



Beyond Einstein

Physics for the 21st Century

**13th General Conference of the
European Physical Society**

11–15 July, 2005

University of Bern, Switzerland

Submission Deadline: 28 February 2005



Final Call for Abstracts



web page: www.eps13.org

Second Announcement

MEMBER SOCIETIES OF THE EPS

Albanian Physical Society
Armenian Physical Society
Austrian Physical Society
Belarussian Physical Society
Belgian Physical Society
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Croatian Physical Society
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French Physical Society
Georgian Physical Society
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Icelandic Physical Society
Institute of Physics, (UK)
Italian Physical Society
Israel Physical Society
Society of Physicists of Macedonia
Lithuanian Physical Society
Latvian Physical Society
Moldovan Physical Society
The Netherlands's Physical Society
Norwegian Physical Society
Polish Physical Society
Portuguese Physical Society
Romanian Physical Society
National Committee of Russian Physicists
Physical Society of Serbia & Montenegro
Royal Irish Academy (Physical Sciences Committee)
Slovak Physical Society
Society of Mathematicians, Physicists and Astronomers of Slovenia
Spanish Royal Society of Physics
Swedish Physical Society
Swiss Physical Society
Turkish Physical Society
Ukrainian Physical Society

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FOREWORD

The 13th General Conference of the European Physical Society, “Beyond Einstein – Physics for the 21st Century” will be a scientific highlight of the World Year of Physics, also declared International Year of Physics by the United Nations. This Conference offers a unique opportunity to present your research in fields that were opened by Albert Einstein through his three most famous papers, which he published in the *annus mirabilis* 1905. EPS13 is being organised jointly by the EPS Divisions and Groups, and will comprise three parallel scientific conferences, namely:

1. Photons, Lasers and Quantum Statistics
2. Relativity, Matter and Cosmology (with ESA, ESO, CERN)
3. Brownian Motion, Complex Systems and Physics in Biology

Each one of these conferences will consist of three to four topical symposia that are described in detail below. Plenary, invited and contributed talks are planned. EPS13 is specifically designed to attract young researchers, thus ample room is given for poster sessions as well as contributed oral talks. 800 to 1000 participants can be accommodated.

An Open Day on Physics and Society, co-organised with the Swiss Academy of Sciences and the Swiss Physical Society, will address a wide public under the title “Einstein Heute”.

EPS13 is one of the scientific and educational events organised by the Forum Einstein 2005 Bern: EPS13 participants are invited to take part in other events organised by the Forum, such as the official celebration on July 9, 2005, which is to be opened by the President of the Swiss Confederation.

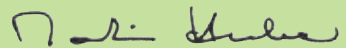
Bern with its beautiful city centre will welcome you with a rich programme of cultural and other events. Before and after EPS13 several excursions to the picturesque surroundings of Bern and into the Alps are being offered.



Martial Ducloy
International Programme Chair



Christophe Rossel
EPS13 coordinator



Martin C.E. Huber
EPS President

28 February 2005:

Abstract submission deadline

1 June 2005:

Deadline for early conference registration, hotel reservation and excursions

Conference Secretariat

*Scientific Programme, Abstract Submission,
Conference Registration,
Social Programme and Excursions*

EPS Secretariat

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F-68060 Mulhouse Cédex, France
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Fax: +33-3-8932-9449
e-mail: o.fornari@eps.org
Web site: www.eps.org

Hotel Reservations

Bern Tourism Office

Mrs Gabi Inaebnit
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CH-3001 Bern, Switzerland
Phone: +41-31-328-1228
Fax: +41-31-328-1299
e-mail: gabi.inaebnit@bernetourism.ch
Web site: www.bernetourism.ch

CONFERENCE ORGANISATION

■ International Advisory Committee

Chair: M.C.E. Huber, EPS President, Paul Scherrer Institut, Villigen (CH)

- R. Aymar, Director General of CERN, Geneva (CH)
- W. Benz, Direktor des Physikalischen Instituts, Universität Bern (CH)
- C. Cesarsky, Director General of ESO, Garching (D)
- J.-J. Dordain, Director General of ESA, Paris (F)
- M. Ducloy, EPS President 2001–2003, Université de Paris-Nord, Villetaneuse (F)
- M. Jacob, EPS President 1991–1993, CERN, Geneva (CH)
- N. Kroó, EPS President 1993–1995, Hungarian Academy of Sciences, Budapest (H)
- O. Poulsen, EPS President Elect, Engineering College of Aarhus (DK)
- R. Ricci, EPS President 1988–1991, Università di Padova (I)
- C. Schäublin, Rektor der Universität Bern (CH)
- H. Schopper, EPS President 1995–1997, CERN, Geneva (CH)
- D. Weaire, EPS President 1997–1999, Trinity College, Dublin (IRL)
- A. Wolfendale, EPS President 1999–2001, University of Durham (UK)

■ International Programme Committee

General Chair: M. Ducloy, Université de Paris-Nord (F)

■ Conference I: “Photons, Lasers and Quantum Statistics”

Chairs

- S. de Silvestri, Politecnico di Milano (I) (corresponding chair)
- N.J. Mason, Open University, Milton Keynes (UK)
- H.R. Ott, ETH Zürich (CH)

Members

- G.G. Björk, Royal Institute of Technology, Kista (S)
- W. Ertmer, Universität Hannover, (D)
- E. Hinds, Imperial College, London (UK)
- K. Horn, Fritz Haber Institut, Berlin (D)
- F. Masnou, Laboratoire Aimé Cotton, Orsay (F)
- J. Osterwalder, Universität Zürich (CH)
- L. Rivkin, Paul Scherrer Institut, Villigen (CH)

■ Conference II: “Relativity, Matter and Cosmology”

This conference is organised jointly with ESA, ESO, CERN as their triennial symposium

Chair

M. Cruise, University of Birmingham (UK) (corresponding chair)

Members

J. Bernabeu, Universidad de Valencia (E)

P. Bochslers, Universität Bern (CH)

K. Danzmann, Albert Einstein Institut, Hannover (D)

L.A. Gaumé, CERN, Geneva (CH)

A. Kugler, Nuclear Physics Institute, Rez (CZ)

F. Gianotti, CERN, Geneva (CH)

A. Gimenez, ESA, Noordwijk (NL)

R. Landua, CERN, Geneva (CH)

B. Leibundgut, ESO, Garching (D)

J. Lister, EPF Lausanne (CH)

R. Reinhard, ESA, Noordwijk (NL)

P. Shaver, ESO, Garching (D)

J. Silk, University of Oxford (UK)

U.J. Wiese, Universität Bern (CH)

■ Conference III: “Brownian Motion, Complex Systems and Physics in Biology”

Chairs

J.P. Boon, Université Libre, Bruxelles (B)

H. Kelder, KNMI, De Bilt (NL)

J.P. Bouchaud, CEA, Saclay (F)

T. Duke, University of Cambridge (UK)

Members

P. Alstrom, Niels Bohr Institute, Copenhagen (DK)

M. Ausloos, Université de Liège (B)

M. Frenz, Universität Bern (CH)

A. Goede, KNMI, De Bilt (NL)

J. Ricka, Universität Bern (CH)

■ Conference Coordination

C. Rossel, IBM, Rüschlikon (CH)

■ Local Organisation Committee

Chair

H. Balsiger, Universität Bern (CH)

Members

F. Bühler, Universität Bern (CH)

E. Flückiger, Universität Bern (CH)

B. Stauffer, Universität Bern (CH)

Bern Tourism (CH)

EPS Secretariat, Mulhouse (F)

■ Opening Session

Monday 11 July 2005, 09:30 – 12:00
Arena Auditorium (Kursaal)
Hotel Allegro (Kornhausstrasse 3, Bern)



■ Welcome

Introductory Lectures

"100 Years of Relativity", T. Damour, Institut des Hautes Etudes Scientifiques, Bures-sur-Yvette (F)

"Attosecond Physics", F. Krausz, Max-Planck Institut für Quantenoptik, Garching bei München, and Technische Hochschule Wien, (A)

"Brownian Motion" (tbc), P.G. de Gennes, Collège de France, Paris (F)

→ Conferences I, II, and III, beginning Monday, 11 July 2005, in the afternoon, will be held in the Main Building of the University of Bern and in the adjacent Institute of Exact Sciences ('Exakte Wissenschaften').

■ Conference I: Photons, Lasers and Quantum Statistics

Plenary Speakers

C. Bennett, IBM Labs, Yorktown Heights (USA)

R. Brinkmann, DESY, Hamburg (D)

R. Blatt, Universität Innsbruck (A)

T. C. Chiang, University of Illinois at Urbana-Champaign (USA)

R. Claessen, Universität Augsburg (D)

R. Doerner, Universität Frankfurt (D)

R. Grimm, Universität Innsbruck (A)

W. Kuch, Max-Planck Institut für Mikrostrukturphysik, Halle (D)

H. Katori, University of Tokyo (J)

Z.-X. Shen, Stanford University (USA)

S. Stringari, Università di Trento (I)

S. Svanberg, University of Lund (S)

Symposium PP Photo-electron Spectroscopy

In recent years, the spectroscopic exploitation of the photo-electric effect has produced a wealth of detailed information about electronic energy levels and elementary excitations in atoms, molecules and condensed matter. New territory in energy, momentum, spin and temporal resolution could be explored due to the advent of new photon sources

(synchrotron radiation, femtosecond pulsed lasers) and due to technical advances in spectrometer technology and spin polarimetry. The Symposium will reflect the latest developments and illustrate their current and future impact condensed-matter, atomic and molecular physics.

Chairs

K. Horn, Fritz Haber Institut, Berlin (D)

J. Osterwalder, Universität Zürich (CH)

Members

E.E.B. Campbell, Göteborg University and Chalmers University of Technology, Göteborg (S)

M.N. Piancastelli, Università di Roma (I)

Invited Speakers

M.C. Asensio, LURE, Orsay (F)

C. Bordas, CNRS and Université Claude Bernard Lyon-I (F)

N. Brookes, ESRF, Grenoble (F)

M. Drescher, Universität Bielefeld (D)

T. Greber, Universität Zürich (CH)

D. Lindle, University of Nevada, Las Vegas (USA)

M. Wolf, Freie Universität Berlin (D)

Symposium PC Cold Atoms and Molecules

The meeting will cover major advances in the field of atom optics, degenerate quantum gases and Bose-Einstein condensation (BEC). A variety of BEC atomic assemblies particularly interesting and useful for the study of macroscopic quantum effects will be considered. Attention will be given to novel methods for laser cooling and trapping, together with techniques to manipulate and control BEC. Great attention will be devoted to so called second-generation cooling processes to achieve comparable control over molecules. Laser cooling, precision measurement, molecular beams, and molecular spectroscopy are the ingredient to achieve control at the quantum level over all the degrees of freedom of a molecule, both internal and external. Recent progress in this field will be a major topic. Finally, applications to high-precision measurements will be also considered.

Chairs

W. Ertmer, Universität Hannover (D)

F. Masnou, CNRS, Orsay (F)

M. Inguscio, Università di Firenze (I)

N.J. Mason, The Open University, Milton Keynes (UK)

Symposium PQ Quantum Information

Quantum optics is a highly fertile research field for the future information technologies. The leading trend of current research is to use quantum mechanical effects to reach goals that cannot be achieved classically, such as perfectly secure cryptographic communications and highly efficient quantum parallel computation. The meeting will cover the main issues of these new, fast developing fields. Emphasis will be given on experimental achievements in the optical domain, and on all theoretical approaches relevant for quantum information. On the quantum processing side, attention will be focused on quantum error correction and fault-tolerant quantum computation, and on experimental implementations of quantum gates. The related fields of cloning, teleportation, and entanglement purification will be an integral part of this symposium.

Chairs

G.G. Björk, Royal Institute of Technology, Kista (S)

E. Hinds, Imperial College, London (UK)

Member

V. Buzek, Slovak Academy of Sciences, Institute of Physics, Bratislava (SK)

Symposium PF Facility-based Light Sources and Applications

This symposium is organised to reflect the exciting future that is opening up with the advent of ever more powerful and bright laser and synchrotron light sources, with unique characteristics (very short pulses and transverse and longitudinal coherence), over a broad wavelength range. The program is designed to highlight the latest developments and the emerging fields of applications that will make this century just as scientifically exciting as the last one, coming as it did on the heels of the great papers published by Einstein 100 years ago.

Chair

L. Rivkin, Paul Scherrer Institut, Villigen (CH)

Members

E.I. Lindau, Lund University (S)

W. Sandner, Max-Born Institut, Berlin (D)

H. Dosch, MPI für Metallforschung, Stuttgart (D)

J. Hajdu, Uppsala University (S)

■ Conference II: Relativity, Matter and Cosmology

organised jointly with ESA, ESO, CERN as their triennial symposium

The two immense achievements of the twentieth century, general relativity and quantum mechanics, have been submitted to serious experimental test both in the laboratory and more broadly in the Cosmos. Despite the very positive observational results, the theoretical problems in making a coherent physical model of the Universe encompassing both quantum mechanics and general relativity remain at the forefront of physics research. Conference II addresses the latest research in the overlapping areas of Gravitation, Particle and Nuclear Physics and Cosmology. A series of plenary review talks will be available to all participants of Conference II at a level to stimulate the interest of physicists and astronomers both within and outside their own specialisation. Contributed talks by conference participants wishing to present more detailed research results will be scheduled in the afternoons. Poster sessions will be available for participants not giving oral presentations. Topics to be covered include Fundamental Laws of Physics and the constancy of Physical Constants, Tests of General Relativity, Quantum Gravity, Dark Energy, Gravitational Waves, String Theory and Extra Dimensions, The Standard Model and Beyond, LHC Physics and the Origin of Mass, Neutrino Oscillations and Masses, Matter in Extreme Conditions, Dark Matter, the Early Universe, Cosmological Parameters, Matter in the Universe, and Supernovae in Cosmology.

Plenary Speakers include

K. Danzmann, Albert Einstein Institut, Hannover (D)
G. Drexlin, Universität Karlsruhe (D)
G. Efstathiou, Cambridge University (UK)
J. Engelen, CERN, Geneva (CH)
C.W.F. Everitt, Stanford University (USA)
E. Fiorini, Università di Milano (I)
W. Gellatley, University of Surrey (UK)
F. Iachello, Yale University (USA)
V.M. Kaspi, McGill University, Montreal (CND)
G. Ross, University of Oxford (UK)
B.F. Schutz, Albert Einstein Institut Potsdam (D)
J. Silk, University of Oxford (UK)

D. Spergel, Princeton University (USA)
J. Stachel, Universität Heidelberg (D)
F. Wagner, MPI für Plasmaphysik, Greifswald (D)

Sessions:

- Ra** The Fundamental Laws of Physics and the Constancy of Fundamental Constants
- Rb** Tests of Gravitational Theory and General Relativity
- Rc** Quantum Gravity
- Rd** Dark Energy
- Re** Gravitational Waves

Chairs

K. Danzmann, Albert Einstein Institut, Hannover(D)
A. Gimenez, ESA, Noordwijk (NL)
R. Reinhard, ESA, Noordwijk (NL)

- Rf** String Theory and Extra Dimensions
- Rg** The Standard Model and Beyond
- Rh** LHC Physics and the Origin of Mass
- Ri** Neutrino Oscillations and Masses
- Rj** Matter in Extreme Conditions

Chairs

J. Bernabeu, Universidad de Valencia (E)
P. Bochler, Universität Bern (CH)
A.A. Kugler, Nuclear Physics Institute, Rez (CZ)
R. Landua, CERN, Geneva (CH)
U.J. Wiese, Universität Bern (CH)

- Rk** Dark Matter
- RI** The Early Universe
- Rm** Cosmological Parameters
- Rn** Matter in the Universe
- Ro** Supernovae in Cosmology

Chairs

B. Leibundgut, ESO, Garching (D)
P. Shaver, ESO, Garching (D)
J. Silk, University of Oxford (UK)

■ Conference III: Brownian Motion, Complex Systems and Physics in Biology

In the first paragraph of one of his celebrated papers published in 1905, Einstein wrote: ...according to the molecular-kinetic theory of heat, bodies of microscopically-visible size suspended in a liquid will perform movements of such magnitude that they can be easily observed in a microscope. It is possible that [these] movements are identical with the so-called "Brownian molecular motion". This article along with his doctoral dissertation and the paper published in the following year set the basis for the theory of Brownian motion which would prove to be - for years to come until nowadays - a source of inspiration in the analysis of fundamental and practical problems in statistical physics, in the theory of fluids, and in condensed matter physics, further extending into the theory of stochastic processes, dynamical systems theory, theoretical biology, and the theory of financial markets.

Various aspects of modern implications of the theory of Brownian motion and the ensuing new perspectives are the components of the spectrum of topics that constitute the programme of the Symposium From Brownian Motion to the Complexity of Biological Physics. Starting from the paradigmatic random walk model, Louis Bachelier developed his "Théorie de la spéculation" in his thesis presented at the Sorbonne in 1900 and his ideas - forgotten for more than half a century - have been reactivated in the new field of Econophysics which is theme of the second Symposium where the complexity of financial markets will be explored. Complexity is also at the core of the physics of the atmosphere which will be the main subject of the third Symposium.

Plenary Speaker

G. Ahlers, University of California, Santa Barbara (USA)

H. Berg, Harvard University (USA) (tbc)

J. Bluener, Institut für Kernphysik, Karlsruhe (D)

G. Brasseur, Max-Planck Institut für Meteorologie, Hamburg (D)

D. Challet, University of Oxford (UK)

P. Hänggi, Universität of Augsburg (D)

Y. Klafter, Tel-Aviv University (IL) (tbc)

T. Lux, Universität Kiel (D)

H. Nicolai, Albert Einstein Institut, Golm (D)

A. Vulpiani, INFN, Università La Sapienza, Roma (I)

Symposium BB From Brownian Motion to the Complexity of Biological Physics

Various aspects of modern implications of Einstein's theory developed in his 1905 article on the theory of the Brownian movement and ensuing new perspectives are the components of the spectrum of topics that constitute the program of this Symposium. Invited speakers will discuss how ideas based on the theory of random walks and Brownian motion lead to the analysis of problems such as stochastic resonance, classical and quantum Brownian motors, anomalous diffusion, critical fluctuations, signals and noise, and more generally the complexity of biological physics.

Chairs

J.P. Boon, Université Libre, Bruxelles (B)

T. Duke, University of Cambridge (UK)

Members

P. Hänggi, Universität Augsburg (D)

M. San Miguel, IMEDEA, Palma de Mallorca (E)

Invited Speakers

D. Frenkel, FOM-Institute for Atomic and Molecular Physics (NL) (tbc)

P. Jung, University of Ohio, Athens (USA) (tbc)

F. Marchesoni, Università di Camerino (I) (tbc)

J. Prost, Ecole Supérieure de Physique et de Chimie Industrielles, Paris (F) (tbc)

C. Veigel, National Institute for Medical Research, London, UK (tbc)

Symposium BR From Random Walks to the Complexity of Financial Markets

Financial time series represent an extremely rich and fascinating source of questions, where a trace of human activity is recorded and stored in a quantitative way, sometimes over hundreds of years. These time series, perhaps surprisingly, turn out to reveal a very rich and non-trivial statistical structure. Statistical models that describe these fluctuations have a long history, which dates back to Bachelier's "Brownian walk" model for speculative prices in 1900, five years before Einstein's theory of the Brownian motion. Much more sophisticated models are however needed to describe more faithfully empirical data. For example, that financial data share many statistical properties with turbulent velocity and intermittent, multifractal fluctuations. The recent availability of very high frequency data allows one to dwell very deep into the mechanisms underlying the intermittent random walk nature of price fluctuations.

Chairs

P. Alstrom, Niels Bohr Institute, Copenhagen (DK)

J.-P. Bouchaud, CEA, Saclay (F)

Members

M. Ausloos, Université de Liège (B)

J. Keretsz, University of Budapest (H)

Invited Speakers

J.F. Muzy, Université de Bordeaux (F)

H. Foellmer, Humboldt Universität zu Berlin (D)

R. Mantegna, Università di Palermo (I)

J. Peinke, Universität Oldenburg (D)

Symposium BP Physics of the Atmosphere (with the ESA Earth Observation Directorate)

Physics of the Atmosphere has become a hot topic of research. Its relevance to environmental and climate change is placing urgency on the development of scientific understanding. Immediate needs for better understanding arise also from health physics aspects of air pollution and surface UV radiation. Global observations of the terrestrial atmosphere can only be practically achieved by satellites and these measurements need to be added to ground based and airborne observation and assimilated in models in order to gain scientific understanding of the Earth system. In this session, both observation and modelling aspects will be covered.

Chairs

A. Goede, KNMI, De Bilt (NL)

C. Zehner, ESA, Frascati (I)

Members

H. Kelder, KNMI, De Bilt (NL)

K. Künzi, Universität Bremen (D)

J. Staehelin, ETH Zürich (CH)

Invited Speakers

G. Bergametti, Université de Paris (F) (tbc)

O. Boucher, Université de Lille-I (F) (tbc)

J. Burrows, Universität Bremen (D)

H. Eskes, KNMI, De Bilt (NL)

H. Fischer, Universität Karlsruhe (D)

SUBMISSION OF ABSTRACTS

The International Programme Committee invites the submission of abstracts covering original, unpublished work in the topics of the Symposia described above.

Please submit your abstracts to only one conference. The EPS13 Programme Committee will transfer abstracts from one Conference to the other, where appropriate, unless written instructions to the contrary are given by the author at the time of submission.

→ Abstract Deadline: 28 February 2005

Authors are requested to electronically submit their 200-word abstract without figures, together with the submission form. Complete instructions can be found at www.eps13.org

■ Requirements for the electronic submission

An electronic submission form is available on www.eps13.org please insert the title, choose the Conference and Symposium, to which you want to submit your abstract, indicate your preference between poster and oral presentation. (Note, however, that the final decision on the form of presentation will be made by the International Programme Committee.) Insert the abstract in *.pdf format via the browse button. Type in the name and the complete coordinates of the corresponding author, add the names and affiliations of all other authors.

■ Abstract

The 200-word abstract should be typed with single-line spacing and prefaced by the title of the abstract, the authors and their affiliations, as well as the e-mail address of the corresponding author.

■ Please follow the layout recommendations below

- Format: Acrobat (*.pdf) file
- Only submit black and white documents without figures, and please avoid the use of undefined symbols and acronyms
- The text of the abstract (including references) must not exceed 200 words.

- Paper size: A4 (210 mm x 297 mm); material formatted for 8"x 11" paper will be converted to A4
 - Margins: left and right = 20 mm, top = 37 mm, bottom = 19 mm
- Fonts: 10 pt Times (roman, bold or italic) fonts (cf. example below)
 - for the title use 14 pt Times bold letters, centred on the page
 - list author's names and affiliation in 10 pt Times italic, centred on the page
 - relate authors and their affiliations by superscript numbers (cf. example below)
write the text, left adjusted, with 10 pt Times roman fonts.
- Cite references at the end of the page, by use of superscript letters (maximum of two) and avoid footnotes

How an EPS13 Abstract Might Look like

*B.C. Author¹ (bauthor@bluewin.ch), M. Second², M. Third²,
D.E. Further¹ and I.G. Higher²*

¹ Swiss Patent Office, CH-3000 Bern

² Alpine Research Station Jungfrauojoch, CH-3801 Jungfrauojoch

Use paper in the A4 format (210 mm x 297 mm) and set margins to the left and right at 20 mm, on top to 37 mm and on the bottom to 19 mm. Then set the font to 'Times' and start with the title in 14-point size boldface. Underneath, go on with 10-point italic 'Times' fonts and list the authors in the desired sequence. Please insert (in parentheses) the e-mail address of the corresponding author, immediately following his/her name. On the next line, list the affiliations. Superscript numbers are used to relate authors and affiliations to one another (see example above). Now, horizontally centre title, author names and affiliations, and continue after one free line with left-adjusted abstract text in 10-point roman (i.e., normal) 'Times' font. Should you need references, call them out by superscript letters, but please avoid giving more than two references. Once you have converted your abstract into a *.pdf file, save it for later insertion into the electronic submission form. To give you an idea of the desired length of the abstract: the present text, with its 193 words, is close to the maximum length of 200 words.

SUBMISSION OF ABSTRACTS

These recommendations are intended to avoid technical problems in the submission of your abstract. EPS will do their best to correct any problems arising, but please be aware that, in some cases, the registration form or the abstract may have to be returned to the author for correction.

To avoid having your abstract rejected, please respect the above guidelines.

Authors will be notified via e-mail within 72 hours of receipt of their submission. If you have not received confirmation within that time, please contact the Conference Secretariat.

The abstracts will be reviewed by members of the International Programme Committee and the corresponding author will be notified by 30 April 2005 whether the contribution is accepted for presentation at the conference.

Should you be unable to submit your abstract electronically and/or in *.pdf format, please contact the EPS Conference Secretariat.

Poster Format

The foreseen format for posters is A0 portrait (1188 mm x 840 mm).

Please follow the
recommendations

■ Language

The official language will be English.

■ Conference Venue

The 13th General Conference of the European Physical Society, EPS13, will take place in the Main Building of the University of Bern and in the adjacent Institute of Exact Sciences ('Exakte Wissenschaften'). The Opening session will be held in the Arena Auditorium (Kursaal) of the Hotel Allegro (Kornhausstrasse 3, Bern)



1 Main Building of the University of Bern and the adjacent Institute of Exact Sciences

Hochschulstrasse 4
Sidlerstrasse 5

2 Main rail station

3 Kursaal (Hotel Allegro Grand Casino Bern)

Kornhausstrasse

4 Hotel Kreuz

Zeughausgasse 41

5 Kultur Casino

Casinoplatz

6 Historical Museum of Bern

Helvetiaplatz 5

GENERAL INFORMATION

How to reach Bern

By plane

Bern Airport (www.alpar.ch) features only a small number of direct European flights and transfer connections through Basel (BSL), Zurich (ZRH), and other airports. In most cases it may be more convenient to fly to Zurich (www.unique.ch), Basel (www.euroairport.ch), or Geneva (www.gva.ch), and to reach Bern by train from there.

Zurich and Geneva offer convenient changes at their respective airport railway stations; the journey will take 90 (ZRH) or 120 minutes (GVA). EuroAirport Basel has frequent bus connections to Basel main station, from where the train to Bern takes approximately one hour. Train tickets are available at vending machines and counters at the stations; timetable info at www.rail.ch.

By train

Participants from neighbouring countries may consider travelling to Bern by train. There are convenient connections from France, Spain, Italy, Austria, Germany, the Netherlands, Luxemburg, and Belgium to Bern main station. For timetable information see www.rail.ch.

How to reach the Arena Auditorium in the Kursaal (Hotel Allegro & Grand Casino Bern)

By foot

from the town centre ("Zytglogge", or Clock Tower)

Go towards the 'Stadttheater' and continue across the 'Kornhausbrücke' bridge. The Hotel Allegro is on your left at the other end of the bridge.

By tram

from the train station

The tram stop is "Kursaal" on line 9, direction "Guisanplatz"

By car

Coming from the Autoroute A1, take exit 'Bern-Wankdorf' and drive towards the town centre on 'Papiermühlestrasse'; at 'Viktoriastrasse' turn right, and turn left again into 'Kornhausstrasse'. The Hotel Allegro will then come up on your right. Just before you reach the 'Kornhausbrücke', turn right into 'Schänzlihalde', where you will find the entrance to the underground garage of the Hotel Allegro.

How to Reach the University of Bern

From the Kursaal

On foot (20 min.): via "Zytglogge" to the main rail station (see map)

Or by tram: line N.°9 to the main rail station.

On foot from the Central Station (recommended)

Upon arrival at the Bern train station proceed to the elevators at the end of the underpass that connects the tracks. Go up to the top floor ('Grosse Schanze') and you will be in the immediate vicinity of the Main Building, which will be behind you as you step out of the elevator.

By car

Leave the freeway A1 at exit Bern-Neufeld and proceed towards the city centre (Zentrum). At the first round-about turn right. After about 500 m you will reach an intersection with a Shell gas station on the far left hand side. There you have to turn left into the Gesellschaftsstrasse. The Institute Exakte Wissenschaften is at the end of this road. Please be aware that there are no long-term parking spaces available around the institute, and the rates of the nearby parking garages are rather high.

By bus

The bus stop on line 12 is "Universität," direction Länggasse, if you are coming from the centre. The bus stop is approximately 150 m from the Main Building of the University. Coming from the train station, it is easier and faster to take the elevator.

■ Registration Desk

The Conference Secretariat and the Registration Desk will be located at the Hotel Kreuz (Zeughausgasse 41, Bern • www.hotelkreuz-bern.ch), from Friday 8 July until Monday 11 July 2005, in the morning, i.e. before the Opening Session. There will be no Registration Desk at the Opening Session in the Hotel Allegro (Kursaal), but no registration will be required for this session. As of Monday 11 July, in the afternoon, the Registration Desk will be in the Entrance Hall of the Main Building of the University of Bern.

Registration Desk hours:

Hotel Kreuz:	Friday, 8 July 2005	14:00 – 19:00
	Saturday, 9 July 2005	14:00 – 19:00
	Sunday, 10 July 2005	14:00 – 19:00
	Monday, 11 July 2005	07:30 – 10:00

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University Main Building:	Monday, 11 July 2005	12:30 – 18:00
	Tuesday, 12 July 2005	08:00 – 18:00
	Wednesday, 13 July 2005	08:00 – 14:00
	Thursday, 14 July 2005	08:00 – 14:00

■ Registration Fees

The registration fee for the meeting includes admission to all EPS13 technical sessions, to the coffee breaks and the reception at the Historical Museum. Each participant will receive one abstract book at the registration desk. Conference II will produce proceedings, which will be billed separately.

By registering before 1 June 2005 you will benefit of reduced registration fees (see table), fees are given in Euros.

Registration for the entire conference

Participant	before 31 May	from 1 June
EPS Members (IM)	200 €	250 €
Non Members	250 €	325 €
EPS Students Members	100 €	130 €
Students, Non Members	125 €	170 €

(All registration fees are exempt from Value Added Tax).

One day registration

Participant	before 31 May	from 1 June
EPS Members (IM)	100 €	100 €
Non Members	150 €	150 €
EPS Students Members	50 €	50 €
Students, Non Members	130 €	130 €

(All registration fees are exempt from Value Added Tax).

* Application for the student rates must include a photocopy of an official student identity card, which must also be presented on-site when collecting registration materials.

Participants are asked to wear their badge during all events of the conference (except for the Opening Session, where access will be free).

Meals are not included in the registration fee. Participants can get lunch from the University Mensa or in the numerous small restaurants located near the University. Information about restaurants will be available at the Registration Desk. A list of Bern restaurants is also available on the website of the Bern Tourism Office (www.berne.ch).

Payment

To benefit from the reduced early registration fees, payment must accompany the conference registration form and be received by 31 May 2005. Payment may be made by one of the following methods:

1. *by credit card*: Visa or MasterCard (recommended)
Please fill in the needed information on the conference registration form. (NB: American Express and Diners Club cannot be accepted).
2. *by bank transfer*: in Euros payable to
Bank name: BNP Paribas Mulhouse, France
Account Name: European Physical Society
Account No: 000 100 58374 key: 76
Bank Code: 30004
Pay point: 00440
Swift Code: BNPAFRPPMUL
IBAN: FR76 3000 4004 4000 0100 5837 476
Details of payment: 'EPS13' and please give your name so that we can credit the payment to you.

Please enclose a copy of the instruction to the bank with the conference registration form, and note that all bank fees are payable by the applicant.

3. *by cheque*, bank draft or postal order in Euros payable to the European Physical Society
BP 2136, 6 rue des Frères Lumière
F-68060 Mulhouse Cédex, France
We regret that personal cheques and Euro cheques cannot be accepted.
4. *Payment in cash* (Euros or Swiss Francs) can be accepted only for the on-site registration at the conference desk

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Proof of Payment

The EPS will send a receipt to all participants whose payments have been received by 30 June 2005. In case you have not received a receipt, but your payment has been effected please present proof of payment when you register.

Cancellation and Refund

To obtain a refund, a request for cancellation must be made in writing (e-mail to o.fornari@eps.org) by Friday, 18 June 2005. An administration charge of 46 € will be made for processing refunds.

■ Insurance

Participants are strongly advised to make their own insurance arrangements. The organizers cannot accept any liability for personal injuries sustained, or for loss or damage to property belonging to participants and accompanying persons, either during or as a result of the Conference.

■ Passport and Visa Requirements

Foreign visitors entering Switzerland must be in possession of a valid ID card or passport. Delegates from countries requiring visa should apply to the Swiss consular offices or diplomatic missions in their home countries. Participants requiring a letter of invitation to include with their visa application should directly contact Mrs Ophélie Fornari at the EPS Conference Secretariat.

Requests for invitation letters must arrive at the EPS Conference Secretariat by Friday, 13 May 2005.

■ Support

A limited amount of funding will be available. The deadline for requests is Friday, 20 May 2005.

Participants from central and eastern European countries may apply to the East West Task Fund. They may check whether they fulfil all the conditions at www.fzu.cz/varia.ewtf

Physicists under the age of 35 may apply directly to the EPS Secretariat. Those wishing to apply should outline the reasons for the support request in a letter to the EPS Secretary General.

Additional sources of support are being negotiated.

■ **Hotel Reservation**

Hotel reservation is organized by the Tourism Office in Bern. The list of hotels in all categories can be found on the EPS13 website. Please register on-line, following the link from the EPS13 website. If you cannot register on-line, fill out and send the hotel reservation form by mail or by fax to the Tourism Office in Bern. Booking confirmation will be sent to you. The payment will be settled by the participant directly at the hotel. Because of the high tourist season, please be advised to make your hotel reservation early enough and at the latest by 1 June 2005.

■ **“2005—the Einstein Year in Bern”, and other social and cultural events within the EPS13**

Bern will welcome you with a rich programme of scientific and cultural events. In the week preceding EPS13, several scientific and cultural events will take place in connection with “2005—The Einstein Year in Bern (www.einstein2005.ch) and EPS has also arranged for excursions—immediately before and after EPS13—into the picturesque surroundings of Bern and into the Alps.

Thursday and Friday, 7 and 8 July 2005

The EPS History Group is co-sponsoring the public science-history Symposium “Heuristics, Discovery and Innovation: Einstein’s *annus mirabilis*”, which will bring together today’s leading Einstein biographers.

Saturday, 9 July 2005

Three public scientific lectures will be presented by Claude Cohen-Tannoudji, Alan Guth and Anton Zeilinger. The lectures are scheduled in the morning and will take place in the Burgerratsaal of the Kulturcasino. Access is free.

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A public Einstein celebration ('Festakt') in the presence of leading figures from academia, culture, industry and politics will take place during the afternoon in the Concert Hall of the Kulturcasino.

This festive occasion stands under the patronage of the President of the Swiss Confederation and will be interspersed with musical performances. The 'Festakt' will feature an address by the President of the Confederation, a précis of the discussions preceding the award of the 1921 Nobel Prize to Albert Einstein, a rendering on what it means to be a physicist today, as well as remarks by the recipient of the Einstein Medal 2005.

Monday, 11 July 2005

Meeting Einstein - experiencing physics (www.bhm.ch), will be offered to the participants by the Bernese Historical Museum.

Please indicate on the registration form, whether you and any accompanying persons want to participate in the reception. Note that the Historical Museum, albeit within walking distance (about 15 to 20 minutes) from the University is on the other side of the old town of Bern.

Tuesday, 12 July 2005

Cultural Event (not included in the registration fee)

We are planning a concert with music from the time of Albert Einstein's *annus mirabilis*.

Wednesday, 13 July – 20:00 hrs

Conference Dinner (not included in the registration fee)

In order to avoid a conference dinner with too many guests, the participants will have the choice between two different dinner locations, namely at the Zentrum Paul Klee or in the Kornhauskeller. Please reserve your dinner with the registration form, by 1 June 2005. Price: 68 €

Thursday, 14 July – 17:30 hrs

Annual Meeting of the Swiss Academy of Sciences.

The Annual Meeting will be opened with a Main Symposium (two open lectures) and be followed by an Award Ceremony and a grill party.

Friday, 15 July

EPS13 Open Day "Einstein Heute"

The EPS Physics Education Division, in collaboration with the Swiss Academy of Sciences and the Swiss Physical Society, will organise an Open Day with the general theme “Einstein Heute” with a programme destined for the general public. It will feature lectures, round table discussions, demonstration sessions as well as a science fair. The European Inter-governmental Research Organisations CERN, EFDA/JET, EMBL, ESA, ESO, ESRF and ILL (EIROforum) will participate. A web cast for pupils is planned, which will provide links to laboratories in some of these organisations.

The EPS13 Open Day is part of the Annual Meeting of the Swiss Academy of Sciences and will offer keynote talks on modern applications of Albert Einstein’s discoveries a century ago.

■ Excursions

The city of Bern itself—with its stately sandstone buildings, historic towers and unique fountains—is one of the finest examples of medieval civic architecture. Six kilometres of arcades, lined with stores, restaurants and cafés, invite an extended promenade and on Tuesday and Saturday mornings a colourful market is held in the centre of town.

The city’s appearance has remained virtually unchanged for centuries, earning Bern a place on the UNESCO list of World Heritage Sites. Bears, Bern’s heraldic symbol, live in the popular Bear Pits. Bern is also the seat of the Swiss government.

All excursions listed below will be accompanied by English speaking guides. The prices are per person including VAT. The prices of all tours are based on a minimum number of participants (for the exact numbers, see below). If the minimum number of participants is not reached, the tour will be cancelled.

→ Deadline for reserving excursions: 1 June 2005.

Excursion Reservations

To book an excursion, please register on-line by following the link on the EPS13 web site. If you cannot register on-line, please fill in the Excursion Form and send it to the EPS Secretariat by regular mail or fax. The excursions will be cancelled if the minimum number of participants is not reached (and refund will be arranged). The deadline for reserving excursions is 1st June

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Sunday, 10 July 2005 **Jungfrauoch – top of Europe**

Price: 121 €

min. 40 participants

The coach will take you along the Lake of Thun via Interlaken to the glacier village of Grindelwald. From there, you travel by rack-railway up to the Kleine Scheidegg, right below the Eiger north face, the Mönch and Jungfrau mountains. A long tunnel (<http://www.jungfraubahn.ch>) then leads you to the Jungfrauoch (3454 m).

On the Jungfrauoch, two options are available:

Visit of the International Alpine Research Station (www.ifjungo.ch). Fifteen research groups are currently using the Station for investigations in the fields of atmospheric physics, cosmic rays, infrared astronomy, medicine and power electronics. Access to the Research Station is limited to 40 persons.

Visit of the ice palace, Sphinx observation terrace (3571 m) with a view of the Aletsch glacier, the longest glacier in Europe.

After lunch, return by rack-railway via Wengen to Lauterbrunnen and by bus to Bern.

Price includes all transport, lunch (without beverages) and an English-speaking guide. There is a minimum of 40 participants (each one free to choose option 1 or 2) to this excursion.

(The limited space in the Research Station led the organisers to schedule this excursion for three different dates. The organisers gratefully acknowledge the sponsorship of the Jungfraubahn, which results in a very favourable fee for this otherwise rather costly excursion into the world of eternal snow.)

Schilthorn – in 1000 seconds on the trail of 007

Price: 119 €

min. 40 participants

By bus, you ride past the 'Staubbach' falls in Lauterbrunnen to Stechelberg. From there, you will reach the Schilthorn (2971 m)—where several sequences of the James Bond movie „On Her Majesty's Secret Service“ were filmed—in a mere 1000 s. Lunch with a panoramic view in the revolving restaurant "Piz Gloria" will be followed by a visit to the holiday resort Mürren. Return to Bern by coach.

Price includes all transport, lunch (without beverages) and an English-speaking guide. There is a minimum of 40 participants to this excursion.

Niesen – the Swiss pyramid

Price: 100 €

min. 20 participants

Departure from Bern to Mülenen by train, journey along Lake Thun into the Bernese Oberland. The top of the pyramid-shaped Niesen mountain is reached by funicular. The panoramic view extends from Lake Thun and the Bernese Alps to the Black Forest in neighbouring Germany. Lunch in the Niesen mountain restaurant will be followed by a visit to Spiez. Boat cruise to Thun, and return from Thun to Bern by train.

Price includes all transport, lunch (without beverages) and an English-speaking guide.

Gruyère – dairy and castle

Price: 64 €

min. 40 participants

By bus, ride past lush green meadows to the medieval, picturesque and hilly town of Gruyères in the French-speaking region of Switzerland. In a cheese dairy, watch up close how the popular Gruyère cheese is made. Lunch at the restaurant "le Chalet." A „must“ for visitors is a stroll through the town's main street with its splendid late Gothic houses and a visit of the imposing castle. Return to Bern by coach.

Prices includes all transport, entrance fee of the cheese dairy and castle, lunch (without beverages) and an English-speaking guide

Lake of Biel region - boat trip and wine tasting

Price: 79 €

min. 40 participants

A round tour by bus will lead you back in time to the medieval towns and villages along the Lake of Biel. For example, Aarberg with its unique market square, the hilly town of Erlach with its castle. In Erlach you will board the ship to St. Peter's Island where the philosopher Jean-Jacques Rousseau penned many important works. After lunch you will enjoy the beauty of the island. Boat trip to the wine-growers' village of Ligerz. As a

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special attraction: wine tasting in a vintage-age wine cellar. As a souvenir you will get a wine glass! Return to Bern by coach.

Price includes all transport, lunch (without beverages) and an English-speaking guide.

Tuesday, 12 July 2005 (in the evening)

Old Town walk including visit to the Clock Tower

Price: 10 €

min. 20 participants

A multilingual guide will accompany a group of 20-25 people on this voyage of discovery through Berne's old town and also take you to visit the historical clockwork in the Clock Tower ('Zytglogge'). From the tower there is a unique view over the roofs of Berne's old town.

Friday, 15 July 2005

Jungfrauoch - Top of Europe

Price: 121 €

min. 40 participants

This excursion will enable access to the Alpine Research Station Jungfrauoch for another 40 persons. See description of the identical excursion under the date of Sunday, 10 July 2005.

CERN - the world's largest particle accelerator

Price: 32 €

Min. 50 participants

Price includes only the trip by bus from Bern to CERN and v.v., and transport on site. Lunch can be bought in the CERN Cafeteria. There is a minimum of 50 participants, and a maximum of 150 participants to this excursion.

Saturday, 16 July 2005

Jungfrauoch - Top of Europe

Price: 121 €

min. 40 participants

This excursion will enable access to the Alpine Research Station Jungfrauoch for another 40 persons. See description of the identical excursion under the date of Sunday, 10 July 2005.

■ Exhibitions

“Meeting Einstein - experiencing physics”

a major Exhibition in the Bernese Historical Museum

This exhibition on the theme 100 years of relativity theory and its discovery in Bern will be open from 16 June 2005 until 17 April 2006.

Additional information on www.bhm.ch

Einstein House

Einstein rented the apartment at Kramgasse 49 between 1903 and 1905. Furnished in turn-of-the-century style, it documents the important years that Einstein spent in Berne.

Additional information on www.einstein-bern.ch

Zentrum Paul Klee

With around 4'000 works by Klee, the Paul Klee Centre - designed by the renowned architect Renzo Piano and opening on 20 June 2005 - is the largest existing Klee collection.

Additional information on www.kleemuseum.ch

■ Conference Management

Conference management is provided by Conference Department of the European Physical Society.

**For more information on EPS13 and for updates,
please visit the conference website www.eps13.org**

Schedule Outline of EPS13

		Conference I	Conference II	Conference III
Thursday and Friday 7 and 8 July		<i>Heuristics, Discovery and Innovation: Einstein's annus mirabilis (Kulturcasino)</i>		
Saturday 9 July	morning	<i>Forum Einstein: Scientific Lectures (Kulturcasino)</i>		
	afternoon	<i>'Festakt': Einstein Celebration (Kulturcasino)</i>		
Sunday 10 July	whole day	Excursions to Jungfrauoch (incl. Research Station), Schilthorn, Niesen, Gruyère, lake of Biel region		
Monday 11 July	morning	Opening Session (Kursaal)		
	afternoon	Oral Sessions		
	evening	Reception at the Historical Museum Bern		
Tuesday 12 July	morning	Oral Sessions		
	afternoon	Oral and Poster Sessions		
	evening	Cultural event (tbc), Town Walk of Bern		
Wednesday 13 July	morning	Oral Sessions		
	afternoon	Oral and Poster Sessions		
	evening	Conference Dinner (choice: Klee Centre or 'Kornhauskeller')		
Thursday 14 July	morning	Oral Sessions		
	afternoon	Oral and Poster Sessions	Oral Sessions	
	late afternoon	<i>Annual Meeting of the Swiss Academy of Sciences (two Open Lectures, Grill Party)</i>		
Friday 15 July	whole day	Open Day in collaboration with Swiss Academy of Sciences and Swiss Physical Society; Excursions to Jungfrauoch (incl. Research Station) and to CERN		
Saturday 16 July	whole day	Excursion to Jungfrauoch (incl. Research Station)		

Note that registration for EPS13 comprises all three Conferences; participants may - following their interests - freely circulate between the three conferences

boldface: scientific events within EPS13

normal typeface: social and cultural events, and excursions of EPS13

italic: other events within the 'Einstein Bern 2005 Festival'

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Swiss Academy of Sciences
Akademie der Naturwissenschaften
Accademia di scienze naturali
Académie des sciences naturelles



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