



# Heidelberg Graduate School of Fundamental Physics

**Fakultät für Physik und Astronomie  
Ruprecht-Karls-Universität Heidelberg**

Annual Meeting, April 11 2008

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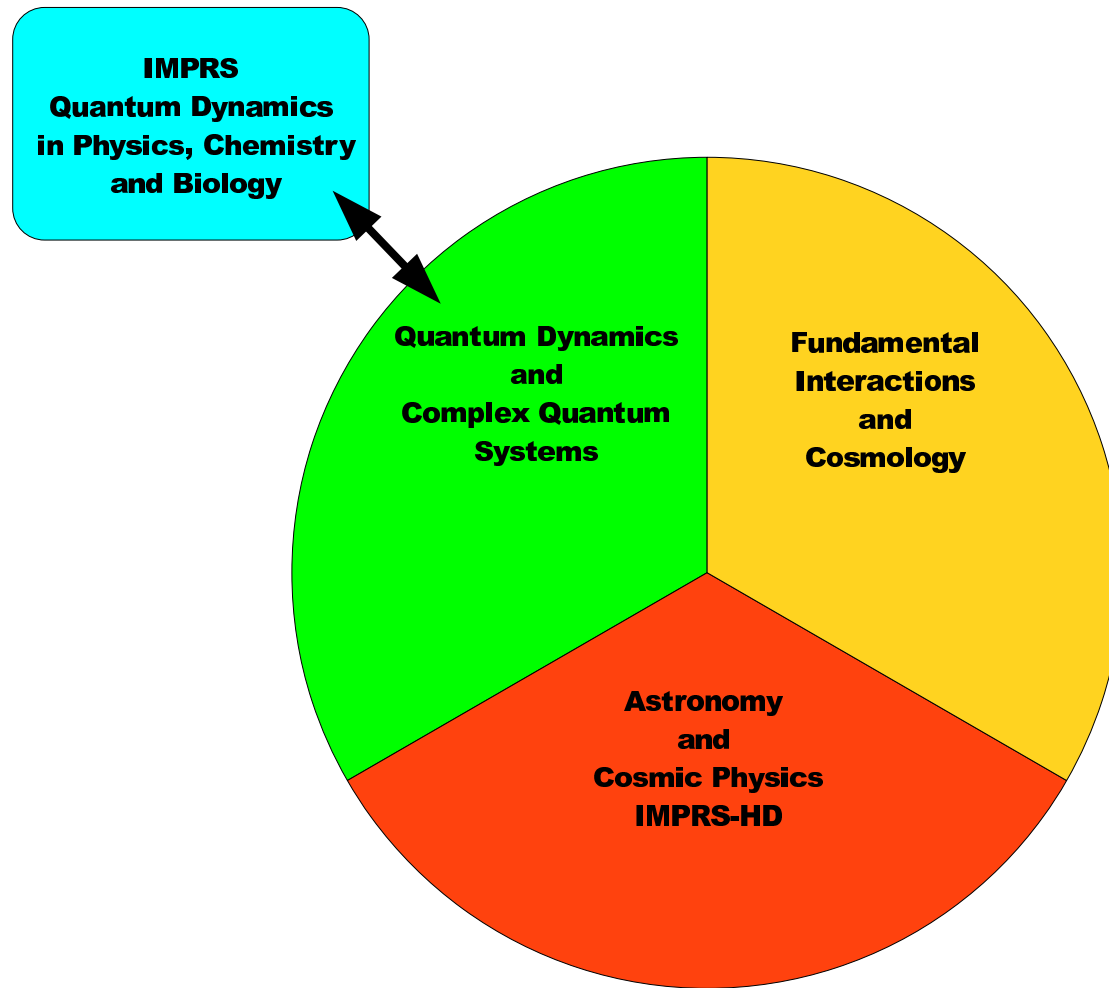


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# Branches

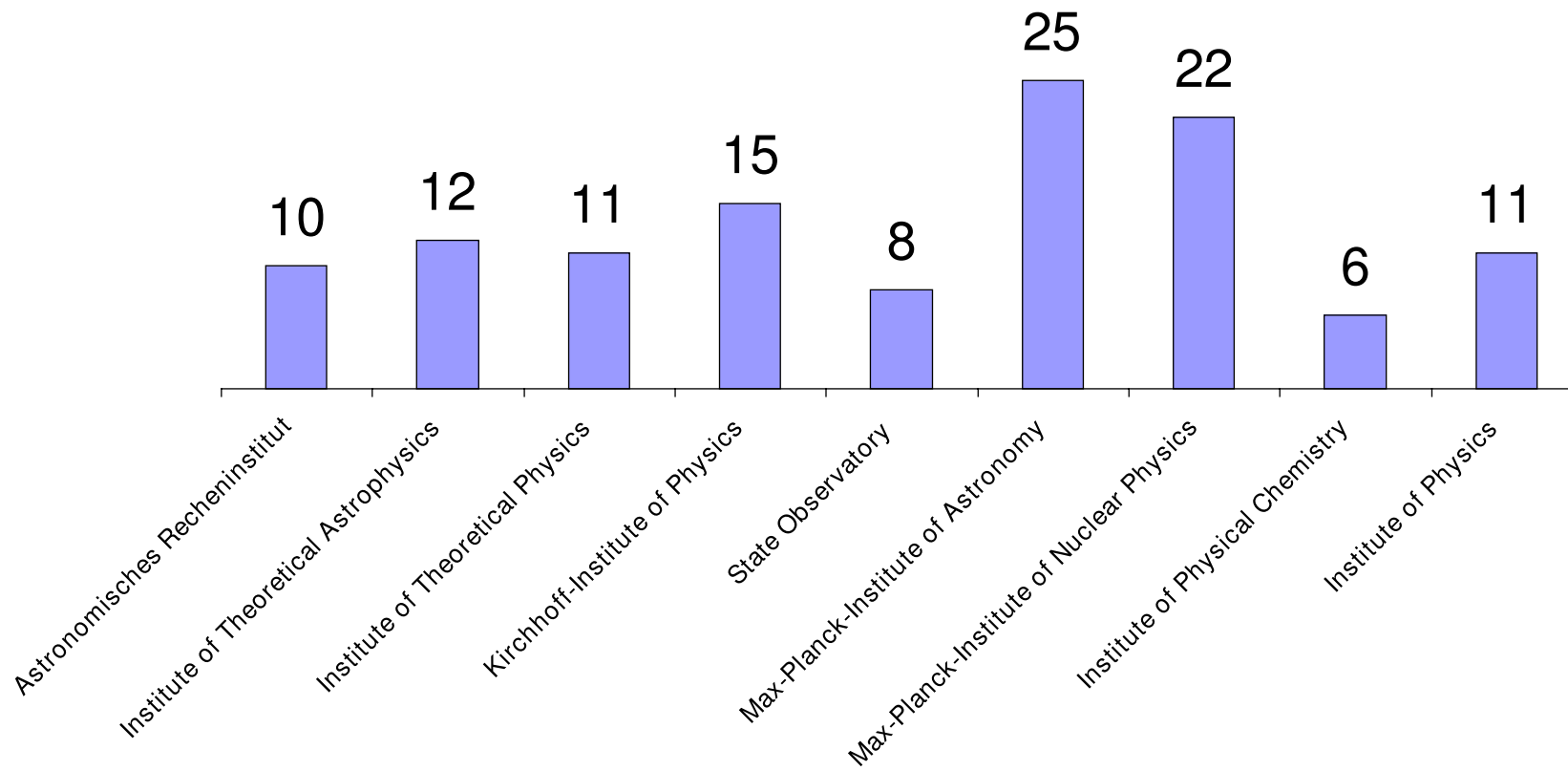




# Statistical Facts

Total number of HGSFP students: 130

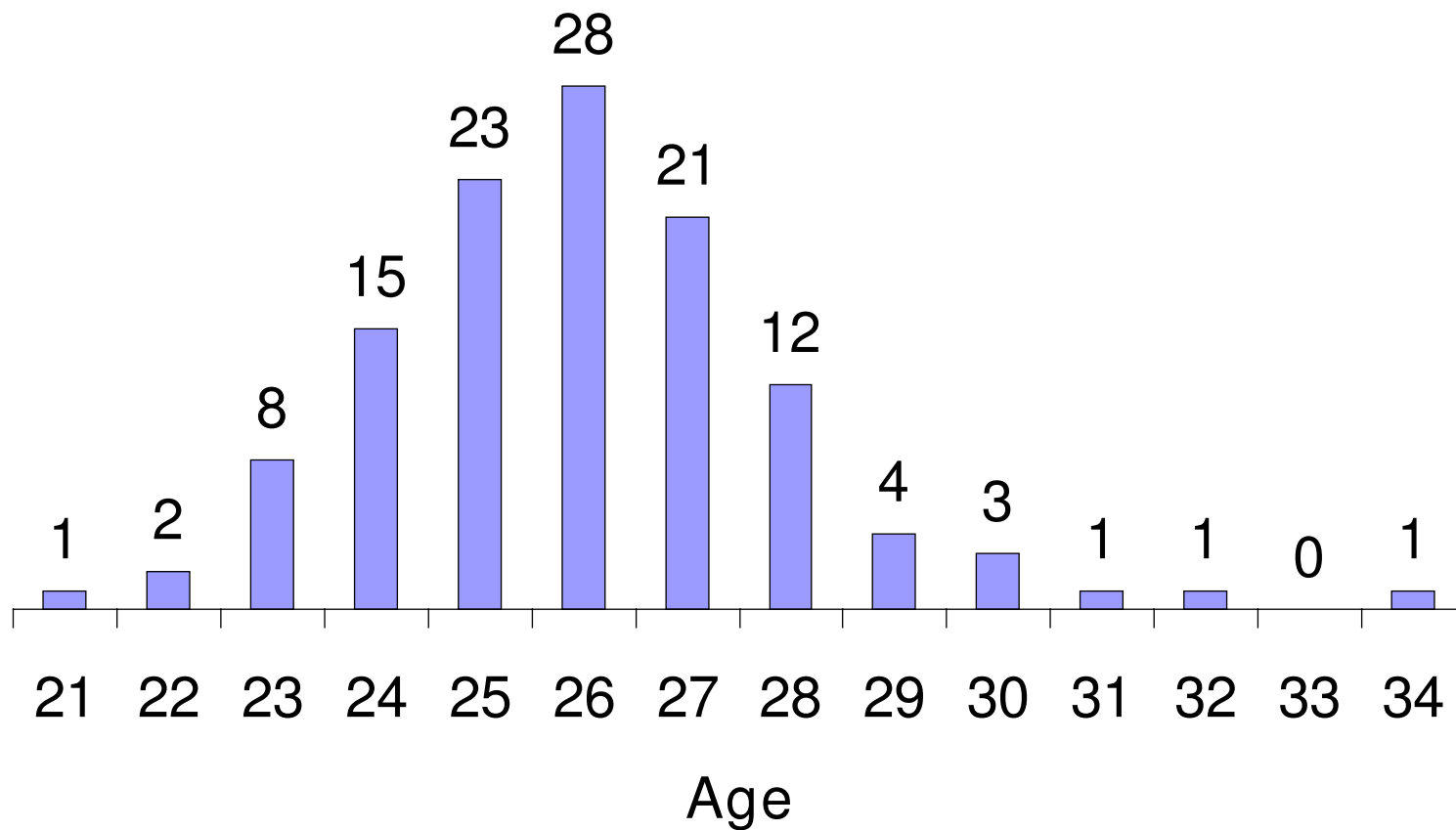
Number of doctoral students per institute



# Statistical Facts



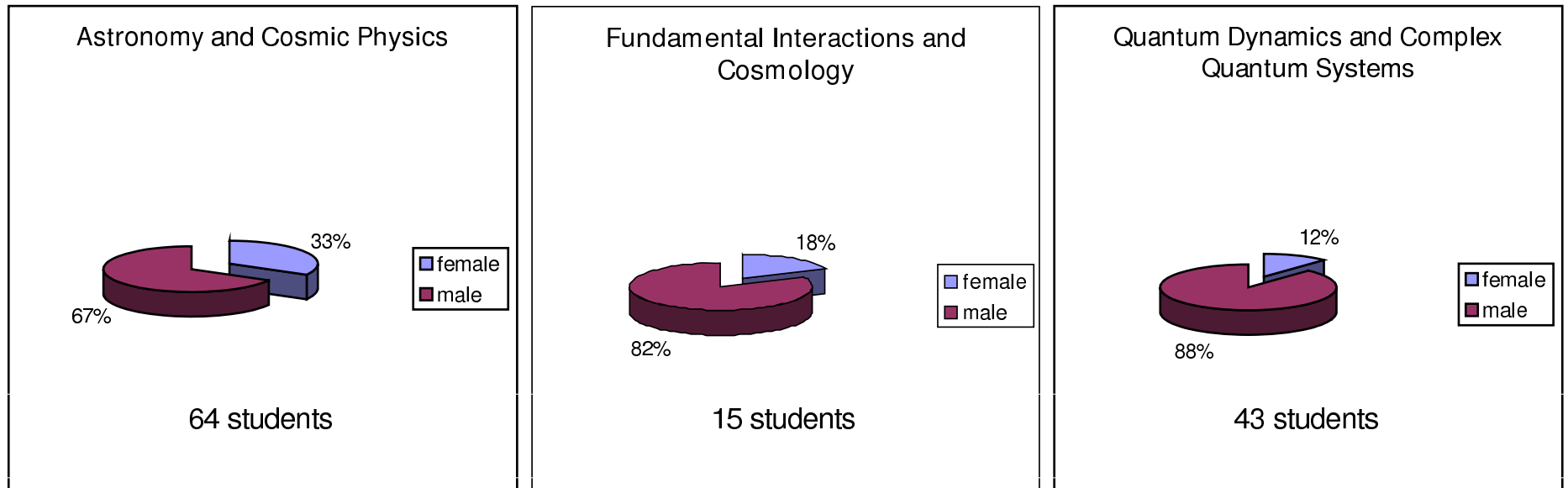
## Age distribution of doctoral students





# Statistical Facts

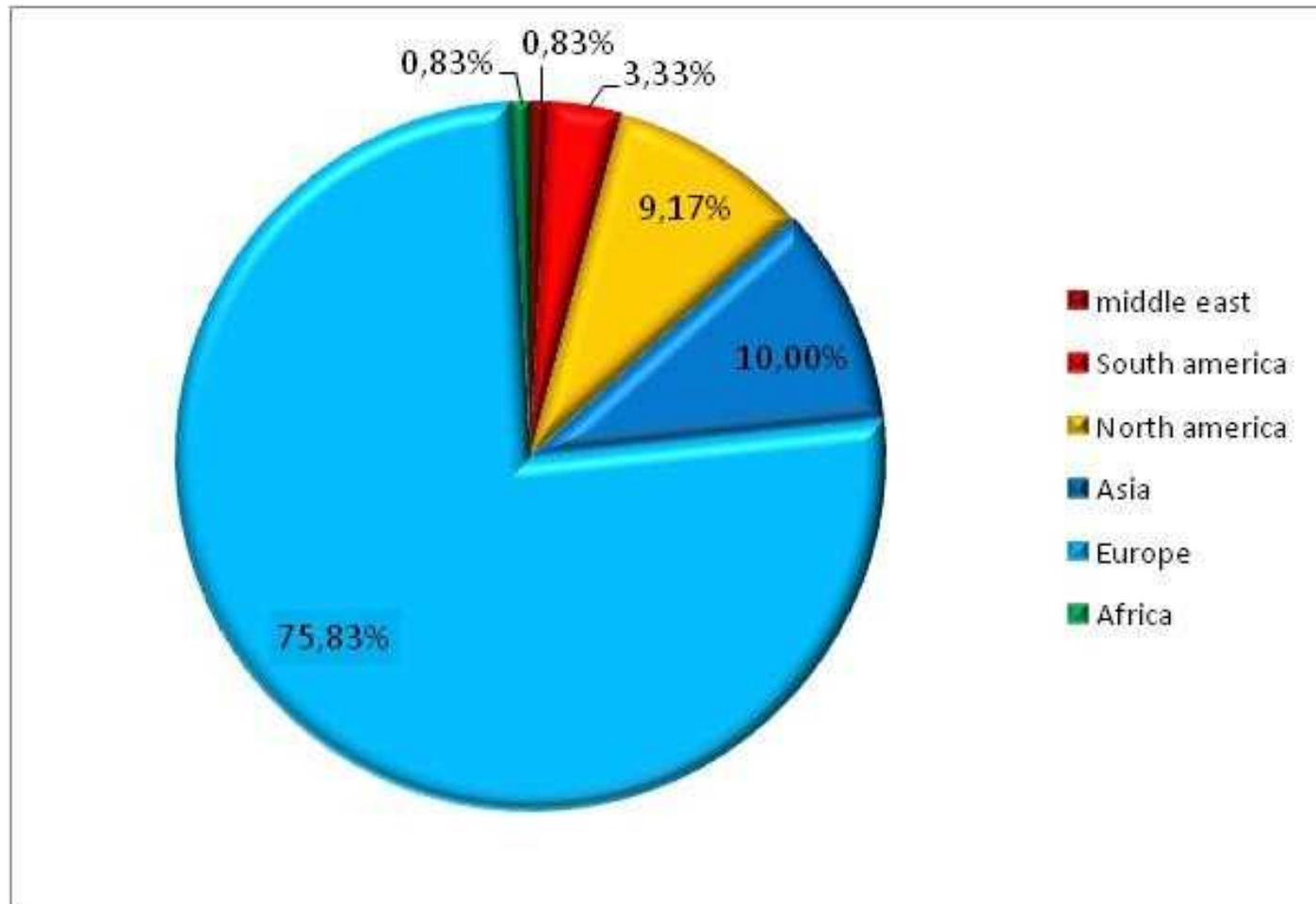
## Distribution according to the branches





# Statistical Facts

## Distribution according to Nationalities



# Staff of the HGSFP



## Administrative staff - central office

- Sandra Klevansky - admin. director since July 2007
- Gesine Heinzelmann - since March 2007
- Martina Buchhaupt - since January 2008
- Support staff (students) that takes over a substantial number of the more technical jobs concerning e.g. public outreach, graphical design, maintaining databases, web programming, etc.





# Staff of the HGSFP

Scientific staff hired by the HGSFP:

Four junior research groups:

- Sandro Wimberger (ITP) (July 2007)
- Thorsten Lisker (ARI) (May 2007)
  - Swiss Phys. Soc. award 2008 !
- Jochen Dingfelder (KIP) (Oct. 2007)
  - Emmy Noether DFG fellowship
    - ⇒ Björn Schäfer (Oct. 2008)
- Boris Fine (ITP) (Jan. 2008)

# Staff of the HGSEFP



Scientific staff ....

Two temporary W3 professorships:

- Andreas Komnik (ITP) (Jan. 2008)
- Jürgen Schaffner-Bielich (ITP ??) (Oct. 2008)



## Review of the HGSFP Activities

- Course program running since April 2007
  - Teaching coordinators of the branches:  
E. Thommes, R. Klessen and C. Enss
  - Closely coordinated with forthcoming course program of the master studies  
(H.C. Schultz-Coulon, dean of studies)

## Review of the HGSFP Activities

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- Guest lecture series
- Distinguished guest lectureships

# Review of the HGSFP Activities

- Mieczyslaw Jalochoowski (Lublin): Low-dimensional nanostructures and surface problems - ( org. by **A. Pucci** )
- Andrea Trombettoni (Perugia): Matter wave physics in double wells and optical lattices - (org. by **M. Oberthaler**)
- Nimrod Moiseyev (Haifa): Non-hermitian quantum mechanics  
- (org. by **L.S. Cederbaum**)
- Carl Bender (St. Louis): Asymptotic series in quantum mechanics and field theory  
- (org. by **S.P. Klevansky**)
- John S. Gallagher (Wisconsin): Gas and star formation processes  
- (org. by **E. Grebel**)
- P. Di Vecchia (Kopenhagen): String phenomenology, instantons and the Kaehler metrics - (org. by **C. Wetterich** and **H. Gies**)

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- Co-organization and co-sponsoring of workshops

# Review of the HGSFP Activities



to name a few examples

- XIX International Symposium on the Jahn-Teller Effect, ( **org. by H. Köppel** )
- Johns-Hopkins Workshops, ( **org. by O. Nachtmann** )
- P and T violation at low energies and related phenomena, ( **org. by O. Nachtmann** )
- Vxb Workshop: Joint workshop on V-matrix elements at the B-factories, ( **org. by J. Dingfelder and U. Uwer** )
- DELTA 2007 Workshop on QCD, Nonequilibrium Dynamics, Complex Systems and Simulational Methods ( **org. by J. M. Pawłowski and I.-O. Stamatescu** )
- Mini-Symposium on Rydberg Physics, ( **org. by S. Wimberger** )

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- Co-organization and co-sponsoring of workshops
- Student support for e.g. summer schools

# Review of the HGSFP Activities

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- Student exchange with partner institutes in the framework of scientific collaborations

# Review of the HGSFP Activities

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- Student exchange with partner institutes in the framework of scientific collaborations
- Student projects

# Review of the HGSFP Activities

- Student exchange with partner institutes in the framework of scientific collaborations
- Student projects
- Graduate days are organized by the central office

# Review of the HGSP Activities



Heidelberg Graduate School of Fundamental Physics

## XIX Heidelberg Physics Graduate Days 08.10. - 12.10.2007

at the Faculty of Physics and Astronomy  
of the University of Heidelberg

Courses are conceived for advanced students in physics, in particular for doctoral and masters students. The goal of the lecture series is to expand the general knowledge of students and to deepen their understanding of special topics and methods. Each course runs every day for five days either in a morning or afternoon slot.

### Academic Programme

#### Morning Courses (Mo-Fr, 9:30-12:30):

Tracking in High Energy Physics	<b>Carsten Niebuhr</b> , DESY, Hamburg & <b>Guillaume Leibenguth</b> , IPP, ETH, Zürich
Lattice QCD	<b>Kurt Langfeld</b> , Faculty of Technology, University of Plymouth, UK
Dark Matter Universe	<b>Kris Sigurdson</b> , University of British Columbia, Vancouver, Canada
Physics with Antimatter – Science, not fiction	<b>Carsten Welsch</b> , Kirchhoff Institute of Physics, Heidelberg & <b>Dieter Grzonka</b> , Forschungszentrum Jülich
Philosophy, Science and Environmental Realism	<b>Giridhari Lal Pandit</b> , University of Delhi, India

#### Afternoon Courses (Mo-Fr, 14:00-17:00):

International Linear Collider: Physics, Machine, Experiments	<b>Peter Wienemann</b> , Institute of Physics, University of Bonn
Quantum Information and Quantum Optics	<b>Jian-Wei Pan</b> , Institute of Physics, University of Heidelberg
String/Gauge Theory Correspondences in QCD	<b>Kasper Peeters</b> , Institute of Theoretical Physics Utrecht University, The Netherlands
The non-Standard Model Higgs Boson(s)	<b>Riccardo Barbieri</b> , Institute of Theoretical Physics, Scuola Normale Superiore di Pisa, Italy
Global Warming	<b>Klaus Pfeilsticker</b> , Institute of Environmental Physics, University of Heidelberg
Methods from Physics in Finance	<b>Hans Peter Deutsch</b> , d-fine, Frankfurt

#### Hans Jensen Invited Lecture (11.10.07, 17:30, gHS, Philosophenweg 12):

<b>Endless Universe: A Voyage Beyond the Big Bang</b>	<b>Paul J. Steinhardt</b> Princeton University, U.S.A.
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Registration and further information on the internet under: <http://gradkurs.uni-hd.de/>

supported by:



McKinsey&Company

deutsche  
Forschungsgemeinschaft

DFG

Heidelberg Graduate School of Fundamental Physics



## XX Heidelberg Physics Graduate Days (31.03.-04.04.2008) at the Faculty of Physics and Astronomy of the University of Heidelberg

Courses are conceived for advanced students in physics, in particular for doctoral, masters or diploma students. The goal of the lecture series is to expand the general knowledge of students and to deepen their understanding of special topics and methods. Each course runs every day for five days either in a morning or afternoon slot.

#### Morning Courses (Monday to Friday, 9:30-12:30):

Bose-Einstein condensation and quantum transport of ultracold atoms	<b>Peter Schlagheck</b> , University of Regensburg
Practical statistics for high energy physicists	<b>Louis Lyons</b> , Physics Department, Oxford University
Nuclear spin dynamics in solids: computational challenges and microscopic chaos	<b>Boris Fine</b> , Institute of Theoretical Physics, Heidelberg
QCD at finite temperature and density, a matrix model approach	<b>Kim Splittorff</b> , Niels Bohr Institute, Copenhagen
High energy astrophysics	<b>Christopher van Eldik</b> , Max Planck Institute for Nuclear Physics, Heidelberg

#### Afternoon Courses (Monday to Friday, 14:00-17:00):

The physics of galaxies: observation versus theory – from the early universe to the present state	<b>Uta Fritze</b> , University of Hertfordshire
Open quantum systems and decoherence	<b>Klaus Hornberger</b> , Ludwig Maximilian University, Munich
New physics at the Large Hadron Collider	<b>Jochen Dingfelder, Stephanie Hansmann-Menzemer and Victor Lendermann</b> , Institute of Physics and Kirchhoff Institute of Physics, Heidelberg
Introduction to nano and molecular electronics	<b>Andreas Komnik</b> , Institute of Theoretical Physics, Heidelberg
LaTeX for physicists	<b>Joachim Lammarsch</b> , University Computing Center, Heidelberg
Unified Modelling Language for object oriented design – a blessing or a curse?	<b>André Schüling</b> , SNP AG, Heidelberg (Single Lecture, Monday, 17:30-18:30)

#### Hans Jensen Invited Lecture (02.04.2008, 17:30, Great Lecture Theatre, Philosophenweg 12):

**From spinwaves to giant magnetoresistance (GMR) sensors:  
the story of an invention**

**Professor Peter Grünberg**  
Nobel Laureate in Physics, 2007  
Forschungszentrum Jülich

Registration and further information on the internet under: <http://gsfp.phys.uni-heidelberg.de/graddays/>



# Budget of the HGSFP

Financial resources of the graduate school allocated according to the subsections:

- Scientific and non-scientific staff including mobility and flexibility funds
  - Scheduled 2007: 823,500 € - Spent 2007: 877.987 €
- Colloquia, guest program, guest lectureships, professional and personal skills, student projects
  - Scheduled 2007: 176.500 € - Spent 2007: 121.588 €

The Deutsche Forschungsgemeinschaft allows for a very flexible handling within these two subsections.

# Review of the HGSFP Activities

Two international advertisements as well as recruitment and selection processes: SS 2007 and WS 2007/2008

## PROCEDURE AND RESULTS:

- International advertisement via web, posters and journals
- Web-based two-step application procedure
  - Application package includes CV, course record, expression of interest, letters of recommendation, certificates of degrees etc.
- Evaluation of candidates via individual committees in each branch provides the directorate of the HGSFP with a list of the best candidates
- Expression of interest by potential supervisors (staff of HGSFP)
- Interviews either via phone or personal invitation
- Promotionskommission of the faculty evaluates the relevant students
- ⇒ Offers to the students fulfilling all criteria
- Financing of students: Scholarship of HGSFP or third party funding of supervisor

# Review of the HGSFP Activities

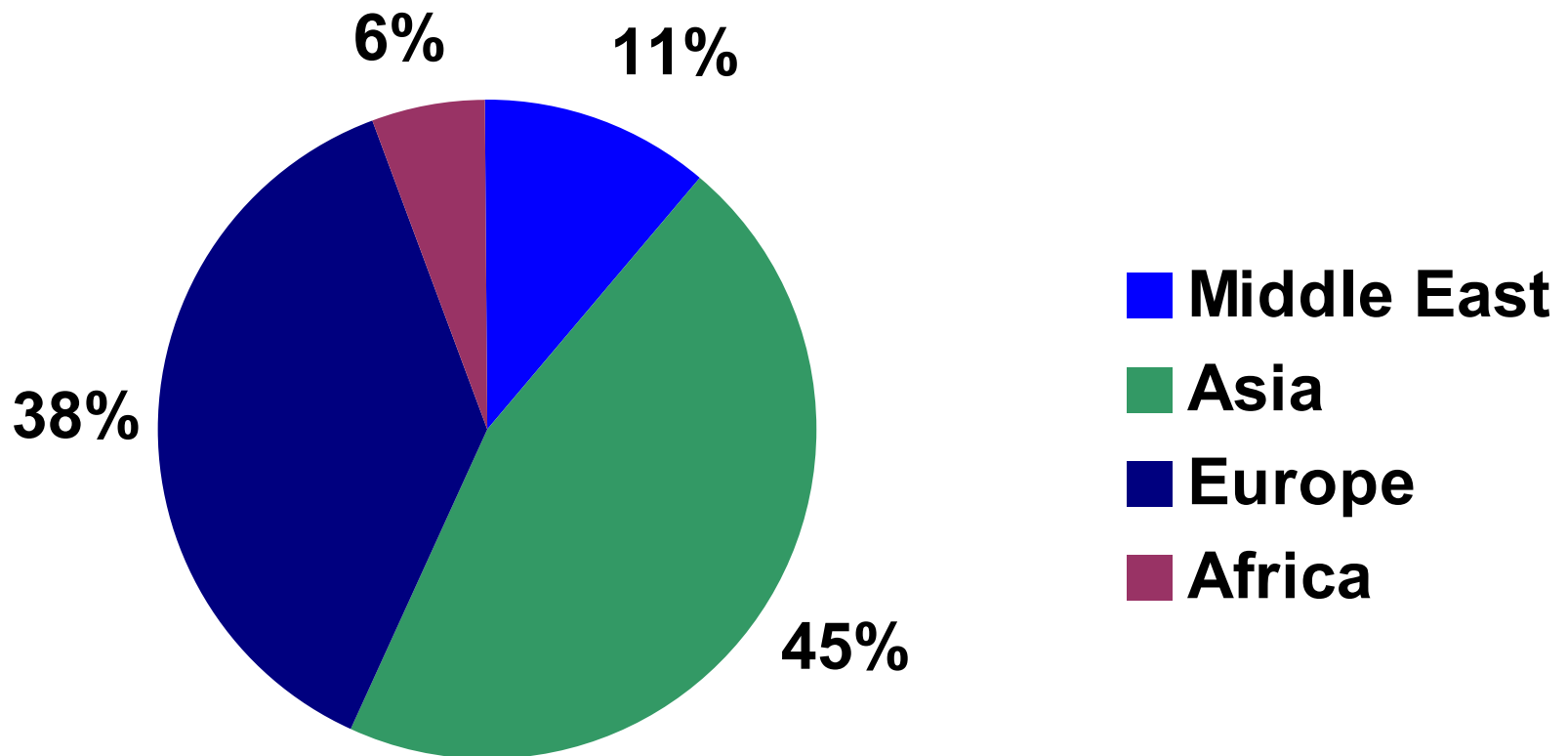
- 5 LGFG scholarships for 2006 and 2007 each
- 10 Tschira scholarships for 2007-2009
- 85 versus 155 applicants for the june and december deadlines



# Review of the HGSFP Activities



## Distribution of the applicants with respect to continents



# Review of the HGSFP Activities

- 5 LGFG scholarships for 2006 and 2007 each
- 10 Tschira scholarships for 2007-2009
- 85 versus 155 applicants for the june and december deadlines
- 28 students were recruited, plus IMPRS-HD

## Rules and Regulations, Organizational Issues

- Statutes of the HGSFP have been approved by the senate of the university and the DFG and has come into operation
- Study regulations (course requirements etc.) are online available
- A cooperation treaty with the IMPRS-HD is in process
- Forms for the PhD (admission regulations, excerpt from the Faculty Regulations for Doctoral Studies, registration, etc.) are online
- The database of the doctoral students of the HGSFP has been developed further ⇒ Many thanks to Robert Weis (KIP)

## Miscellaneous

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- (Mid-term) review of the HGSFP by the IFQ
- Overhead (currently 80 % HGSFP -20 % university, future to be negotiated)
- Budget freeze for 2010 and 2011

# Outlook and Future Activities

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- Online procedure for application of funds

# Outlook and Future Activities



- Online procedure for application of funds
- Regularly appearing Newsletter



# Outlook and Future Activities

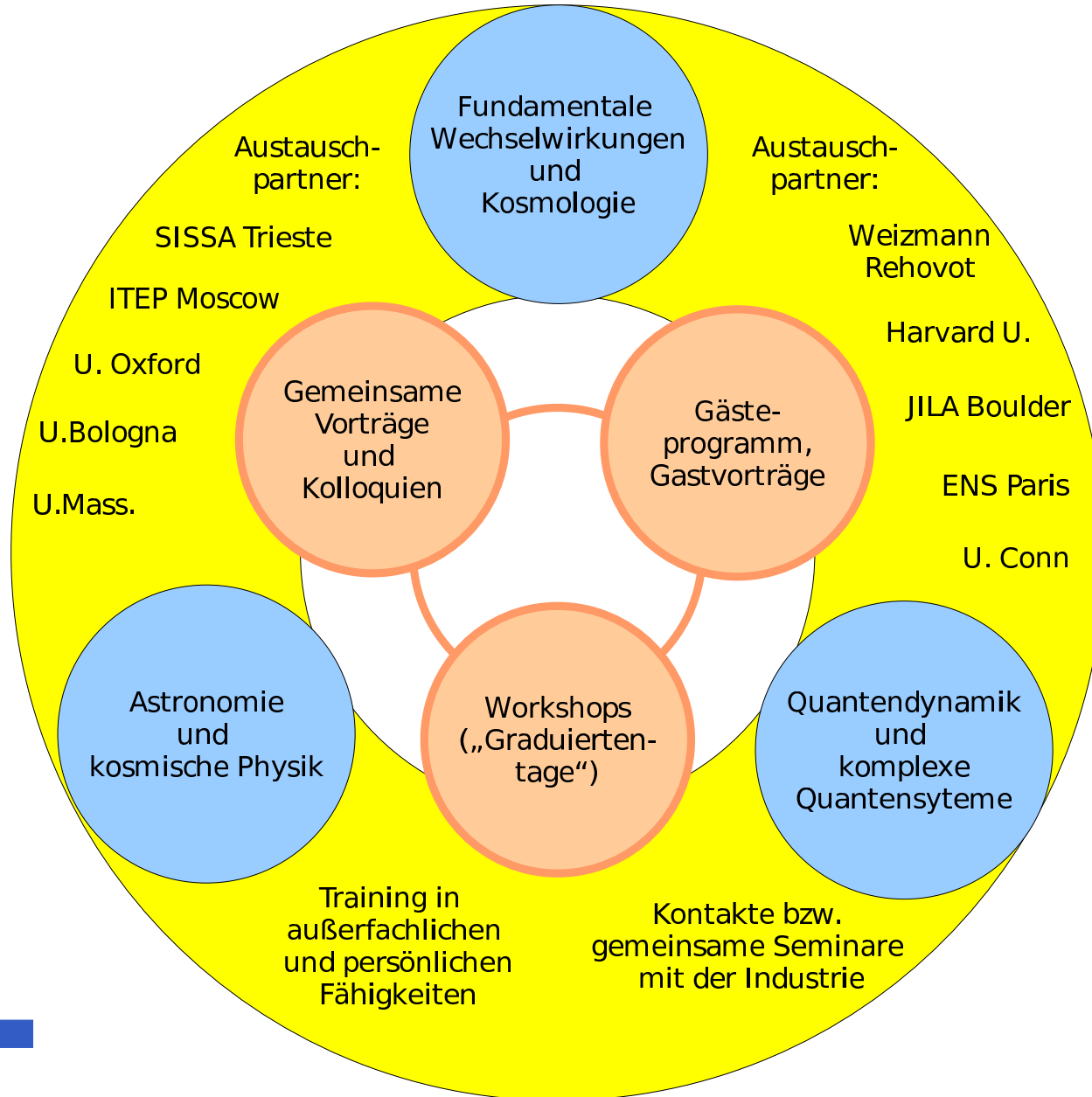
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- Regularly appearing Newsletter
- Suggestions for distinguished guest lectureships  
2008

# Outlook and Future Activities

- Online procedure for application of funds
- Regularly appearing Newsletter
- Suggestions for distinguished guest lectureships 2008
- Exchange program with partners



# Outlook and Future Activities



# Outlook and Future Activities

- Online procedure for application of funds
- Regularly appearing Newsletter
- Suggestions for distinguished guest lectureships 2008
- Exchange program with partners
- Science Television Prometheus

# Thanks for your attention !

