16th International Congress on Mathematical Physics

Prague, August 3-8, 2009

The third information bulletin

News summary in brief

Registration: About 575 participants registered to this date. You can still decide to attend the congress; the online registration facility is open till July 26

Programme: Finished up to a final fine-tuning. There will be 16 plenary talks, 70 invited session talks, 60 contributed talks and about 190 posters

Young Researcher Symposium: On July 31 and August 1, there will be 6 plenary lectures and 26 seminars

Prizes: The winners of the Poincaré Prize sponsored by Iagolnizer Foundation and the IAMP Early Career Award will festively announced on August 3. At the YRS the IUPAP Young Scientist Prizes will be awarded.

IAMP General Assembly: It is scheduled for August 3 at 8pm. The next congress site and other matters concerning future of the Association will be discussed.

Supplementary programme: Round table discussion, journal meetings, human rights session, ICMP history exhibition, and more

Social programme: Organ concert in St. Vitus Cathedral, string quartet concert, congress dinner, and more

More information: A complete and up-to date information is available at the congress web page, *http://www.icmp09.com/*

See you soon in Prague!

Basic information

Place: *Prague, Czech Republic*
Dates: *August 3–8, 2009, with the YRS on July 31–August 1*
Congress site: *Clarion Congress Hotel Prague, http://www.cchp.cz/pages/en/*
URL: *http://www.icmp09.com/*
E-mail: *icmp@ujf.cas.cz, icmp09@cbttravel.cz*
Registration: *http://www.icmp09.com/on-line-forms*, **open up to July 26**
Auspices: *President of the Czech Academy of Sciences, Mayor of Prague Rectors of the Charles and Czech Technical Universities*
Sponsors: *NSF, DFG, IUPAP, ESF, DIF, ICIAM, etc., as well as Doppler Institute and several other Czech academic institutions*
Scientific committee: *Michael Aizenman, Ingrid Daubechies, Pavel Exner, Juerg Fröhlich, Giovanni Gallavotti (chair), Yakov Sinai, Jan Philip Solovej*

Scientific Programme

The most complete and up-to-date information about the congress programme is available at *http://www.icmp09.com/scientific-programme*

Plenary lectures

Vladimir Bazhanov, *Saturday 10.15*
QUANTUM GEOMETRY OF 3-DIMENSIONAL LATTICES

Demetrios Christodoulou, *Tuesday 9.00*
THE FORMATION OF BLACK HOLES IN GENERAL RELATIVITY

Bertrand Duplantier, *Monday 12.15*
A RIGOROUS PERSPECTIVE ON LIOUVILLE
QUANTUM GRAVITY & KPZ

László Erdős, *Monday 11.00*
UNIVERSALITY OF SPECTRAL STATISTICS FOR CERTAIN
WIGNER RANDOM MATRICES

Alice Guionnet, *Thursday 10.15*
MATRIX MODELS, ENUMERATION OF MAPS AND FREE
PROBABILITY

Philip Holmes, *Thursday 9.00*
    THE PHYSICS OF DECISION MAKING: STOCHASTIC DIFFERENTIAL
    EQUATIONS AS MODELS FOR NEURAL DYNAMICS AND EVIDENCE
    ACCUMULATION IN CORTICAL CIRCUITS

David Kosower, *Friday 9.00*
    NEW TECHNOLOGIES IN THE HUNT FOR NEW PHYSICS

Roberto Longo, *Saturday 9.00*
    OPERATOR ALGEBRAS AND NONCOMMUTATIVE GEOMETRIC
    ASPECTS IN CONFORMAL FIELD THEORY

Jens Marklof, *Wednesday 11.45*
    KINETIC TRANSPORT IN CRYSTALS

Vieri Mastropietro, *Friday 10.15*
    ISING MODELS, UNIVERSALITY AND THE NON-RENORMALIZATION
    OF THE QUANTUM ANOMALIES

Alessandro Pizzo, *Tuesday 10.15*
    THE INFRARED PROBLEM IN NONRELATIVISTIC QED

Petr Šeba, *Tuesday 11.45*
    TRAFFIC AND THE VISUAL PERCEPTION OF SPACE

Robert Seiringer, *Thursday 11.45*
    HOT TOPICS IN COLD GASES

Sylvia Serfaty, *Wednesday 10.15*
    FROM THE GINZBURG-LANDAU MODEL TO VORTEX LATTICE
    PROBLEMS

Samson Shatashvili, *Friday 11.45*
    SUPERSYMMETRIC VACUA AND QUANTUM INTEGRABILITY

Steven Weinberg, *Wednesday 9.00*
    CHANGING VIEWS OF QUANTUM FIELD THEORY

Topical sessions

MECHANICS AND DYNAMICAL SYSTEMS (INCLUDING INTEGRABLE
    SYSTEMS AND HAMILTONIAN STABILITY)
    Organizers: Igor Krichever and Lai-Sang Young
    Invited speakers: Chong-Qing Cheng, Vadim Kaloshin, Sergei Kuksin,
    Domokos Szász, Alexander Veselov, Amie Wilkinson
    Contributed talks: Anatoly Prykarpatsky, Jaroslav Dittrich, Andreas Henrici,

Oleg N. Kirillov, Nikolai A. Magnitskii, Hector Sanchez-Morgado, Christoph Schumacher, Artur Sergyeyev, Gerald Teschl

EQUILIBRIUM STATISTICAL MECHANICS (CLASSICAL AND QUANTUM)
Organizers: Marek Biskup and David Brydges
Invited speakers: Abdelmalek Abdesselam, Stefan Adams, Margherita Disertori, Gady Kozma, Stanislav Smirnov, Fabio Toninelli
Contributed talks: Kenneth S. Alexander, Masafumi Fujimoto, Shannon Starr, Daniel Ueltschi

NON-EQUILIBRIUM STATISTICAL MECHANICS (INCLUDING STOCHASTIC EVOLUTIONS EXCEPT SLE AND BOLTZMANN EQUATION)
Organizers: Herbert Spohn and Horng-Tzer Yau
Invited speakers: Jürg Fröhlich, Antti Kupiainen, Jani Lukkarinen, Bruno Nachtergaele, Stefano Olla, Jeremy Quastel, Benjamin Schlein, Craig Tracy
Contributed talks: Simone Paleari, Emmanuel Araújo Pereira

PDE'S (FLUID DYNAMICS, WAVE EQUATION AND NLSE, BOLTZMANN EQUATION, GENERAL RELATIVITY, AND ELASTICITY)
Organizers: Sergiu Klainerman and Grigory Seregin
Invited speakers: Mihalis Dafermos, Francois Golse, Alexandru Ionescu, Camillo De Lellis, Sigmund Selberg, Jacob Sterbenz, Cédric Villani, Sijue Wu
Contributed talks: Alberto Enciso, Vasyl M. Fedorchuk, David Krejčiřík, Juan Antonio Valiente Kroon, Dominique Löbach, Josef Málek, Makoto Narita, Yehuda Pinchover, Milan Pokorný, Aldo Procacci, Vladimir M. Shelkovich, Maria Skopina

PROBABILITY THEORY (INCLUDING RANDOM MATRICES AND SLE)
Organizers: Yuval Peres and Wendelin Werner
Invited speakers: Alexei Borodin, Eyal Lubetzky, Grégory Miermont, Neil O'Connell, Gábor Pete, Benedek Valkó
Contributed talks: Alan Hammond, Oleksiy Khorunzhiy, Arno B.J. Kuijlaars

OPERATOR ALGEBRAS (INCLUDING NONCOMMUTATIVE GEOMETRY)
Organizers: Detlev Buchholz and Masaki Izumi
Invited speakers: Gandalf Lechner, Taku Matsui, Michael Mueger, Sergey Neshveyev, Ryszard Nest, Stefan Waldmann
Contributed talks: Dariusz Chruscinski, Maria Joita, Valentin A. Zagrebnov

NONRELATIVISTIC QUANTUM MECHANICS (INCLUDING QUANTUM

information)
Organizers: Nilanjana Datta and Peter
Invited speakers: Volker Betz, Rupert L. Frank, Aram Harrow, Martin Plenio, Renato Renner, Peter Samuelsson, Ivan Veselić, Simone Warzel
Contributed talks: Miguel Ballesteros, Francesco Buscemi, Animesh Datta, Michael J. Gruber, Alexey S. Kostenko, Milan Mosonyi, Yang Kang, Ondřej Turek

STRING THEORY AND QUANTUM GRAVITY
Organizers: Gary Gibbons and Hermann Nicolai
Invited speakers: Guillaume Bossard, David Kubizňák, Henning Samtleben, James Sparks
Contributed talks: Mikael Smedback, Libor Šnobl, Grigory S. Vartanov

QUANTUM FIELD THEORY (INCLUDING FIELD THEORETIC METHODS IN CONDENSED MATTER)
Organizers: Krysztof Gawedzki and Manfred Salmhofer
Invited speakers: Gregory Korchemsky, Dirk Kreimer, Markus Müller, Ingo Runkel, Veronique Terras, Martin Zirnbauer
Contributed talks: Claudio Dappiaggi, Danilo E. Diaz, Gerd Rudolph, Sergei B. Rutkevich

MANY-BODY QUANTUM MECHANICS (CONDENSED MATTER, NANOSCALE, ELASTICITY)
Organizers: Gian Michele Graf and Jakob Yngvason
Invited speakers: Søren Fournais, Alessandro Giuliani, Sabine Jansen, Kareljan Schoutens, Jan Philip Solovej, Frank Verstraete
Contributed talks: Horia Cornean, Hans-Peter Eckle, Marcel Griesemer, Graham Kells

NEW FRONTIERS IN MATHEMATICAL PHYSICS
Organizers: Joseph Avron, Ruth Durrer, and Israel Michael Sigal
Invited speakers: Dorit Aharonov, Israel Klich, David Langlois, Robert Raussendorf, Jonathan Sherratt, Gunther Uhlmann
Contributed talks: Luis J. Boya, Michael Monastyrsky, Ali Mostafazadeh, Renzo L. Ricca, Khalid Saifullah, Jacek Turski

In addition to that, some 190 contributions will be presented as posters

Round Table

A discussion on the subject "Mathematical Physics: Future Challenges" moderated by Joel Lebowitz will be introduced by three talks:

Michael Berry
  FAST AND SLOW

Stanislas Leibler
  HISTORY VERSUS FUNCTION: THE CASE OF PROTEINS

Leonard Susskind
  FAST SCRAMBLERS

Young Researcher Symposium

Plenary talks:

Rafael Benguria
  ISOPERIMETRIC INEQUALITIES FOR EIGENVALUES OF THE
  LAPLACIAN

Helmut Hofer
  ANALYTICAL FOUNDATIONS OF SYMPLECTIC FIELD THEORY

Anna De Masi
  MACROSCOPIC PHENOMENA AND RANDOMNESS

Yakov Sinai
  RENORMALIZATION GROUP METHOD AND SINGULARITIES OF
  COMPLEX-VALUED SOLUTIONS OF EQUATIONS OF FLUID-DYNAMICS

Wei-Min Wang
  RESONANT PERTURBATIONS OF HAMILTONIAN SYSTEMS IN
  INFINITE DIMENSIONS

Reinhard Werner
  TOWARDS A QUANTUM CHURCH-TURING THEOREM

Seminars by Ambrož, Arciga-Alejandre, Bagrov, Bal'ková, Bulíček, Carlone, Chandrasekhar, Dvoeglazov, Gábris, Karmakar, Kells, Lipovský, Mine, Oren, Palese, Parmar, Quella, Queva, Shamarova, Shtyk, Siegl, Štefaňák, Suchanek, Tušek and Winterroth

Important dates

July 26   end of online registration
July 30   on-site registration available
July 31   YRS opening
August 2   on-site registration in the Clarion hotel
August 3   ICMP opening
August 3   IAMP General Assembly

More information

- **IAMP General Assembly** on Monday evening will discuss officer reports, the Association budget, the site of the next congress and member ideas concerning the future of the IAMP

- **Congress fellowships:** the offer to support partially participants from less favoured countries and regions attracted about hundred applications. After evaluating them we were able to offer support ranging from free accommodation to covering most part of the expenses to almost all of them. About 60 participants will use this opportunity

- **Human Rights & Social Responsibility:** a session organized on Wednesday afternoon by Joel Lebowitz who will report on human right problems. The other speakers are Šimon Pánek, one of the student leaders of the Velvet Revolution, and Norbert Hounkonnou reporting on mathematical physics in Africa

- **Best poster prizes:** Springer has offered book prizes to authors of the best posters. The jury was set and the results will be announced at the end of the congress

- **Editorial Board meetings:** several journals use the congress to hold their editorial board meetings, in particular, Communications in Mathematical Physics, Journal of Mathematical Physics, Journal of Statistical Physics, and Annales Henri Poincaré

- **Publisher booths** will exhibit new book and journal production of the leading publishing houses. Exhibitors include Springer, AIP – Journal of Mathematical Physics, IOP Publishing – Journal of Physics A, American Mathematical Society, Cambridge University Press, EMS Publishing House, and Birkhäuser

- **AHP Journal Prize:** Annales Henri Poincaré will hold a small ceremony on Wednesday afternoon to announce result of their competition for the best paper and to present the winning work
- **IoP Reception:** Journal of Physics A will have a reception for their collaborators on Monday after the afternoon programme
- **A small exhibition** is under preparation to review the history of congresses on mathematical physics from the first such meeting in 1972
- **Public lecture** under the title "Science in Prague through centuries" mapping the city footprints in mathematics, physics, and astronomy will be given on Friday evening by Ivan Štoll
- **Organ concert:** on Wednesday evening there will an organ concert in Saint Vitus Cathedral of the Prague Castle, the heart of Prague and the country. A selection of pieces from different times, ranging from 11th to 20th century, for bassoon, organ, horn and soprano will be played. We will give the participants also time to overlook this architectural landmark
- **String quartet concert:** On Friday the public lecture will be followed by a concert of Zemlinsky String Quartet playing Mysliveček, Dvořák and Janáček
- **Congress dinner** will be organized on Thursday evening at "Občanská plovárna" at the Vltava river
- **Sightseeing:** a half-a-day city tour for accompanying persons, other tours to Prague and various scenic places of the country are available

More is to come, follow the congress web page for updates

Practical information

Travel: Prague has a good air and train connection with most parts of the world. The city transport is inexpensive and reliable

Climate: Typical for central Europe. The afternoon temperatures may be around 25-30 $^{\circ}C$, with an occasional rain

Visa: Czech Republic is a part of the *Schengen space*. Those who need visa can get them at the nearest Czech consulate, or that of another EU country. If you are not sure please check the visa waiver information at *http://www.mzv.cz/wwwo/mzv/default.asp?id=25931&ido=7306&idj=2&amb=1*

Health: According to the Czech Ministry of Health the country is well prepared to face the swine flu. The stack of antivirotic medicaments is sufficient and screenings are organized at exposed places. People are advised just to observe elementary hygienic precautions and to see a doctor if they suspect an infection.

Any further inquiries about practical aspects of the congress participation should be addressed to the organizers, *icmp@ujf.cas.cz*.

Satellite meetings

"Constructive and Multiscale Methods in Quantum Theory", Heidelberg University, July 28–30; organized by V. Bach, Ch. Kopper, and M. Salmhofer, *http://www.thphys.uni-heidelberg.de/˜salmhof/satellite09.html*

"Algebraic QFT - The first 50 years", Göttingen University, July 29–31; organized by D. Bahns, D. Buchholz, P. Martinetti, and K.-H. Rehren; *http://www.uni-math.gwdg.de/aqft*

"Mathematical Aspects of Quantum Transport and Applications in Nanophysics", Aalborg University, August 9–15; organized by Horia Cornean, *http://people.math.aau.dk/˜cornean/ICMP09_satellite/*

"14th International Summer School in Global Analysis and Mathematical Physics", Palacký University Olomouc, August 10–14; organized by Demeter Krupka, Olga Krupkov, David J. Saunders; *http://globanal.upol.cz/summer2009/index.html*

"XVII International Fall Workshop on Geometry and Physics", Benasque, September 6–10; organized by J. F. Cariena, J. N. da Costa; *http://benasque.ecm.ub.es/2009gph/*

About the IAMP

The *International Association of Mathematical Physics (IAMP)* is a worldwide organization founded in 1976 with the aim to promote research in mathematical physics.

Why become an IAMP member?

The main reason is that the Association offers a platform to represent the interests of mathematical physicists worldwide through which you can exchange ideas, discuss concerns and inform the broader scientific community and the general public about our achievements.

The IAMP is as strong as their members make it. We invite you to join because we think that you share our common interests in promoting mathematical physics. Your becoming a member would be beneficial for you and for our community as well.

Looking at the membership from the practical point of view, several things are useful to mention:

- the membership is cheap, it takes a few clicks to pay the member dues, and in the first year we offer a possibility to waive them
- members in good standing are entitled to reduced registration fees at our triennial congresses
- members receive useful information, in particular, four times a year a bulletin with news about mathematical physics
- major publishers offer discounts on books and journals to IAMP members

How to join the IAMP

It is done easily through the interactive web form, *http://www.iamp.org/*