# 4 th World Congress of the Bernoulli Society

## Vienna, Austria, August 26-31, 1996

*The chairman of the Scientific Committee, Friedrich Götze, at the opening ceremony. Sitting besides is Jef Teugels, the president of the Bernoulli Society.*

After Tashkent (1986), Uppsala (1990) and Chapel Hill (1994) the City of Vienna was the host for the 4th World Congress of the BS. It drew more than 700 scientists from 53 different countries (all 5 continents). There were 525 talks in 33 invited, 96 contributed and 9 special sessions. The keynote speakers were Peter Hall (Opening Lecture), Michel Talagrand (Forum Lecture) and David Donoho (Closing Lecture). Details of the program can still be found at the www pages

http://www.smc.univie.ac.at/~bernoulli

The social programme was also memorable: On the first day, the mayor of Vienna gave a reception in the town hall. (A special highlight there was the speech of Georg Pflug, the local organiser, printed below (C.K.)). On Tuesday a concert was organized in the Brahmssaal (Musikvereinsgebäude), the most beautiful chamber music hall of Vienna. In this concert, "Random Music" (ein musikalisches Würfelspiel) composed by Mozart was performed. By rolling two dice at each measure, a random selection was produced. Since there are $4.1 \times 10^{15}$ possible selections, it is very likely that this particular one was never played before and therefore, a new piece of Mozart was played for the first time. On Wednesday, an excursion led to the beautiful Vienna Woods. A visit to the famous Viennese "Heurigen" provided an ideal setting for the conference dinner.

**Opening speech of the President of the Bernoulli Society, Jef L. Teugels**

Ladies and Gentlemen, dear Friends,

It gives me a tremendous pleasure to open this *Fourth World Congress of the Bernoulli Society* here in the beautiful city of Vienna. Starting the tradition in Tashkent in 1986, the society has organised similar meetings in Uppsala in 1990 and in Chapel Hill in 1994. The Bernoulli Society wanted to avoid clashes with the *International Mathematical Union* that has a long tradition of organizing its *International Mathematical Congress* on a four year interval. The Bernoulli Society was very pleased and thankful that our Viennese scholars under the baton of Professor Pflug suggested to change the pace of our world congresses. This is the main reason for having the fourth congress only two years after the third.

Some of you may know that the *International Mathematical Union* has declared the year 2000 to be a *mathematical year.* What the Union may have forgotten is that it will *not* organize a mathematical congress in their own mathematical year. The Bernoulli Society however got the lucky break of holding its lustrum congress in Guanajuato in Mexico in June 2000. By this all of you are already invited to take part in this important event.

When we were young - that is quite some time ago - one was expected to make the transition from being a child to becoming an adult as soon as one reached the age of 21. This is exactly what happened to the Bernoulli Society a couple of days ago. When it was conceived in 1975 the society was the infant of what the French like to call a *ménage à trois.* At the cradle we found the *International Association of Statistics in the Physical Sciences*, created by Jerzy Neyman in 1964, the *Committee for Conferences on Stochastic Processes*, founded in 1972 and the *European Regional Committee of the (American based) Institute of Mathematical Statistics* which held its first meeting in Dublin in 1962. Allow me to leave the fatherhood in the mist but I think it is fair to say that *IASPS*, the International Association of Statistics in the Physical Sciences should be considered as the mother of the Bernoulli Society. IASPS itself was one of the daughter associations of the *International Statistical Institute*, itself founded in 1885.

Right from the beginning the Bernoulli Society has developed intense activities in the organisation and sponsoring of scientific congresses. These ranged from the *European Meetings of Statisticians*, over *Conferences on Stochastic Processes* to meetings on probability and statistics in the physical sciences. Moreover the society added two more regional committees and took part in numerous general and specialized meetings. In the meantime the Bernoulli Society has played a key role in all the activities of the *International Statistical Institute* ranging from the traditional ISI-sessions, over committee work to the continuous provision of candidates for presidency.

Where the Bernoulli Society always has been highly successful on the meetings scene, at the outset its publication programme was rather weak. We inherited the well running journal on *Stochastic Processes and their Applications.* With our newborn journal *BERNOULLI* however we definitely realized a tremendous improvement also on the publications platform. In the meantime our information journal *Bernoulli News* keeps all of us duly informed on all of the society's activities.

Needless to say that we should consolidate whatever has been achieved. For this reason a number of administrative meetings have been scheduled at time slots where most of the other participants can enjoy a lunch break. However, now that the society has reached the state of adolescence, it has to be mature enough to keep its mind open for new challenges. This is where all of you can play a vital role. You don't have to tell us who Santa Claus is, but perhaps the society needs to become more active in specific areas of human endeavour. For example, it is my personal opinion that the Bernoulli Society - with all its expertise in modeling and evaluation - should be more active in areas dealing with the environment. But I'm sure there are other issues where the society needs to get involved. Allow me to invite all of you to grab the occasion to talk to any one of the officers of the society. To help you we have added to all the excellent congress material a page with the names of people present that are playing an active role in the society and/or its committees. Please, talk to us and help us to keep your society in great shape.

With this invitation to all of you, I declare the *Fourth World Congress of the Bernoulli Society* open.

**Contribution of the former Scientific Secretary Richard Gill**

For me, a special highlight was the concert at the Musikverein by the Razumowsky quartet, who played classical work by Viennese composers, including, most appropriately, a (with VERY high probability) first performance of an aleatory (=random) piece of music by Wolfgang Amadeus Mozart. This piece, the so-called 'musical dice-game', consists of 18 bars of music, for 15 bars of which one can choose from 11 possibilities by tossing two dice. In fact therefore, the piece we heard was jointly composed by Mozart and the participants of the conference. Probably it will be never heard again (it would take roughly 3.9 billion years to play all the roughly 4 000 000 000 000 000 variations). It sounded fine!

Another musical note occurred in the splendid multi-media closing lecture by David Donoho, which included cleaned up versions, using wavelet based and statistically inspired methods, of a recording of Brahms playing his own work at the piano, and Caruso singing.

Participants at the meeting were given the Bernoulli Society button (or badge or lapel pin), featuring of course the spiral logo and the official colours green and silver. This is clearly destined to be a collector's item.

The Bernoulli Society is grateful to the local organisers and all others concerned for this excellent meeting.

*David Donoho presenting the Closing Lecture.*

**Speech of the local organisor Georg Pflug at the reception at the town hall**

*Members of the local organising committee; Georg Pflug is to the right.*

Dear Mr. President of the City Council!
Dear Colleagues!
Dear Ladies and Gentlemen!

The history of science in Vienna has a long tradition. Our University, founded in 1365, is the oldest in the German speaking countries. At present there are five universities in Vienna: besides the just mentioned University there are the Technical University, founded in 1815, the University of Economics, our congress venue, founded in 1919, the University of Agriculture and the University of Veterinary Medicine. The total number of students in Vienna is more than 100 000. It is interesting to notice that statistics is the only dicipline which is taught in all five universities.

Vienna was the birthplace or home of many scientists in our field. Let me mention a few of them. Hans Hahn, a Vienna professor of mathematics, is known to everybody by the Hahn–Banach–Theorem. He was a manysided mathematician, as can be seen from his collected works which are currently edited here.

Johann Radon is known by the notion of the Radon Measure and the Radon Transformation but he also published fundamental work in differential geometry by inventing the so–called Radon Curves.

Carl Menger was the son of a well–known economist. He created the famous Menger Mathematical Colloquium, which had a close liason to the Vienna Circle. He also wrote poems and theatre plays, but his friend, the well known austrian writer Arthur Schnitzler, convinced him to concentrate more on mathematics than on literature.

A famous member of the Menger Colloquium was Abraham Wald who was born in Romania but spent a considerable part of his life in Vienna. He joined the famous Institut für Konjukturforschung which was founded by Oskar Morgenstern. Morgenstern was professor in Vienna since 1935. In 1939 both, Oskar Morgenstern and Abraham Wald were forced to emigrate to the US.

A famous physicist born near Vienna was Marian Smoluchovski. His description of the Brownian Motion was published in the Sitzungsberichte der Österreichischen Akademie and is today known under the title of Einstein–Smoluchovski model.

Another Austrian mathematician, Pollaczek, was the son of the imperial officer of the Austrian Hungarian Army and became famous for his work in queueing theory mostly done as a member of the mail service in Berlin. His wife Hilda Geiringer was a student of Wirtinger and worked in many fields of mathematics, mostly in approximation theory. After publishing several papers with Richard von Mises she decided to divorce Pollaczek and marry her coauthor. Richard von Mises himself was born in the Austrian monarchy, had his scientific education in Vienna, but his professional career brought him to Berlin, Istanbul and the US. His brother Ludwig von Mises is a well–known economist.

Let me finally mention Wilhelm Winkler, an applied statistician, who held the chair in statistics at the University. This chair was established already 1783 mostly for the study of demographical problems of the Austrian empire, where people of 11 different nations spoke 11 different languages. Some years ago, Wilhelm Winkler died at the age of 101 years.

After this brief historical sketch, let us turn to the present time. Universities today experience big changes, more competition, less staff and severe budget cuts. The public funding is under discussion. For this reason we are especially happy that at occasions like this the city administration shows interest in scientific life. Let me therefore thank the City Council of Vienna for having arranged this reception.

**ESES'96**
**Environmental Statistics and Earth Sciences**
**Brno (Czech Republic)**

The main subject of the conference were problems of climatology, the ozonosphere, hydrology, geography and the earth sciences, which are or may be solved by statistical methods: Those include the man-made influence on the atmosphere and hydrosphere and on changes in climate. Further topics were the air and water pollution and the depletion of the ozone layer. The meeting concentrated on statistical modelling and methods in this area. The conference brought together 95 specialists from 25 countries working in various fields, sharing an interest in such problems; thus it provided an excellent opportunity to meetings and interesting discussions. Many participants came from Central European Countries, where the environmental problems are of increasing importance.

T. Polfeldt (Statistics Stockholm and University Stockholm) presented the opening lecture entitled "Quality Aspects of Official Environment Statistics".
J. Pretel (Czech Hydrometeorological Institute) organized a round-table discussion on the subject: "Enhanced Greenhouse Effect and Climate Change"

Besides that, the following specialists presented invited lectures: V. Beneš, J. Chadoeuf and A. Kratzschmer, M. Dubrovský, H. G. Feichtinger, J. L. Gastwirth and B. Toman, E. Gombay and L. Horváth, D. Jarušková, J. Kalvová, M. Kaiser, Nan-Jung Hsu, N. Cressie and S. Lahiri, I. B. McNeill, H. Pavlopulos and M. Freidlin, A. H. El-Shaarawi, R. Sneyers, J. Stadlober and H. Friedl, R. Viertl.

Most of the lectures will be published in a special issue of the journal ENVIRONMETRICS. Besides that, "Proceedings and Abstracts" of the conference (220 pp.) were published with the editors I. Horová, J. Jurečková and J. Vosmanský, containing the abstracts, enlarged abstracts and the short communications of the participants.

*Jana Jurečková*
*Prague*

**Conference on Stochastic Differential**
**and Difference Equations**
**Győr, Hungary**

The conference was organized jointly by Eötvös Loránd University, Budapest, and Kossuth Lajos University, Debrecen, with the sponsorship of the Hungarian Regional, the International Executive and the Bernoulli Society.

It is noteworthy mentioning that the meeting had a strong international flavour with 76 participants from 21 countries, including 6 both from Japan and the USA. The core of the conference consisted of 14 invited lectures, delivered by distinguished experts of their fields. The major contemporary research areas have been covered in these lectures.

The list of invited speakers included T. Duncan, M. Fukushima, T. Funaki, I. Gyöngy, R. Khasminskii, I. Kubo, H. Kunita, A. Lindquist, D. Nualart, R. Ober, M. Pavon, G. Picci, T. SubbaRao, M. Zakai.

Invited lectures were presented in plenary sessions, while the contributed papers were presented in two parallel sessions. The first session was devoted to various problems of stochastic partial differential equations (SPDE) and related random fields. The second session was about discrete and continuous time parameter ARMA processes and stochastic differential equations (SDE) in general.

The Széchenyi István College in Győr provided the venue of the event, seemingly for the satisfaction of the participants.

At the Welcome Party and the Gala Dinner fabulous cuisine and Hungarian wines delighted the guests, and these occasions proved to be a golden opportunity to meet old friends and make new ones from all over the world.

An excursion was arranged to the 1000 years old neighbouring Benedictian monastery of Pannonhalma.

The publication of the lectures in a Conference Proceedings Volume is well under way.

All in all the meeting was a great success. The worldwide representation and the relatively large attendance has clearly fostered international contacts and the international exchange of scientific research in this area.

*L. Markus*
*Budapest*

## Stable Processes and Other Heavy-Tailed Models for Highly Volatile Phenomena Wrocław (Poland)

Analysis of data from areas like finance, insurance, engineering and communication often uncover oscillations that indicate the presence of heavy tails, and this becomes even clearer as larger and larger data sets become available. Stable processes are the "canonical source" of heavy–tailed probabilistic modelling, but other models have been suggested as well. On the other hand, our understanding of stable processes has progressed fast in the last 4-5 years, culminating in the publication of two monographs on stable processes in 1994.

The Wrocław Satellite Meeting brought together over 50 experts in diverse branches of stochastic processes from around the world (including USA, Japan, Australia and Europe) to discuss recent developments in theory and applications of heavy–tailed models. The program attracted participants from both university and industry. A special volume of Stochastic Models (Vol. 13, 3 (1997)) will be published based on this meeting.

The list of invited speakers reflects the excellent scientific level of the meeting: S. Asmussen (Lund), O.E. Barndorff-Nielsen (Aarhus), M.M. Dacorogna (Zürich), R.A. Davis (Fort Collins), J. Hüsler (Bern), A. Jakubowski (Toruń), C. Klüppelberg (Mainz), T. Mikosch (Groningen), M. Musiela (Sydney), J.A. Nielsen (Aarhus), J. Nolan (Washington DC), V. Paulauskas (Vilnius), Z. Rachev (Santa Barbara), B. Rajput (Knoxville), H. Rootzén (Gothenburg), J. Rosinski (Knoxville), G. Samorodnitsky (Cornell), C. Starica (Cornell), M. Taqqu (Boston), and A. Weron (Wrocław). Special sessions for contributed speakers and Ph.D. students were organized.

Apart from the scientific aspects, the meeting had a friendly atmosphere encouraging especially young participants, both in the sessions and in the various social events: the conference dinner at the Spiż - Mini Brewery & Restaurant, a visit to the Panorama of Racławice Museum and last but not least – the long and cheerful bus trip to Vienna through ... the restaurants of the Czech Republic.

The Wrocław Satellite Meeting was held at the Hugo Steinhaus Center, Technical University of Wrocław. The transition from the mere thought of a meeting to the actual happening meant a lot of work for various people. The program organizers C. Klüppelberg (Mainz), G. Samorodnitsky (Cornell) and in particular A. Weron (Wrocław) did their duties. But special (warm!) thanks of all participants go to Joanna Nowicka, the local arrangements chair, for her charm and involvement.

*Rafał Weron*
*Wrocław*

*At the conference dinner at the Spiż - Mini Brewery & Restaurant. Three people are looking to the camera: Zari Rachev, Ole Barndorff-Nielsen and Murad Taqqu (from left to right). The back belongs to Thomas Mikosch. He is talking to Thomas Rolski, who is hidden behind the candles.*

**Asymptotic Methods in Stochastic Dynamics and Nonparametric Statistics Berlin (Germany)**

This workshop took place on the occasion of the 65th birthday of R. Z. Khasminskii this year, and it was dedicated to him in honour of the deep significance of his contributions to Stochastic Dynamics and Nonparametric Statistics. These two areas are related by a joint methodical fund of asymptotic methods. Recent developments in both fields and the interplay between them was the topic of this workshop.

13 talks of 1 1/2 hour were presented. Three lectures addressed directly the relation between Stochastic Dynamics and Nonparametric Statistics and discussed statistical problems for models which also arise in Stochastic Dynamics (R. Z. Khasminskii (Detroit), I. A. Ibragimov (St. Petersburg), O. Zeitouni (Haifa)). Overviews on new developments in Stochastic Dynamics have been presented by L. Arnold (Bremen), P. Baxendale (Los Angeles) and Y. Kifer (Jerusalem). Further seminars were presented by D. Donoho (Stanford), G. Golubev (Berlin, Moscow), L. le Cam (Berkeley), P. Hall (Canberra), C. Stone (Berkeley), M. Low (Philadelphia), J. Wellner (Seattle). Every lecture was accompanied by an invited discussion. Invited discussants were P. Chow (Detroit), P. Imkeller (Berlin), S. Olla (Paris), J.-D. Deuschel (Berlin), A. Nemirovsky (Haifa), R. Höpfner (Freiburg), V. Spokoiny (Berlin), A. Kneip (Louvain-la-Neuve), S. van de Geer (Leiden), M. Nussbaum (Berlin), P. Groeneboom (Delft), P. Greenwood (Vancouver).

The workshop was attended by approximately 100 researchers who contributed actively to a lively scientific atmosphere.

*Michael Nussbaum*
*Berlin*

*Enno Mammen*
*Heidelberg*

*The Editor and the Bernoulli News photographer Michael Sørensen*