids contain information about the following:

1. **The proposed site for the congress.** It is especially important to be clear about this if the proposed Local Organizing Committee involves names from across the immediate local region!
2. **A range of proposed dates** (typically summer in northern hemisphere). The selection of this range should involve explicit consideration of various competing meetings and conferences around the world – to the extent that details are known at this advanced stage of planning.
3. Consideration of likely **attendance numbers**: for this, and for much other relevant data, the World Congress history page of the Bernoulli Society will be very helpful (tinyurl.com/bd4cj9u7)
4. **Meeting facilities**: there needs to be access to a large auditorium potentially able to accommodate 700 attendees, in addition to an adequate supply of breakout rooms for smaller sessions, and good supply of space for fruitful discussions over tea / coffee.
5. **Accommodation**: there needs to be a good supply of reasonably priced local accommodation. It is particularly helpful if some very cheap and basic accommodation is available for (for example) younger colleagues.
6. It is useful to supply **cost estimates** on venue rent, catering twice daily coffee breaks, office staff support, for a range of attendance from 500 to 700 participants.

7. Based on the previous item, it is helpful to estimate a range of potential **registration fees**. As a very rough guide, registration fees should be loosely in line for example with those charged for the two series of European Meetings of Statisticians and Conferences on Stochastic Processes and Their Applications (<https://www.bernoullisociety.org/meetings>).

Overall cost is a particularly sensitive issue to the IMS and Bernoulli Society members, who include both young academics with very limited access to research funds, and distinguished academics from majority world countries who also find it a great challenge to secure sufficient funding to attend meetings. Neither IMS nor Bernoulli Society are in a position to provide substantial financial support, though both organizations organize special invited lectures for the Congress,

thus ensuring presence of very high-visibility speakers for whom the relevant society will pay registration, accommodation and transport. It is also possible that Bernoulli Society will separately sponsor a pre-meeting (organized entirely separately to the Congress) for career-young academics, and make some bursaries available for attendance at the pre-meeting and thus at the Congress.

There are of course many other issues to consider, e.g.: (i) Accessibility of the academic venue, like walking distance from/to hotels, public transportation, etc; (ii) Possible sponsors, like local universities, societies, etc; (iii) Visa restrictions for participants from some countries; (iv) Space for book exhibitions.”

*The President
Toruń*

A Recommendation from Presidents of BS and IMS

The annual meeting of officials of the Bernoulli Society and the Institute of Mathematical Statistics was organized on September 6th, 2022, on zoom platform and with kind support of Elyse Gustafson. The IMS was represented by **Peter Bühlmann** (President) and **Krzysztof Burdzy** (Past President). The author of this note was the only representative of the BS, as **Victor Panaretos** (President-Elect) had to chair an ad-hoc celebration organized by his mother institution (Institute of Mathematics, EPFL) to honor **Maryna Viazovska**, the Fields Medalist 2022.

During the discussion we exchanged impressions on recent conferences organized in person, not in hybrid or online modes. Among several topics one was particularly dominating and the Presidents decided to give a special wording to it.

The World Congress itself should be held in person. Keynote speakers are expected to give their lectures in person. If a keynote speaker cannot attend in person, the lecture will be rescheduled.

*The President
Toruń*

New Chair and Members of the EAPRC

The East Asian and Pacific Regional Committee (EAPRC) of the Bernoulli Society helps in organizing international conferences, sponsors and supports conference sessions and broadly plans activities related to probability and statistics in the East Asia-Pacific Region. We are happy to welcome **Zengjing Chen** (Shandong University, China) as the new chair of the EAPRC of the Bernoulli Society. We also welcome **Giang Nguyen** (University of Adelaide, Australia), **Huazhen Lin** (Southwestern University of Finance and Economics, China), **Parthanil Roy** (Indian

Statistical Institute, India), **Ryoki Fukushima** (University of Tsukuba, Japan), **Estate Khmaladze** (Victoria University of Wellington, New Zealand), **Panki Kim** (Seoul National University, Korea), **Yingcun Xia** (National University of Singapore) and **Xingqiu Zhao** (Hong Kong Polytechnic University) as new members for the term 2022-2023.

*Zengjing Chen
Chair of the EAPRC
Jinan*

23rd European Young Statisticians Meeting

The European Young Statisticians Meetings (EYSM) is a series of conferences that is organised by and for young European statisticians. Participation is by invitation only. Details can be found at: [https://sites.](https://sites.google.com/view/eysm2023)

[google.com/view/eysm2023](https://sites.google.com/view/eysm2023)

*Gerda Claeskens
Chair of the ERC
Leuven*

Awards and Prizes

Claudia Klüppelberg is Conferred an Honorary Doctorate



The University of Waterloo conferred our past president, **Dr. Claudia Klüppelberg**, the degree of Doctor of Mathematics honoris causa on the 21st of October.

After studying mathematics and receiving her doctorate in 1987 at the University of Mannheim, Claudia Klüppelberg held teaching and research positions in Mannheim, at ETH Zürich and in Mainz until she was appointed Full Professor of Mathematical Statistics at the Technical University of Munich in 1997. In 2008 she was appointed Carl von Linde Senior Fellow at the Institute of Advanced Studies in Munich and led from 2008 to 2011 the focus group on risk analysis and stochastic

modelling. The research interests of Professor Klüppelberg cover a large spectrum of topics in statistics and applied probability. Much of her work has been concerned with risk analysis and its applications in economics, finance, and the environment. The methods that she designed, developed, and implemented also through cooperation with industry and engineers have contributed to the improvement of risk management practices. Among other functions, she is a member of the Advisory Board of the ETH Risk Center. In addition to over 150 scientific articles, Professor Klüppelberg has coauthored the seminal book *Modelling Extremal Events for Insurance and Finance*. She is not only a prolific author but also a member of the Editor Board of the Springer Finance book series and the “Lévy Matters” Subseries of Springer’s Lecture Notes in Mathematics. She is a Medallion Lecturer and an elected Fellow of the Institute of Mathematical Statistics (IMS). She also held various offices in the Bernoulli Society and was its president during 2019-2021.

*The Editor
Madrid*

Song Xi Chen Elected to Chinese Academy of Science



Song Xi Chen, Scientific Secretary of the Bernoulli Society, has been elected a member of the Chinese Academy of Science (CAS). He was elected, along with

64 other scholars, to the academy during the 2021 Assembly of Academicians of CAS held in November 2021. He is elected to the Mathematics and Physics Division. Song is currently the head of the Department of Business Statistics and Econometrics of PKU Guanghua School of Management, and co-director of the Center for Statistical Science, Peking University. He became one of the seven elected members of the statistical chapter of the American Association for the Advancement of Science (AAAS Fellow) in November 2018 and was elected as an IMS fellow in 2009, as well as being a council member of IMS from 2017–2019.

*The Editor
Madrid*

The Ethel Newbold Prize - Call for Nominations

The Ethel Newbold Prize is to be awarded biannually to an outstanding statistical scientist in early or mid-career for a body of work that represents excellence in research in mathematical statistics, and/or excellence in research that links developments in a substantive field to new advances in statistics. In any year in which the award is due, the prize will not be awarded unless the set of all nominations includes candidates

from both genders. The award consists of the prize amount of 2500€ together with an award certificate. The awardee will be invited to present a talk at the following Bernoulli World Congress, Bernoulli-sponsored major conference, or ISI World Statistics Congress.

The nomination should include a letter outlining the case in support of the nominee, along with a curricu-

lum vitae. Nominations as well as any inquiries about the award should be sent to Gesine Reinert at reinert@stats.ox.ac.uk. The deadline for accepting nominations is November 30th, 2022. The prize winner will be selected in Spring 2023. More informa-

tion is available at <https://bernoullisociety.org/index.php/prizes?id=207>.

Bojana Milošević
Editor of Bernoulli eBriefs
Belgrade

The Bernoulli Prize for an Outstanding Survey Article in Probability

Call for nominations for the 2024 Bernoulli Prize for an Outstanding Survey Article in Probability is open now. The prize will be presented at the 2024 Bernoulli-IMS World Congress in Bochum. Nominations should include full name and email address of both the nominee(s) and nominator, as well as a pdf file of the published survey article. The nomination material should be emailed to Professor Markus Heydenreich (m.heydenreich@lmu.de). The nomination deadline is February 28th, 2023.

The 2024 Prize Committee:

- Markus Heydenreich (Chair), Ludwig-Maximilians-Universität München.
- Jason Schweinsberg, University of California San Diego.
- Maria Eulalia Vares, Universidade Federal do Rio de Janeiro.

The President
Toruń

Yinon Spinka is Awarded the 2022 Doebelin Prize



Yinon Spinka (University of British Columbia) has been awarded the 2022 Wolfgang Doebelin Prize. The Prize

is awarded biannually to a single individual who is in the beginning of his or her mathematical career, for outstanding research in the field of probability theory. The committee was chaired by Christina Goldschmidt and consisted of Ivan Corwin, Nina Gantert, Panki Kim, Hubert Lacoïn, Fabio Toninelli and Bálint Tóth. Congratulations! The list of past recipients can be found at <https://www.bernoullisociety.org/prizes?id=169>.

The President
Toruń

Rousseeuw Prize Recipients 2022



The King Baudouin Foundation has announced the winners of the first Rousseeuw Prize for Statistics. This biennial prize, worth 1 million USD, aims to reward excellence in statistical research which has a significant impact. The selected topic is Causal Inference in Medicine and Public Health. Half the prize amount

will go to James Robins of Harvard University and half will be shared by Miguel Hernán (Harvard University), Thomas Richardson (University of Washington), Andrea Rotnitzky (Universidad Torcuato di Tella, Argentina) and Eric Tchetgen Tchetgen (University of Pennsylvania).

The international jury appointed by the King Baudouin Foundation selected the winners from the nominations received after a widely advertised call earlier this year. The jury consisted of its chair, David Hand (Imperial College), Lutgarde Buydens (Radboud University Nijmegen), Probal Chaudhuri (Indian Statistical Institute), Dianne Cook (Monash University), Roger Koenker (University of Illinois), Yanyuan Ma (Penn State), David Scott (Rice University), David Steinberg (Tel Aviv University), Jane-Ling Wang (UC Davis), and

James Zidek (University of British Columbia). The prize was awarded in a ceremony that took place at KU Leuven, Belgium on Wednesday October 12, 2022.

Further information can be found at

www.rousseeuwprize.org

*Stefan Van Aelst, Mia Hubert
Organizers
Leuven*

New Executive Members in the Bernoulli Society

Publications Secretary: Mark Podolskij

Short Bio: Mark Podolskij is a professor of statistics, probability and mathematical finance at the University of Luxembourg. He gained his PhD in 2006 from the Ruhr University of Bochum. His research focuses on finite and high dimensional statistical inference for stochastic processes, analysis of high frequency data and limit theorems. Mark is a member of Bernoulli Society, IMS and elected member of ISI. He is a former Editor-in-Chief of Bernoulli and SpringerBriefs in Probability and Mathematical Statistics, and a member of the editorial board of Lecture Notes in Mathematics (Springer). Mark is currently holding an ERC Consolidator Grant “STAMFORD: Statistical Methods for High Dimensional Diffusions”.



Vision of the Job: During the past decade the publication activities of the Bernoulli Society have steadily grown and with it the role of the publication committee. Apart from Bernoulli Journal, Stochastic Processes and Their Applications, and SpringerBriefs in Probability and Mathematical Statistics, the Bernoulli Society is (co-)sponsoring a variety of international journals in statistics and probability, and thus the role of our society in the advancement of stochastics can hardly be overestimated. Over the past years the Bernoulli Society has been facing challenges related to the rapidly changing landscape in publishing business, in particular the shift to electronic and open access journals, increasing subscription rates and the negotiations with commercial publishers. Together with our partners at IMS and ISI we will work on solutions, which will benefit our members and academic institutions. New scientific developments in statistics and probability motivate me to have a fresh look at our publication activities. I am looking forward to stimulating discussions with editors of the Bernoulli sponsored journals, members of the publication committee and members of the executive committee.

Chair of the Committee on Statistical Network Science: Gesine Reinert



Short Bio: Gesine Reinert is Research Professor in the Department of Statistics at the University of Oxford, and a Fellow of the Alan Turing Institute. Her research includes probabilistic and statistical methods for network analysis, as well as applied probability – in particular Stein’s method – and connections with machine learning methods. Gesine is the current Chair of the Applied Probability Section of the Royal Statistical Society. She is a Fellow of the Institute of Mathematical Statistics.

“Ask not what Bernoulli Society can do for you, but what you can do for Bernoulli Society”

An appreciation of Ole Barndorff-Nielsen’s service to the Bernoulli Society

Wilfrid S Kendall

Ole Barndorff-Nielsen (1935-2022) was a marvelously creative statistician who, amongst a multiplicity of other achievements, rendered signal service to the Bernoulli Society. Memorials of his scientific work may be found elsewhere [1,2]: here we focus on appreciating his activity within our society.

Many will have fond memories of this very tall Danish scientist, with scientific stature matching and even exceeding his height, who kindly encouraged a wide range of younger statisticians and probabilists. Ole Barndorff-Nielsen (typically known as “Ole”) served as chair of the European Regional Committee (ERC), then as Society President (1993-1995), and then founding Chief Editor of the Bernoulli Journal (1995-2000). As ERC chair he produced the first “scenario” for running the (approximately annual) European Meeting of Statisticians (EMS); a careful description and chronology of the things one simply must know when running one of the long series of EMS conferences. The scenario idea has been copied by those running many other Bernoulli Society meetings: it is a vital and friendly aid to making complex scientific events happen well, and to passing knowledge on both to the next meeting in the series and to other meetings beyond that. As Bernoulli Society President, Ole led several vital initiatives: starting up Bernoulli News as the primary means of communication within the Society, re-working the Society committee structure and establishing the Membership Secretary post in the Executive Committee to facilitate growth, and forcefully arguing that as a matter of identity the Society needed its own journal BERNOULLI (now referred to as the Bernoulli Journal). This activity is reflected in Ole’s Presidential report opening the first issue of Bernoulli News (<https://bernoullisociety.org/files/BernoulliNEWSCKlu.pdf>); though the concise report cannot reflect the charm and firmness and open friendliness with which Ole conducted Society business. After his turn as President, Ole took on the task of establishing the Bernoulli Journal as its founding Editor-in-Chief; over the years this journal has fulfilled all the benefits that Ole predicted, becoming a central contributor both to the Society’s financial resources but also (and more importantly) becoming a high profile journal in probability and statistics underlining the Society’s place as a global scientific society.

This list of Ole’s achievements for the Bernoulli Society, as well as his scientific eminence, needs to be augmented by noting Ole’s ability to encourage, charm,

and enthuse a wide variety of younger statisticians and probabilists to get involved with Bernoulli Society and to make the most of its possibilities. Many senior Bernoulli Society members of today can speak warmly of what it meant to be noticed by Ole, and to find themselves offered opportunities to serve, and thereby to make many international friends and scientific contacts. Ole had a definite moral compass: where one had the opportunity to serve well, one should do so! While President, Ole became known for his slogan which forms the heading to this article of appreciation: repeatedly urging people to get involved and make a difference, repeated at conferences and workshops while wearing a huge Bernoulli Society t-shirt. To measure the success of this campaign, I offer the following observation: of the people recruited by Ole to work on Bernoulli Society tasks during his Presidency, three went on to become Bernoulli Society Presidents themselves in future years, while many others achieved major distinctions in all sorts of ways.

Ole combined great practicality with his enthusiasm. I recall breakfast sessions at the Café Les Grandes Rapides du Prince Albert in Toulouse in 1989, which began with daydreams of how good it would be to arrange opportunities for established world-class researchers to present expositions to younger probabilists and statisticians and ended with our drafting an application for EU funds to support the first iteration of the *Séminaire statistique européen* (SemStat). The SemStat series of meetings gave postdocs and advanced PhD students from all over Europe the opportunity to meet together not only to hear high-quality exposition of current topics in statistical research (which later appeared in monographs published first by Chapman and Hall, then World Scientific, then CUP), but also (crucially) to network together: we envisaged this as an essential contribution towards strengthening the next generation of our research community. In 1995 the SemStat series was adopted by the Bernoulli Society European Regional Committee [3], so this too is part of Ole’s legacy to the Bernoulli Society.

Thus the Bernoulli Society has good reason to be very grateful for Ole’s service, as well as his scientific leadership. But the best memories about Ole centre around his energy, his warmth, his charisma, and his charm. Richard Gill writes, “Certainly what has to be emphasized are his wonderful human qualities, which turned all kinds of official business into pleasant and memorable parts of life. At the same time,

his erudition and mathematical skills were superhuman.” Claudia Kluppelberg remarks “Ole’s network was of course fantastic and he had these skills to attract new promising young people.” Ed Waymire comments “Among the many striking characteristics of Ole from my perspective was his genuine appreciation of the

value of stochastic theory to a very real world [and] he practiced what he preached!” We should indeed be most grateful for Ole’s contribution – and we can best remember him by continuing to reflect on his challenge: “Ask not what Bernoulli Society can do for you, but what you can do for Bernoulli Society”.

References

- [1] Rodrigo Labouriau, Michael Sørensen, Steen Thorbjørnsen (2022), “Mindeord: Ole Eiler Barndorff-Nielsen 1935-2022,” IMS Bulletin to appear: <https://math.au.dk/aktuelt/nyheder/nyhed/artikel/mindeord-ole-eiler-barndorff-nielsen-1935-2022>.
- [2] Steffen Lauritzen, Michael Sørensen (2022), “Ole Eiler Barndorff-Nielsen, 1935-2022”, JRSS(A) to appear: <https://rss.onlinelibrary.wiley.com/doi/10.1111/rssa.12918>.
- [3] ERC SemStat <https://bernoullisociety.org/organization/erc/semstat>.



The First Bernoulli Society World Congress

Klaus Krickeberg
Communicated by the Editor

This short note from Klaus Krickeberg, president of the Bernoulli Society in 1977-1979, tells us the story of how the First Bernoulli Society World Congress was organized, with anecdotes and insights that only he can share because of his role as Chair of the International Programme Committee.

It all started with a “big bang”. On the 25th April 1966 at local time 05:22:49 an earthquake of magnitude 5.1 occurred in central Tashkent, capital of the Uzbek Soviet Republic. I had arrived there the evening before, coming from Moscow. In the morning, S. Kh. Sirajdinov met me in my hotel. His work had been influenced by A. N. Kolmogorov, he was the Head of the Probability Theory Group of the Tashkent State University, and he had other important functions. He told me that a big chunk of the stucco decoration of the ceiling of his bedroom had fallen on his pillow where his head used to rest but by chance, he had moved his head a little to the side before the earthquake. We discussed our respective work, and then he made a proposal: There should be a “World Congress for Mathematical Statistics and Probability Theory”, and it should take place in Tashkent.

The way to this Congress turned out to be long and full of unexpected events. S. Kh. Sirajdinov informed the Academy of Sciences of the Soviet Union about his proposal. By good luck Yu. V. Prohorov, Member of the Academy in Moscow, found out that the plans of the Academy for its international meetings in the year 1986 were not yet complete. Hence it was decided that the Congress was to be held in Tashkent from the 8th to the 14th September 1986. This decision implied in particular the funding of the Congress as it was usual for such meetings of the Academy.

Defining the final framework of the Congress involved first a change of its name. In fact, in the year 1975 the “Bernoulli Society for Mathematical Statistics and Probability (BS)” was founded, of which I was the second President (1977-1979). The proposal became:

The First World Congress of the BS.

Then, four committees were constituted:

- The International Programme Committee, of which I became Chairman;
- The Tashkent Organising Committee, Chairman: S. Kh. Sirajdinov;
- The Soviet Organising Committee, Chairman: Yu. V. Prohorov, with A. N. Kolmogorov as Honorary Chairman;

- The International Organising Committee, Chairman P. Révész.

The members of the Programme Committee came from France, Japan, the Netherlands, the Soviet Union, and the UK. They made sure that the programme conveyed to the around 1000 participants of the Congress a good picture of the state of our art in the whole world. In particular I found the work of Sir David Cox in the Committee invaluable.

In principle the tasks of the Tashkent Organising Committee ought to have been those that are executed by the Local Organising Committee of any large international meeting. However, in our case many problems, in particular about hotel rooms, appeared that could only be solved with the help of the Soviet Organising Committee. In particular, hotel accommodation in Tashkent that had been promised was suddenly no longer available. The Soviet Organising Committee found other accommodation by some very complicated arrangements.

This Committee had indeed a very wide range of assignments. It worked both in Moscow and in Tashkent. It took care of the participants of the Congress who passed through Moscow on their way to Tashkent. It coordinated and edited all the documents of the Congress, including those for the scientific programme. It was there whenever a minor catastrophe loomed.

Here is a little anecdote. At one moment I worked in Hanoi on problems of Public Health, and as Chairman of the Programme Committee I had to send to Prohorov a list of speakers. Mail from Vietnam was slow and unreliable at that time. So I went to the Soviet Embassy in Hanoi and asked it to send my list to the “Academician Prohorov” with its Diplomatic Mail (Diplomatic pouch). They did it!

Between 1966 and 1986 I traveled several times to Tashkent in order to assist the Tashkent Organizing Committee with building the Social Programme. Its main components were to be excursions to Bukhara and Samarkand. I flew there twice, accompanied by members of the Committee, in order to prepare these excursions.

I must admit that as far as I remember I had no working contact whatsoever with the International Organising Committee.

Finally, after so much preparatory work, the participants in the Congress started to arrive. I had already come to Moscow a few days earlier for my last visit to Kolmogorov in his office in the Steklov Mathematical Institute of the Academy. Over the years we had indeed met regularly. Now he was blind due to his Parkinson disease. He told me about his new constructive-combinatorial approach to Probability Theory, which was to supplement his axiomatic approach of the year 1933. In his capacity as Honorary Chairman of the Soviet Organising Committee he sent a Greeting Message, which was read at the Opening Ceremony of the Congress in Tashkent on the 8th September. He died a year later, in 1987.

Most participants came by airplane. The Soviet Railways attached an extra carriage to its train from Moscow to Tashkent, meant for collaborators of the Academy of Sciences. It passed through Kazakhstan and there came close to launching sites of Soviet rockets. Hence the Soviet Security Services did not allow foreigners to take this train, no doubt for fear of spies. However, the Academy obtained special permission for me to travel with its members, no doubt by assuring that they would prevent me from spying, which was very easy, indeed!

This voyage became of course most interesting for me. I could talk leisurely to all the important collaborators of the Academy who travelled in our carriage. As it was to be expected in such a circle of highly educated people, our conversation soon turned to non-technical subjects. In particular I was asked about my knowledge of Russian literature. I told my conversation partners that I had read “Oblomov” by Goncharov in Russian. They appreciated my statement although it was of course paradoxical: all of us were hard working, whereas Oblomov was the symbol of the do-nothing who perishes.

The “carriage of the Academy” also had another function, namely the transport of funds. The State Bank of the Soviet Union had apparently no system of transferring funds from one local branch to another one. Hence a large part of the money needed for the local expenses during the Congress travelled in the form of Ruble bills in a big box under the bed of Prohorov.

Epilogue: Our Congresses have now become “Bernoulli-IMS World Congresses in Probability and Statistics”, to take place every four years. As a Fellow of the IMS (Institute of Mathematical Statistics) since 1968 I am happy about it.

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Genealogical Processes of Non-Neutral Populations

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Communicated by the Editor

This letter summarizes ideas leading to a *Bernoulli New Researcher Award 2022*. Genealogical processes arising as scaling limits of individual-based models have been central to mathematical modeling of neutral genetics, and given rise to the field of coalescent theory. This note reviews recent results on analogous scaling limits when evolution is not neutral, as well as some applications in the analysis of sequential Monte Carlo methods.

§1. Cannings models and ancestral processes

Cannings models are a class of simple models of evolution in which a population of fixed size N reproduces in discrete generations. The random vector $\nu_k := (\nu_{k,1}, \dots, \nu_{k,N})$ denotes the numbers of offspring of respective individuals $1, \dots, N$ in generation k , subject to the almost sure constraint

$$\nu_{k,1} + \nu_{k,2} + \dots + \nu_{k,N-1} + \nu_{k,N} = N. \quad (1)$$

The specification of offspring assignment to parents is completed by the following standing assumption:

(SA) Conditionally on ν_k , assignment of generation $k + 1$ offspring to their parents is uniformly distributed over patterns compatible with ν_k .

A Cannings model is *neutral* whenever family sizes in distinct generations are independent, ruling out hereditary fitness. Traditionally, the definition of neutrality has also included exchangeability of each ν_k .

To model genetic diversity, each individual in an initial generation is labeled by an allele. Children inherit alleles from their parents, resulting in fluctuating allele frequencies due to random reproduction—a phenomenon known as *genetic drift*. In the simplest case of two alleles, typically denoted a and A , the allele frequency process tracks the number of, say, A individuals. Another example of an allele space is $\{A, C, G, T\}^\ell$, corresponding to ℓ sites of DNA.

A central quantity for statistics is the allele distribution in a random sample of size n either at stationarity (assuming that a unique stationary allele frequency distribution exists), or from generation $k > 0$ given known allele frequencies at generation 0. The *ancestral process* of the sample plays a key role in describing both. To define the ancestral process, it will be convenient to refer to the sampling time as generation 0 and measure time in reverse for the remainder of this section, as well as Sections §2 and §3.

Consider a uniform (without replacement) sample of

size $n \leq N$ from a Cannings model. The *ancestral process* $G^{n,N}$ takes values in partitions of $[n] := \{1, \dots, n\}$, starting from $G_0^{n,N} = \{\{1\}, \{2\}, \dots, \{n\}\}$. Further back, $i \neq j \in [n]$ belong to the same block of $G_k^{n,N}$ if generation 0 particles i and j have a common ancestor k generations ago. Conditionally on allele frequencies k generations ago, alleles in a present day sample can be obtained by simulating the ancestral process until generation k , sampling alleles for ancestors independently from the known frequency, and propagating alleles forward to the present.

This recipe for simulating alleles is useful if $G^{n,N}$ is simpler than the Cannings model. In general that is not the case. However, when $N \rightarrow \infty$, suitably rescaled ancestral processes converge under natural conditions to so-called *coalescent processes*, which are more tractable and easy to simulate.

§2. Convergence of neutral ancestral processes

The first result on the convergence of ancestral processes is due to [9]. The corresponding limit is known as the Kingman coalescent—a continuous-time, partition-valued Markov process in which each pair of blocks merges at unit rate. To state criteria for convergence, we require some notation.

Let $(\Pi_t^n)_{t \geq 0}$ be the Kingman coalescent started from n blocks, or the n -coalescent for short. Let

$$c_{N,j}(k) := \frac{1}{(N)_j} \sum_{i=1}^N (\nu_{k,i})_j, \quad (2)$$

where $(x)_k := x(x-1)\dots(x-k+1)$ is the falling factorial. Under (SA), (2) is the conditional probability that j individuals in generation $k-1$ share a parent in

generation k given the family sizes ν_k . Let

$$\tau_N(t) := \min \left\{ j \geq 1 : \sum_{k=1}^j c_{N,2}(k) \geq t \right\}, \quad (3)$$

$$\sigma_N(t) := \min \left\{ j \geq 1 : \sum_{k=1}^j \mathbb{E}[c_{N,2}(k)] \geq t \right\}, \quad (4)$$

be respective generalised inverses of $c_{N,2}$ and its expectation. Let $\mathcal{F}_k := \sigma(\nu_1, \dots, \nu_k)$ be the reverse-time σ -field generated by the family sizes.

The following is a slight reformulation of Theorem 5.4 of [12]:

Theorem 1. *Consider a neutral Cannings model, and suppose (SA) holds. If*

$$\lim_{N \rightarrow \infty} \frac{\mathbb{E}[c_{N,3}(k)]}{\mathbb{E}[c_{N,2}(k)]} = 0 \quad (5)$$

uniformly in k , then $(G_{\sigma_N(t)}^{n,N})_{t \geq 0} \xrightarrow{d} (\Pi_n^n)_{t \geq 0}$. Conversely, if $(G_{\sigma_N(t)}^{n,N})_{t \geq 0} \xrightarrow{d} (\Pi_n^n)_{t \geq 0}$ and $\mathbb{E}[c_{N,2}(k)] \rightarrow 0$ uniformly in k , then (5) holds uniformly in k .

Sufficiency of (5) is intuitive: it requires triple mergers to be vanishingly rare in comparison to binary ones. Since larger mergers contain a triple merger, (5) ensures they cannot happen in the limit either. Less intuitive is that (5) implies $\mathbb{E}[c_{N,2}(k)] \rightarrow 0$, so that the time change (4) results in a continuous time limit. In brief, large enough families to make $c_{N,2}$ large will also make $c_{N,3}$ large, violating (5).

§3. A non-neutral convergence result

Neutrality enters Theorem 1 in two ways. Firstly, it renders the ancestral process Markovian, bringing the convergence theory of Markov processes to bear. Secondly, it justifies use of the deterministic timescale (4), rather than the random and more complicated (3). To generalize Theorem 1, both of these advantages have to be abandoned, as was done in a series of papers [10, 3, 4] culminating in the following result:

Theorem 2. *Consider a Cannings model for which (SA) holds. If, almost surely,*

$$\lim_{N \rightarrow \infty} \frac{\mathbb{E}[c_{N,3}(k)|\mathcal{F}_{k-1}]}{\mathbb{E}[c_{N,2}(k)|\mathcal{F}_{k-1}]} = 0 \quad (6)$$

uniformly in k , then $(G_{\tau_N(t)}^{n,N})_{t \geq 0} \xrightarrow{d} (\Pi_n^n)_{t \geq 0}$.

Since non-neutral ancestral processes are not Marko-

vian, proving Theorem 2 requires showing convergence of finite dimensional distributions directly. To that end, it is useful to consider the conditional (given ν_k) one-step transition probabilities between partitions ξ and η , with the i th block of η obtained by merging b_i blocks in ξ , with $b_1 + \dots + b_{|\eta|} = |\xi|$:

$$p_{\eta\xi}(k) := \frac{1}{(N)_{|\xi|}} \sum_{i_1, \dots, i_{|\eta|}=1}^N (\nu_{k,i_1})_{b_1} \cdots (\nu_{k,i_{|\eta|}})_{b_{|\eta|}} \quad (7)$$

where the sum on the right hand side is over distinct indices. The interpretation of (7) as conditional transition probabilities is again justified by (SA). The quenched transition probability given \mathcal{F}_k from $G_0^{n,N} = \xi$ to $G_{\tau_N(t)}^{n,N} = \eta$ for $t > 0$ can be written as the sum of contributions from paths,

$$\begin{aligned} & \mathbb{P}_\xi(G_{\tau_N(t)}^{n,N} = \eta | \mathcal{F}_k) \\ &= \sum_{(\xi_0 = \xi, \xi_1, \dots, \xi_{\tau_N(t)-1}, \xi_{\tau_N(t)} = \eta)} \prod_{k=1}^{\tau_N(t)} p_{\xi_{k-1}\xi_k}(k), \end{aligned} \quad (8)$$

where the sum is over sequences of partitions with $\xi_{k-1} = \xi_k$, or where ξ_k is obtained from ξ_{k-1} by merging subsets of blocks. Defining

$$D_N(k) := \frac{1}{N(N)_2} \sum_{i=1}^N (\nu_{k,i})_2 \left(\nu_{k,i} + \frac{1}{N} \sum_{j \neq i} \nu_{k,j}^2 \right),$$

we can control (8) using the following bounds on (7), which rely only on (1) and the binomial theorem:

Lemma 1. *There exists a constant $K_{|\xi|} > 0$ and $K'_{|\xi|} > 0$, depending only on $|\xi|$, such that*

$$\begin{aligned} p_{\xi\xi}(k) &\geq 1 - \binom{|\xi|}{2} (1 + o(1)) [c_{N,2}(k) + K_{|\xi|} D_N(k)], \\ p_{\xi\xi}(k) &\leq 1 - \binom{|\xi|}{2} (1 + o(1)) [c_{N,2}(k) - K'_{|\xi|} D_N(k)]. \end{aligned}$$

For η such that $|\xi| = |\eta| + 1$,

$$\begin{aligned} p_{\xi\eta}(k) &\geq c_{N,2}(k) - \binom{|\xi| - 2}{2} (1 + o(1)) D_N(k), \\ p_{\xi\eta}(k) &\leq (1 + o(1)) c_{N,2}(k). \end{aligned}$$

Finally, for η such that $|\xi| > |\eta| + 1$,

$$0 \leq p_{\xi\eta}(k) \leq \binom{|\xi| - 2}{2} (1 + o(1)) D_N(k).$$

The convergence proof strategy is to control (8) from above and below using bounds from Lemma 1, expanding the resulting product on the right hand side, and taking an expectation to undo the conditioning on \mathcal{F}_k . It turns out that (6) implies that $\mathbb{P}(D_N = 0) \rightarrow 0$ fast enough that the contribution of paths with larger-than-binary mergers vanishes, and that of paths with only binary mergers converges to the transition probability of the n -coalescent. Carrying out the expansion is routine in principle, but remarkably messy. Weak convergence of the process follows via similar quenching to control the modulus of continuity [4].

Little can be said about the random timescale (3), but there are non-neutral models for which Theorem 2 yields useful information, e.g. on the $N \rightarrow \infty$ scaling of the time to the most recent common ancestor (TMRCA) of a sample [10, Corollary 2]. Whether there exists an interesting, non-neutral regime for which convergence can be proven on the deterministic timescale σ_N in (4) is an open question.

§4. A connection to sequential Monte Carlo

Sequential Monte Carlo (SMC) algorithms are interacting particle methods for sampling from probability densities $\{\pi_k\}_{k=0}^K$. Their origin is in target tracking, but have found applications in many disciplines including physics, engineering, biology, and finance.

An SMC method consists of N particles $\{X_{k,i}, w_{k,i}\}_{i=1}^N$ with iid initial locations $X_{0,i} \sim \mu$, and weights $w_{0,i} = \pi_0(X_{0,i})/\mu(X_{0,i})$. In subsequent generations, particles sample ancestors $\{A_{k,1}, \dots, A_{k,N}\} \in [N]^N$ from a joint distribution under which family sizes $\nu_{k,j} := \#\{i : A_{k,i} = j\}$ satisfy

$$\mathbb{E}[\nu_{k,j} | w_{k-1,1}, \dots, w_{k-1,N}] = \frac{N w_{k-1,j}}{w_{k-1,1} + \dots + w_{k-1,N}}.$$

Such a joint distribution can be designed in many ways, the simplest being conditionally iid categorical sampling with probabilities proportional to $\{w_{k-1,i}\}_{i=1}^N$ —a scheme known as multinomial resampling. Then, locations are updated via a Markov kernel, $X_{k,i} \sim M_k(X_{k-1,A_{k,i}}, \cdot)$, and weights set as $w_{k,i} = G_k(X_{k-1,A_{k,i}}, X_{k,i})$ for a non-negative potential G_k determined by $\{\pi_k\}_{k=1}^K$ and M_k to ensure that these dynamics yield particle approximations to the target densities $\{\pi_k\}_{k=1}^K$. A modern introduction to SMC methods is presented by [6].

An SMC method is a Cannings model whose family size distribution is given implicitly by the locations and weights of particles, and by the resampling operation. The ancestral process of n particles is obtained by tracing back the ancestor indices $\{A_{k,1}, \dots, A_{k,N}\}_{k=0}^K$. Neutrality amounts to requiring that particle weights are independent of their locations—a severe limitation.

In contrast, the conditions of Theorem 2 can be verified for a range of standard resampling schemes, typically under boundedness conditions on particle weights,

$$\varepsilon < G(x, y) < \varepsilon^{-1}$$

for some $\varepsilon > 0$, and mixing conditions of the form

$$\zeta h(x) < M_k(z, x) < \zeta^{-1} h(x)$$

for some $\zeta > 0$ and probability density h ; see Koskela et al. [10, Corollary 1], Brown et al. [3, Corollary 4.2], and Brown [2, Chapter 5]. These conditions are strong, and typically only satisfied on compact state spaces, but are standard in SMC. Theoretical results, including ours, are often robust to their violation [10, Section 3].

We conclude with some ways in which the marginal genealogy of an SMC method can be useful in practice. Firstly, the size of the ancestral tree measures the storage cost of SMC output. [7] used coupling with a neutral model to show that the TMRCA of all N particles, and the size of the resulting tree, are $O(N \log N)$. Our results show that the TMRCA of n leaves is $O(N)$ [10, Corollary 2], and the same argument shows that the resulting tree has $O(N \log n)$ ancestral particles.

Secondly, *conditional SMC* (cSMC) is central to particle Gibbs methods [1]. In brief, cSMC takes a path $X^* := \{X_{0,1}^*, \dots, X_{K,1}^*\}$, executes an SMC algorithm conditioned on survival of X^* through all resampling steps, and returns a new path obtained by tracing the ancestry of a random particle from generation K . When the ancestral lineage merges with X^* , the Gibbs sampler fails to mix over states of the latent path in earlier generations.

When π_k and M_k can be evaluated up to normalization, this slow mixing can be alleviated by *backward simulation* [11]. Otherwise, ancestral processes can be used to bound how large N needs to be to ensure at least two ancestral lineages survive all K generations [3, Section 4.2]. Ancestral processes also provide a new perspective on backward simulation; for example, it can be shown that the genealogical dynamics of cSMC with backward simulation coincide with those of a standard SMC algorithm, eliminating the impact of X^* altogether [2, Section 5.7.1].

Finally, estimating the variance of an SMC filtering approximation for a test function $f : \mathbb{R}^d \mapsto \mathbb{R}$,

$$\hat{f}_K := \sum_{i=1}^N \frac{w_{K,i} f(X_{K,i})}{\sum_{j=1}^N w_{K,j}},$$

is a non-trivial task when it is infeasible to run the algorithm many times to obtain iid replicates. A practical

estimator involves grouping terminal particles by their ancestors in the initial generation [5], which suffers from the same degeneracy as particle Gibbs: its performance decays as the number of unique ancestors decreases, and its value collapses to identically zero once only one ancestor remains. [13] proposed an estimator which only tracks common ancestry across a small window of generations. This avoids degeneracy of the variance estimator since few lineages have time to coalesce, but introduces bias. As with particle Gibbs, backward simulation can alleviate degeneracy when the model is tractable [8]. When it isn't, ancestral processes provide a tool for studying the scaling of the probability of retaining a desired number of ancestors for a given number of generations in order to tune the ensemble size N , and the lag for the fixed window estimator.

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Past Conferences, Meetings and Workshops

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ISNPS: June 20–24, 2022; Paphos, Cyprus



After postponing twice because of the COVID-19 pandemic, the *International Symposium on Nonparametric Statistics* was finally held June 20-24, 2022, in Paphos, Cyprus. The International Symposium is planned to be held every two years and it is co-sponsored by the Bernoulli Society for Probability and Mathematical Statistics and the Institute of Mathematical Statistics.

The Cyprus Symposium attracted over 350 participants and featured 3 Keynote Talks, 3 Special Invited Talks, 62 Invited Paper Sessions, 21 Contributed Paper Sessions and 1 Poster Session. There were more than 310 talks covering a wide range of topics in non-parametric statistics. Peter Hall's Lecture was held by *Steven Marron* (North Carolina, USA) and was entitled "Peter Hall and High Dimension Low Sample Size Asymptotics". *Aurore Delaigle* (Melbourne, Australia) on "Estimation of the Distribution of Episodically Consumed Foods Measured with Error", *Richard Davis* (Columbia, USA) on "Statistical Learning of Multivariate Extremes", and *Martin Wainwright* (MIT, USA) on "Non-

parametric Estimation for Reinforcement Learning" delivered the three Keynote Talks of the conference. The three Special Invited talks were given by *Richard Nickl* (Cambridge, UK) on "Bayesian Non-linear Inverse Problems: Progress and Challenges", *Victor Chernozhukov* (MIT, USA) on "Long Story Short: Omitted Variable Bias in Causal Machine Learning" and *Gabor Lugosi* (Pompeu Fabra, Spain) on "Problems in Network Archaeology: Root Finding and Broadcasting". There were many interesting talks of very high quality that have stimulated a number of fruitful discussions. The beautiful weather together with the nice location and the excellent facilities largely contributed in making this conference a successful scientific event.

More details on the program can be found at <http://cyprusconferences.org/isnps2022/>

Ingrid Van Keilegom, Efsthios Papanoditis
Co-chairs of the Scientific Committee
Leuven, Nicosia

Renyi Centennial Conference: June 20–23, 2022; Budapest, Hungary



This year, between June 20 and June 23, the Hungarian Academy of Sciences hosted one of its most important scientific events of the year in its wonderful palace. The domestic and the international mathematical com-

munity celebrated the centenary of the birth of Alfréd Rényi with a large-scale conference. The meeting provided an excellent opportunity for the exchange of ideas and the formation of new collaborations connected to the latest results of mathematics.

Alfréd Rényi (1921-1970) was a key figure in 20th-century Hungarian mathematics. He founded the world-famous Mathematical Research Institute, named today after him, and was a true school-creating personality despite his tragically premature death. Beside starting the modern probability school in Hungary, his scientific work covered many branches of mathematics by achieving fundamental results in them. They went from number theory and combinatorics through prob-

ability theory and information theory to chaos theory and statistics.

Reflecting Rényi's spirit, the conference program presented an extremely broad spectrum of highly current issues and results of mathematics. The diversity of the program was particularly striking: aside actual questions of classical mathematics, several interdisciplinary topics also played a prominent role. Some of these only recently, actually much after Alfréd Rényi's death, became an independent branch of research, though he contributed fundamentally to their foundation.

Among the many interesting presentations of the conference, we just mention some them without claiming to be comprehensive. Since Rényi's work the evolution of discrete structures, like that of the celebrated Erdős-Rényi graph, has been continuously investigated and became particularly timely today partially due to their implications to the theory of networks. The opening plenary lecture of the conference was held by **Noga Alon** (Princeton) about related topics and, moreover, also two of nine parallel sections of the conference were devoted to random graphs and networks.

There were also two Fields medal winners among the invited plenary speakers: **Martin Hairer** (Imperial College, London) and **Wendelin Werner** (ETH Zurich). (Recently Hairer was also awarded the Breakthrough Prize.) They gave surveys on current results in the theory of stochastic partial differential equations and ran-

dom conformal geometry. In addition to the high level of mathematics, both presentations were characterized by their captivating style and their eye-catching visual toolkit.

Further insight into the diversity of topics and speakers can be found on the website of the conference (<https://conferences.renyi.hu/renyi100/home>). Rényi's international prestige is reflected by the fact that we were able to welcome truly the best representatives of both the younger and the less young generations among both the plenary and the session speakers. It is worth mentioning that in addition to well-known celebrities of mathematics, many young researchers and doctoral students, altogether cca.160 scholars participated in the conference.

It is particularly important that the event originally planned for 2021 could be held this year in a presentational format, thus providing an excellent opportunity for personal interactions so essential for the development of mathematics and for forming new research collaborations. One can expect that the contacts established at the conference will have a significant impact for the further development of Hungarian and international mathematical research.

Domokos Szász
Co-chair of the Scientific Committee
Budapest

Brazilian School of Probability 2022/São Paulo School of Advanced Science on Singular Stochastic Partial Differential Equations and Their Applications: August 2–13; Campinas, Brazil



The São Paulo School of advanced science on singular stochastic partial differential equations and their applications was held in the period of August 2-23, 2022 at IMECC-UNICAMP, Campinas, Brazil. The school was divided into two weeks, and the second week coincided with the XXV Brazilian School of Probability. Both events were supported by the funding agencies Fapesp, Capes, and INCTMAT and were sponsored by the Bernoulli Society. This enabled us to financially support many young students and in this way hopefully contribute to their academic development. The Brazilian School of Probability is a traditional international event on probability theory and stochastic processes

and has considerably contributed to the strengthening of these research areas in Brazil and South America. Indeed, as one can imagine with a country of continental dimensions, as is the case for Brazil, it is difficult to work tightly together. The Brazilian School of Probability has achieved exactly that and created a sense of community among researchers in our area. This is particularly true for young researchers on the Master's and PhD level who often met their future collaborators at one of the Brazilian School of Probability. Its first edition was held in Rio de Janeiro, back in 1997. Since then, it has been organized by IMPA, ICMC-USP, IME-USP, IM-UFRJ, IMECC-UNICAMP, UFMG, UFPE, and PUC-RIO, re-

ceiving support from several scientific societies and research agencies.

The São Paulo Schools of Advanced Science events on the other hand are events financially supported by FAPESP and are organized since 2010. Those events covered a wide range of research fields, such as Mathematics, Computer Science, Chemistry and many more (more information can be found here tinyurl.com/46zpzja3).

These two schools together attracted more than 100 participants, featured 4 courses with exercise classes, 7 plenary talks, 8 short talks and 22 posters. The program was divided into two parts. In the first week we had two introductory mini courses that lay the foundations for the courses of the second week. In the first course **Paulo Ruffino** (UNICAMP) gave a course about Stochastic Calculus; and in the second course **Sebastian Riedel** (University Hagen) introduced the main concepts of rough paths. In the second week developed theories and their latest developments were discussed by **Lorenzo Zambotti** (Sorbonne University) and **Martin Hairer** (Imperial College London). Lorenzo Zambotti introduced the theory of Regularity structures and Martin Hairer talked about some recent progress on

Yang-Mills. These courses were of high quality and stimulated many discussions of the participants during the coffee breaks and beyond. Other highlights were the talks given by **Ajay Chandra** (Imperial College), **Renato Fontes** (USP), **Claudio Landim** (IMPA), **Xue-Mei Li** (Imperial College London), **Soledad Torres** (Valparaíso), **Constantino Tsallis** (CBPF), and **Maria Eulalia Vares** (UFRJ). Details may be found here <https://www.ime.unicamp.br/spas2022/#Program>.

Additionally to the various talks and courses a visit to the Brazilian Synchrotron Light Laboratory (<https://lnls.cnpem.br/about/>) was organized and was very well received by the participants. The social program also included a conference lunch on Wednesday of the second week at a typical Brazilian Barbeque place which was followed by a presentation of the Symphonic Orchestra of Campinas.

The fact that the accommodation of all participants was on Campus helped scientific and social exchanges of all participants and rounded up the event and contributed to its success.

*Milton Jara, Adriana Neumann, Christian Olivera
Members of the Organizing and Scientific Committees
Rio de Janeiro, Porto Alegre, Campinas*

42nd SPA Conference: 27 June - 01 July, 2022; Wuhan, China



The 42nd Conference on Stochastic Processes and their Applications was held 27 June - 01 July, 2022 in Wuhan, China. SPA Conferences are organized under the patronage of the Bernoulli Society and can be justifiably regarded as the most important international scientific meeting on the theory and applications of stochastic processes. This series of the conferences is held every year except when the World Congress in Probability and Statistics takes place in the years divisible by 4. Due to the COVID-19 pandemic, the World Congress is postponed from 2020 into 2021, and the 42nd SPA is shifted from 2021 to 2022. The previous conference was held in Northwestern University Evanston, USA in 2019. This year's conference was hosted by Wuhan University and the Chinese Society of Probability and Statistics. Professor **Jean-François Le**

Gall of Université Paris-Saclay, member of the French Academy of Sciences, served as the chairman of the academic committee of the conference. Professor **Xicheng Zhang** of Wuhan University served as the chairman of the organization committee of the conference.

The 42nd SPA conference attracted over 200 on-site participants and 300 online participants, and featured 11 plenary talks, 23 invited sessions, and 27 contributed sessions. There were 161 talks in total, which spanned a broad range of topics from the core theoretical issues of stochastic processes and their wide applications in practical fields, and the latest academic achievements and research trends. **Hugo Duminil-Copin** (IHES & UNIGE, Fields Medalist 2022) delivered the Medallion lecture; **Balint Toth** (UOB) the Medallion lecture; **Anne van Delft** (Columbia University) the Itô Prize lecture; **Nike Sun** (MIT) the Doob Prize lecture; **Hao Wu** (Tsinghua) the Doob lecture; **Lorenzo Zambotti** (Sorbonne University) the Lévy lecture; **Nina Holden** (ETH, Zurich), **Hubert Lacoïn** (IMPA), **Vitali Wachtel** (University of Augsburg), **Jian Wang** (Fujian Normal University) and **Tusheng Zhang** (USTC) the plenary talks. Three Bernoulli Society New Researcher Awardees, **Jacopo Borgia** (Stanford University), **Jere Koskela** (University of Warwick) and **Konstantin Matetski** (Columbia University) delivered the invited talks. There were many other memorable talks, re-

marks and discussions.

The organizers have received many positive reactions by the participants during the conference. The high scientific content of the program was praised, as well as the effective organization. For more details

about the conference, please visit <http://spa2022.whu.edu.cn/index.htm>

Xicheng Zhang
Chair of the Local Organizing Committee
Wuhan

40th Finnish Summer School in Probability and Statistics: May 23–27, 2022; Lammi, Finland



The Finnish Summer School on Probability and Statistics is organized annually by the Finnish Doctoral Education Network in Stochastics and Statistics (FDNSS), a consortium which unites probabilists and statisticians from all Finnish universities, and it is sponsored by the Magnus Ehrnrooth Foundation by the Doctoral Programme in Mathematics and Statistics of the University of Helsinki DOMAST and by the Bernoulli Society.

After a pause of 2 years due to the covid pandemic, in this year 2022 the 40th edition took place as scheduled in presence during the week from May 23 to 27. As in the previous 3 editions, the summer school was hosted by the University of Helsinki at the Lammi Biological Research Station, which is located in the countryside, 120 km north from Helsinki. During the week we had three invited lecturers giving minicourses,

- Jean-François Chassagneux (Paris) lecturing on Probabilistic numerical methods for non-linear PDEs,
- Jan Nagel (Dortmund) on Large deviations, mo-

ment problems and sum rules,

- Ciprian Tudor (Lille) on Non-Gaussian selfsimilar processes,

and there was time to listen to 9 contributed presentations. The detailed program is found at tinyurl.com/2p9c48yt.

The Finnish summer school has a long tradition and for this 40th edition it was very special to to celebrate the jubilee anniversary together with Elja Arjas who organized the first finnish summer schools starting from 1976, Göran Högnäs and Paavo Salminen, who organized the Finnish Summer School for school for more than two decades.

Thanks also to the sponsorship of the Bernoulli Society, the Finnish Summer School is getting every year more international, this time about half of the 34 participants came from abroad, and it was very special to have in the audience two Ph.D. students in stochastics from the Ghana section of the African Institute for Mathematical Sciences (AIMS), Edward Korveh and Rhoss Beauneur Likibi Pellat.

We also would like to mention the social program of the summer school, which consists in enjoying together a traditional finnish sauna by the lake: most of our foreign participants became great fan of sauna, and did not mind that the lake was colder than usual.

Dario Gasbarra
Chair of the Organizing Committee
Helsinki

Other Events

The International Day of Women in Statistics and Data Science

The Caucus for Women in Statistics and the Portuguese Statistical Association have launched an International Day for Women in Statistics and Data Science. The first annual celebration was organized online on October 11. The main goal was to showcase women's contributions to the field, to connect women statisticians and data scientists around the world, to encourage collaborations among statistical societies, to en-

courage statistics and data science to become more inclusive and diverse and to bridge statistics and data science. More information can be found at <http://www.idwsds.org/>.

Bojana Milošević
Editor of Bernoulli eBriefs
Belgrade

GOFCP 2019: September 2-4, 2019; ENSAI, France



The 5th International Workshop on Goodness-Of-Fit (GOF) and Change-Point (CP) Problems was held at ENSAI, from September 2d to 4th. It followed the four workshops held in Sevilla, Spain (2012), Athens, Greece (2015), Bad Herrenalb, Germany (2017) and Trento, Italy (2019). The main themes of the event included, but were not limited to high-dimensional data, models

check, time series, econometrics, and latent variables.

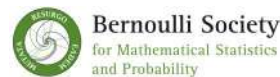
The variety of topics and the content of the presentations show the importance of the workshop themes in the modern developments of statistical methodology and applications. Talented early-stage and widely recognized confirmed researchers, who have accepted the invitation for attending the workshop, made the event a success.

More information, including the complete video coverage and photos can be found at <https://ensai.fr/en/event/gofcp-2022/>.

Valentin Patilea
Chair of the Organization Committee
Bruz

Forthcoming Conferences, Meetings and Workshops, and Calendar of Events

Organized, Sponsored and Co-Sponsored by



Bernoulli Society
for Mathematical Statistics
and Probability

41st Finnish Summer School on Probability and Statistics: May 22-26, 2023; Lammi, Finland

The next edition of the Finnish Summer School on Probability and Statistics will be on 22-26 May of 2023 in Lammi Finland. The confirmed lecturers of the summer school are:

- Beatrice Acciaio (ETH Zurich);
- Persi Diaconis (Stanford);

- Yuliya Mishura (Taras Shevchenko National University of Kyiv).

Full details can be found at <https://tinyurl.com/bdfk5s2u>.

Dario Gasbarra
Chair of the Organizing Committee
Helsinki

XVI CLAPEM: July 10-14; São Paulo, Brazil

The Latin American Congress of Probability and Mathematical Statistics (CLAPEM) is the main event in probability and statistics in the region, having been held roughly every two or three years for almost 30 years. It is organized under the auspices of the Bernoulli Society for Mathematical Statistics and Probability and the Latin American Society on Probability and Mathematical Statistics (SLAPEM). The series of CLAPEMs has contributed significantly to the development of probability and statistics in Latin America by promoting regional cooperation, increasing the scholarly level of the research work in the region, and facilitating the collaboration between Latin American researchers and colleagues from the rest of the world. A traditional program in a CLAPEM includes short courses introducing graduate students and young col-

leagues to significant areas of current research and a series of invited plenary talks, thematic sessions, and communications.

The XVI CLAPEM will take place in São Paulo, Brazil, on July 10-14, 2023. Confirmed plenary speakers include Daniel Remenik, Hubert Lacoïn, Lihua Lei, Louigi Addario-Berry, Malwina Luczak, Maria Eulália Vares, Morgane Austern, Rosângela Loschi, Soledad Villar, and Victor Panaretos.

Further details on the meeting can be found at <https://www.ime.usp.br/~16clapem/>.

Florencia Leonardi
on Behalf of the Organizing Committee
São Paulo

43rd SPA Conference: July 24-28, 2023; Lisbon, Portugal

The Conferences on Stochastic Processes and their Applications are organised under patronage of the Bernoulli Society and can justifiably be regarded as the most important international scientific meeting on the theory and applications of stochastic processes. They are held annually except for the years when the World Congress in Probability and Statistics takes place.

In this edition, plenary speakers include: Louigi Addario-Berry (Schramm lecture), Riddhipratim Basu, René Carmona (Doob lecture), Jean-Dominique Deuschel, Massimiliano Gubinelli (Medallion lecture), Martina Hofmanova, Richard Kenyon (Medallion lecture), Gesine Reinert, Makiko Sasada, Sylvia Serfaty (Medallion lecture), Horng-Tzer Yau (Levy lecture).


There will also be several invited and contributed sessions and poster sessions. The last previous editions took place in Oxford, UK in 2015, Moscow, Russia in 2017, Gothenburg, Sweden in 2018, and Evanston, USA in 2019. The last edition was held in Wuhan, China in 2022.

Further information can be found at

<https://www.spa2023.org/>


Ana Bela Cruzeiro and Patricia Gonçalves
Chairs of the Organizing Committee
Lisbon

Calendar of Events

This calendar lists all meetings that 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 BS Website www.bernoulli-society.org/index.php/meetings.




May 2022

-  May 22–26 (2022), *41st Finnish summer school in Probability and Statistics*; Lammi, Finland.


June 2023

-  June 26–July 1 (2023), *13th Conference on Extreme Value Analysis*; Milan, Italy.

July 2023

-  July 3–7 (2023), *34th European Meeting of Statisticians*; Warsaw, Poland.
-  July 10–14 (2023), *Latin American Congress of Probability and Mathematical Statistics*; São Paulo, Brazil.
- July 16–20 (2023), *64th World Statistics Congress*; Ottawa, Canada.
-  July 24–28 (2023), *43rd Conference on Stochastic Processes and their Applications*; Lisbon, Portugal.

September 2023

-  September (2023), *23rd European Young Statisticians Meeting*; Ljubljana, Slovenia.

Quote of the Issue:

“Ask not what Bernoulli Society can do for you, but what you can do for Bernoulli Society”

Ole Eiler Barndorff-Nielsen

Recent Issues of Official Publications

Bernoulli

Vol. 28, No. 4: November 2022

Editors-in-Chief: D. Paindaveine

<http://projecteuclid.org/current/euclid.bj>

- "The complex behaviour of Galton rank-order statistic," E. del Barrio, J.A. Cuesta-Albertos, C. Matran, 2123–2150.
 "Nonparametric Bayesian volatility estimation [...]," D. Belomestny, S. Gugushvili, M. Schauer, P. Spreij, 2151–2180.
 "A Riemann–Stein kernel method," A. Barp, C.J. Oates, E. Porcu, M. Girolami, 2181–2208.
 "Rank-based change-point analysis for long-range dependent time series," A. Betken, M. Wendler, 2209–2233.
 "Splitting the sample at the largest uncensored observation," R. Maller, S. Resnick, S. Shemehsavar, 2234–2259.
 "Pivotal tests for relevant differences in the second order dynamics of functional time series," A. van Delft, H. Dette, 2260–2293.
 "Functional inequalities for perturbed measures [...]," P. Cattiaux, A. Guillin, 2294–2321.
 "On the characterization of Brownian bridge measure on the pinned path space over a compact Riemannian manifold," F. Gong, X. Sun, 2322–2344.
 "Global sensitivity analysis: A novel generation of mighty estimators [...]," F. Gamboa, P. Gremaud, T. Klein, A. Lagnoux, 2345–2374.
 "Asymptotics of AIC, BIC and C_p model selection rules in high-dimensional regression," Z. Bai, K. Pui Choi, Y. Fujikoshi, J. Hu, 2357–2403.
 "Adaptive schemes for piecewise deterministic Monte Carlo algorithms," A. Bertazzi, J. Bierkens, 2404–2430.
 "Convergence rates of Gibbs measures with degenerate minimum," P. Bras, 2431–2458.
 "Sharp detection boundaries on testing dense subhypergraph," M. Yuan, Z. Shang, 2459–2491.
 "Smoothing and adaptation of shifted Pólya tree ensembles," T. Randrianarisoa, 2492–2517.
 "Asymptotically equivalent prediction in multivariate geostatistics," F. Bachoc, E. Porcu, M. Bevilacqua, R. Furrer, T. Faouzi, 2518–2545.
 "Phase transitions in non-linear urns with interacting types," M. Costa, J. Jordan, 2546–2562.
 "Continuous-time digital search tree and a border aggregation model," S. Janson, D. Thacker, 2563–2577.
 "Matrix means and a novel high-dimensional shrinkage phenomenon," A. Lohia, K. Levin, E. Levina, 2578–2605.
 "A pseudo-marginal sequential Monte Carlo online smoothing algorithm," P. Gloaguen, S. Le Corff, J. Olsson, 2606–2633.
 "Deviation inequalities and Cramér-type moderate deviations for the explosive autoregressive process," H. Jiang, Y. Wan, G. Yang, 2634–2662.
 "Estimation of Wasserstein distances in the Spiked Transport Model," J. Niles-Weed, P. Rigollet, 2663–2688.
 "A presmoothing approach for estimation in the semiparametric Cox mixture cure model," E. Musta, V. Patilea, I. Van Keilegom, 2689–2715.
 "Asymptotic behavior of a low-temperature non-cascading 2-GREM dynamics [...]," L. Renato Fontes, S. Frómeta, L. Zuaznábar, 2716–2743.
 "Estimation of the l_2 -norm and testing in sparse linear regression [...]," A. Carpentier, O. Collier, L. Comminges, A.B. Tsybakov, Y. Wang, 2744–2787.
 "A unified performance analysis of likelihood-informed subspace methods," T. Cui, X.T. Tong, 2788–2815.
 "Measuring association with Wasserstein distances," J.C.W. Wiesel, 2816–2832.
 "Local scaling limits of Lévy driven fractional random fields," V. Pilipauskaitė, D. Surgailis, 2833–2861.
 "Robust importance sampling with adaptive winsorization," P. Orenstein, 2862–2873.
 "Upper functions for sample paths of Lévy(-type) processes," F. Kühn, 2874–2908.
 "Quantifying deviations from separability in space-time functional processes," H. Dette, G. Dierckx, T. Kutta, 2909–2940.
 "Tracy-Widom limit for the largest eigenvalue of high-dimensional covariance matrices [...]," W. Jun, X. Jiahui, Y. Long, Z. Wang, 2941–2967.
 "Nonparametric inference for reversed mean models with panel count data," L. Liu, W. Su, G. Yin, X. Zhao, Y. Zhang, 2968–2997.
 "Coverage error optimal confidence intervals for local polynomial regression," S. Calonico, M.D. Cattaneo, M.H. Farrell, 2998–3022.
 "Graphical modeling of stochastic processes driven by correlated noise," S.W. Mogensen, N.R. Hansen, 3023–3050.
 "Conditional regression for single-index models," A. Lanteri, M. Maggioni, S. Vigogna, 3051–3078.

Stochastic Processes and their Applications

Vol. 152: October 2022

Editor-in-Chief: Matthias Löwe

<http://www.sciencedirect.com/science/journal/03044149>

- "Concentration inequalities from monotone couplings for graphs, walks, trees and branching processes," T. Johnson, E. Peköz, 1–31.
 "Contrast estimation of time-varying infinite memory processes," J.M. Bardet, P. Doukhan, O. Wintenberger, 32–85.
 "Multivariate Hawkes processes on inhomogeneous random graphs," Z. Agathe-Nerine, 86–148.
 "Shuffling cards by spatial motion," P. Diaconis, S. Pal, 149–176.
 "Spatial integral of the solution to hyperbolic Anderson model with time-independent noise," R.M. Balan, W. Yuan, 177–207.
 "On almost sure limit theorems for heavy-tailed products of long-range dependent linear processes," M.A. Kouritzin, S. Paul, 208–232.
 "Percolation of worms," B. Ráth, S. Rokob, 233–288.
 "Cooling down stochastic differential equations: Almost sure convergence," S. Dereich, S. Kassing, 289–311.
 "Monotone convex order for the McKean–Vlasov processes," Y. Liu, G. Pagès, 312–338.
 "Parameterised branching processes: A functional version of Kesten & Stigum theorem," C. Mailler, J.F. Marckert, 339–377.
 "Long-term concentration of measure and cut-off," A.D. Barbour, G. Brightwell, M. Luczak, 378–423.
 "A central limit theorem for sets of probability measures," Z. Chen, L.G. Epstein, 424–451.
 "Deviation inequalities for stochastic approximation by averaging," X. Fan, P. Alquier, P. Doukhan, 452–485.
 "Edgeworth expansions for independent bounded integer valued random variables," D. Dolgopyat, Y. Hafouta, 486–532.
 "Large deviations for Markov jump processes with uniformly diminishing rates," A. Agazzi, L. Andreis, R.I.A. Patterson, D.R. Michiel Renger, 533–559.

Bernoulli Society Bulletin e-Briefs

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<http://bernoulli-society.org/index.php/publications?id=171>

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Have a look at <https://bernoullisociety.org/publications> for the latest articles in *Electronic Communications in Probability*, *Electronic Journal of Probability*, *Electronic Journal of Statistics*, *Probability Surveys* and *Statistics Surveys*, as well as *International Statistical Review*.

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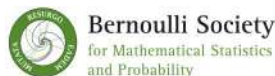
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"If you are already a member, encourage your colleagues, postdocs and PhD Students to join the Bernoulli Society."



Publications and Meetings

The Bernoulli Society official journals are *Bernoulli* and *Stochastic Processes and their Applications*. In addition, the BS co-sponsors the following open-access online publications: *Electronic Communications in Probability*, *Electronic Journal of Probability*, *Electronic Journal of Statistics*, *Latin American Journal of Probability and Mathematical Statistics*, *Probability Surveys* and *Statistics Surveys*. Published twice a year, *Bernoulli News* provides detailed information about activities of the Society, while *Bernoulli e-Briefs* is a bimonthly electronic information bulletin that summarizes and draws the attention of relevant information to the membership.

The Bernoulli Society organizes or sponsors several international meetings which have a prominent relevance in the fields of mathematical statistics, probability, stochastic processes and their applications. These meetings are often held in conjunction with the ISI and other ISI Associations, the IMS or by the BS Regional and Standing Committees. Some of the meetings with a proud tradition are the *Bernoulli-IMS World Congress in Probability and Statistics* every four years, the *Conference on Stochastic Processes and their Applications (SPA)* organized every year, the *ISI World Statistics Congress* (formerly ISI Session), the *Latin American Congress in Probability and Mathematical Statistics (CLAPEM)* organized every two or three years, the *European Meeting of Statisticians (EMS)* organized every two years and the *European Young Statisticians Meeting (EYSM)* organized every two years.

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Membership Application and Fees

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- Bernoulli Society membership
<http://isi.cbs.nl/bern-form.asp>
- Joint BS-IMS membership
<https://secure.imstat.org/secure/orders/IndMember.asp>
- Joint BS-IMS-ISI membership
http://isi.cbs.nl/bern_ims_isi-form.asp

Membership Fees for 2022

- Full members: €84.
- First year of membership and first two years of postdoc for members from developed countries: €42.
- PhD students - developed countries: €30.
- PhD students - developing countries: €12.
- Members from developing countries, retired members and retired couples: €34.
- Joint BS-IMS membership: \$150.
- Joint BS-IMS-ISI membership (only for elected ISI Members): €183.