

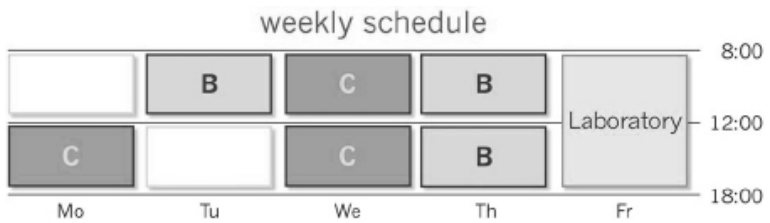
Bonn-Cologne Graduate School of Physics and Astronomy



Course Overview

Summer Term 2014





Time frame for the coordinated studies programme at Bonn (B) and Cologne (C). The marked areas indicate scheduling of the most attractive courses for students from the partner institution. Fridays are reserved for early integration into research groups.

BCGS Course Overview

Summer Term 2014

This list of courses provides an overview of lectures and seminars offered within the Master course programmes in Bonn and Cologne.

Certain courses are assigned as “Special BCGS Courses” such as joined courses given by lecturers from both universities, courses broadcasted to the other university by video conference, courses given as teaching exchange between both universities, or (lab) courses facilitating an early access into research. Courses of special relevance for students of the partner university have been scheduled within the BCGS time frame enabling students to travel to the partner university (see adjacent figure).

Further, you will find courses classified according to the three main research areas covered by the Graduate School: Particle and Nuclear Physics · Astronomy and Astrophysics · Condensed Matter and Statistical Physics, Photonics.

You may choose your personal curriculum with respect to your scientific interests within the terms of the corresponding Master programmes in Bonn and Cologne. In case you need any support do not hesitate to ask your mentors or the administration.

Contents

Special BCGS Courses.....	3
General Courses.....	5
Particle and Nuclear Physics.....	6
Astronomy and Astrophysics.....	7
Condensed Matter and Statistical Physics, Photonics...	10
BCGS Poster Session.....	13

List of Abbreviations

Institutes in Bonn

- PI - Physikalisches Institut
Nussallee 12, 53115 Bonn
- HISKP - Helmholtz - Institut für Strahlen- und Kernphysik
Nussallee 14-16, 53115 Bonn
- IAP - Institut für Angewandte Physik
Wegelerstr.8, 53115 Bonn
- AlfA - Argelander-Institut für Astronomie
Auf dem Hügel 71, 53121 Bonn

- MPIfR - Max-Planck-Institut für Radioastronomie
Auf dem Hügel 69, 53121 Bonn

Institutes in Cologne

- I. PI - I. Physikalisches Institut
- II. PI - II. Physikalisches Institut
- IKP - Institut für Kernphysik
- THP - Institut für Theoretische Physik

- Zülpicher Str. 77, 50937 Köln

Rooms

- SR - Seminar Room
- CR - Conference Room
- KOSMA - KOSMA Room
- Lib - Library
- LH - Lecture Hall

Video Conference



Teaching Exchange



Joined Course



Special BCGS Courses

Lectures

physics631



Quantum Optics
Tu 10-12, Th 14-16, LH, IAP, Bonn
Exercises: 1 hr in groups included
Video stream available (2-3 days delay),
please contact vewinger@iap.uni-bonn.de

D. Meschede

physics640

Photonic Devices
Tu 14-16, Th 10-12, LH, IAP, Bonn
Exercises: 1 hr in groups included

S. Linden

physics716



Statistical Methods of Data Analysis
Fr 8-10, SR I, HISKP, Bonn
Exercises: 1 hr in groups
Video broadcast on demand,
please contact evt@uni-bonn.de

P. Bechtle

physics739



Lecture on Advanced Topics in Photonics:
Ultrashort Laser Pulses
We 14-16, LH, IAP, Bonn
Exercises: 1 hr in groups
Video broadcast on demand,
please contact vewinger@iap.uni-bonn.de

F. Vewinger

physics753

Theoretical Particle Astrophysics
Mo 12-14, Tu 12, LH I, PI, Bonn
Exercises: 2 hrs in groups

H. Dreiner

53101

Computational Many-Body Physics
3 hrs lectures & 1 hr exercises
Mo 14-15.30, We 16-17.30, SR THP, Cologne

R. Bulla

53102

Particle Accelerators and Accelerator Mass
Spectrometry
2 hrs We 14-15.30, SR IKP, Cologne

A. Dewald

53108

Quantum Gravity
2 hrs Mo 16-17.30, SR THP, Cologne

C. Kiefer

Special BCGS Courses

53110	Statistical Genetics 4 hrs lectures & tutorials, We 14-15.30 R. 303 II. PI, Fr 10-11.30, CR THP, Cologne	<i>M. Lässig</i>
53113	Experimental Methods in Solid State Physics 2 hrs Mo 16-17.30, SR II. PI, Cologne	<i>T. Michely</i>
53118	Astrochemistry 2 hrs We 14-15.30, SR I. PI, Exercises: 1 hr Fr 12-12.45, SR IKP, Cologne Video broadcast on demand, please contact gradschool.physics@uni-koeln.de	<i>P. Schilke, S. Thorwirth</i>
53121	From Semiconductor Physics to Today's Information Technology 2 hrs Tu 12-13.30, SR II. PI, Cologne Video broadcast on demand, please contact gradschool.physics@uni-koeln.de	<i>R. Wördenweber</i>
53122	Nuclear Astrophysics 2 hrs We 10-11.30, SR IKP, Cologne Video broadcast on demand, please contact gradschool.physics@uni-koeln.de	<i>A. Zilges</i>
53127	2-dimensional Materials 2 hrs Th 12-13.30, SR II. PI, Cologne Lecture is broadcasted to Bonn: SR I, PI All interested students are kindly requested to contact busse@ph2.uni-koeln.de prior to the beginning of the term	<i>C. Busse</i>

Due to technical support issues, lectures by video might be shifted to other rooms on short notice. Please check the BCGS website and local announcements. If you are interested in a specific course but are unable to travel, please inquire if video broadcast is possible.

Research Internships

Students become a temporary member of a research group for a typical duration of four weeks, further information:

<http://www.gradschool.physics.uni-koeln.de>

for similar courses, see

physics717	High Energy Physics Lab, Bonn 4 to 6 weeks on agreement	<i>E. von Törne</i>
physics732	Optics Lab, Bonn 4 to 6 weeks on agreement http://www.iap.uni-bonn.de/opticslab/	<i>F. Vewinger, S. Linden, D. Meschede, M. Weitz</i>
53199	Miniforschung (Internship during semester break for advanced students), Cologne	<i>Professors and Lecturers of the Physics Institutes</i>

Intensive Courses

physics713 (planned)	BCGS Intensive Week (Advanced Topics in High Energy Physics): Statistical and Computational Methods for Experimental Particle Physics at LHC, Bonn September 22-26, 2014 further details will be available soon	<i>E. von Törne</i>
-------------------------	--	---------------------

General Courses

physics712	Advanced Electronics and Signal Processing Tu 10-12, Th 11, LH, HISKP, Bonn Exercises: 1 hr in groups	<i>P.-D. Eversheim, H. Krüger</i>
physics754	General Relativity and Cosmology Mo 14-16, We 12, LH I, PI, Bonn Exercises: 2 hrs in groups	<i>B. Metsch</i>
physics775	Nuclear Reactor Physics We 14-16, SR I, HISKP, Bonn	<i>A. Gillitzer</i>
53117	Data Analysis in Physics and Astronomy 2 hrs Mo 14-15.30, CR THP, Exercises: 1 hr Fr 12-12.45, CR THP, Cologne	<i>M. Röllig</i>

Particle and Nuclear Physics

physics632	Physics of Hadrons Tu 16, Th 12-14, LH, IAP, Bonn Exercises: 1 hr in groups	<i>H. Schmieden</i>
physics633	High Energy Collider Physics Tu 14-16, Th 8-10, LH, IAP, Bonn Exercises: 1 hr in groups included	<i>J. Dingfelder, J. Kroseberg</i>
physics636	Advanced Theoretical Particle Physics Mo 16-18, Tu 17, LH I, PI, Bonn Exercises: 2 hrs in groups	<i>H.-P. Nilles</i>
physics637	Advanced Theoretical Hadron Physics We 14-17, SR II, HISKP, Bonn Exercises: 2 hrs in groups	<i>C. Hanhart, S. Krewald, T. Luu, A. Wirzba</i>
physics639	Advanced Topics in High Energy Particle Physics Tu 8-10, We 12-14, LH, IAP, Bonn Exercises: 1 hr in groups included	<i>K. Desch, M. Cristinziani</i>
physics713	Particle Detectors and Instrumentation Th 14, LH, HISKP, Fr 10-12, LH, IAP, Bonn Exercises: 1 hr in groups	<i>H. Schmieden</i>
physics714	Advanced Accelerator Physics We 10-12, Th 10-12, SR I, HISKP, Bonn Exercises: 1 hr in groups included	<i>W. Hillert</i>
physics755	Quantum Field Theory We 13, Fr 12-14, LH I, PI, Bonn Exercises: 2 hrs in groups	<i>B. Kubis</i>
physics7xx	Lattice QCD Tu 14-16, Th 9, SR II, HISKP, Bonn	<i>U. Meißner, A. Rusetsky</i>
physics651	Seminar on Current Topics in Experimental Hadron and Accelerator Physics Mo 14-16, SR II, HISKP, Bonn	<i>W. Hillert, U. Thoma</i>

physics653	Seminar on Symmetries and Symmetry Breaking in Particle and Nuclear Physics We 10-12, SR II, HISKP, Bonn	<i>C. Hanhart, S. Krewald, T. Luu, U. Meißner, B. Metsch, A. Wirzba</i>
53104	Particle Physics 3 hrs on agreement, SR IKP, Cologne First meeting: We, 09.04.2013, 13 h	<i>D. Gotta, S. Schadmand, H. Ströher, M. Hartmann</i>
53106	Modern Themes in Nuclear Physics Exercises: 2 hrs Tu 10-11.30, Lib IKP, Cologne	<i>J. Jolie</i>
53126	Physics of Detectors 3 hrs Mo 16-16.45, Tu 12-13.30, SR IKP, Cologne	<i>P. Reiter</i>
53403	Advanced Seminar on Accelerator Mass Spectrometry: Experimental Technique and Applications 2 hrs Tu 14-15.30, SR IKP, Cologne	<i>A. Dewald</i>
53406	Advanced Seminar on Nuclear Physics 2 hrs Mo 14-15.30, SR IKP, Cologne	<i>J. Jolie, P. Reiter, A. Zilges, H. Ströher, D. Gotta, A. Dewald, K.O. Zell</i>

Astronomy and Astrophysics

astro821	Astrophysics of galaxies Th 15-18, R 0.012, AlfA, Bonn Exercises: 2 hrs in groups	<i>P. Kroupa</i>
astro822	Physics of the Interstellar Medium Mo 11.15-12.30, Tu 15-16.15, R 0.012, AlfA, Bonn Exercises: 1 hr in groups	<i>F. Bertoldi</i>
astro8402	X-ray astronomy Fr 13-15, R 0.012, AlfA, Exercises: 2 hrs Fr 15-17, Cip-Pool, AlfA, Bonn	<i>T. Reiprich</i>

Astronomy and Astrophysics

astro8403	Hydrodynamics and astrophysical magnetohydrodynamics We 13.30-15, R 0.008, AlfA, Bonn Exercises: 2 hrs in groups	<i>J. Braithwaite</i>
astro8404	Radiointerferometry: Methods and Science Tu 12-15, R 0.006, AlfA, Bonn	<i>F. Bertoldi</i>
astro845	Observational cosmology Th 13-15, R 0.012, AlfA, Bonn Exercises: 1 hr in groups	<i>K. Basu, C. Porciani</i>
astro847	Optical Observations Fr 11-13, R 0.012, AlfA, Exercises: 2 hrs Mo 9-11, Cip-Pool, AlfA, Bonn	<i>H. Hildebrandt, T. Schrabback</i>
astro848	Galactic and intergalactic magnetic fields Tu 13-15, R 0.008, AlfA, Bonn Exercises: 1 hr in groups	<i>U. Klein</i>
astro849	Multiwavelength Observations of Galaxy Clusters Mo 15.30-17, R 0.008, AlfA, Bonn Exercises: 1 hr in groups	<i>T. Reiprich, Y. Zhang</i>
astro8501	Binary Stars Th 9-11, R 0.008, AlfA, Bonn Exercises: 1 hr in groups	<i>R. Izzard</i>
astro8504	The physics of compact objects Tu 13-15, R 0.01, MPIfR, Bonn Exercises: 2 hrs in groups	<i>T. Tauris</i>
astro851	Stellar and Solar Coronae Th 13-15.15, R 0.01, MPIfR, Bonn	<i>M. Massi</i>
astro852	Gravitational lensing Tu 10-12, R 0.012, AlfA, Bonn Exercises: 1 hr in groups	<i>P. Schneider</i>
astro858	Nucleosynthesis Th 11-13, Fr 9, R 0.008, AlfA, Bonn	<i>N. Langer</i>

astro891	Seminar on cosmology Mo 11-13, R 0.008, AlfA, Bonn	<i>C. Porciani, T. Reiprich, P. Schneider</i>
astro892	Seminar on radio astronomy Th 18-19.30, R 0.006, AlfA, Bonn	<i>F. Bertoldi, J. Kerp, U. Klein, M. Kramer</i>
astro893	Seminar on stellar systems: star clusters and dwarf galaxies Tu 16.15-17.45, R 3.010, AlfA, Bonn	<i>P. Kroupa, J. Pflamm-Altenburg</i>
astro894	Seminar on astronomy and astrophysics Mo 14-15.30, R 0.012, AlfA, Bonn	<i>R. Izzard</i>
6964	Seminar on technical and computational aspects of astronomy Fr 9.45-10.45, R 3.010, AlfA, Bonn	<i>R. Izzard</i>
6965	Seminar on cosmology and selected problems in gravitational lensing research Tu 14-16, R 3.010, AlfA, Bonn	<i>C. Porciani, P. Schneider</i>
6966	Seminar on theoretical dynamics Fr 14.15-15.45, R 3.010, AlfA, Bonn	<i>P. Kroupa, J. Pflamm-Altenburg</i>
6970	Seminar on galaxy clusters Th 15-17, R 0.006, AlfA, Bonn	<i>T. Reiprich, Y. Zhang</i>
6971	Seminar on stellar evolution and hydrodynamics Th 13.30-15, R 3.010, AlfA, Bonn	<i>J. Braithwaite, N. Langer</i>
53107	Relativity and Cosmology II 4 hrs Tu 10-11.30, Th 8-9.30, SR THP, Exercises: 2 hrs We 14-15.30, SR THP, Cologne	<i>C. Kiefer</i>
53109	Experimental Methods in Molecular Physics 2 hrs Tu 12-13.30, CR THP, Exercises: 1 hr Th 14 SR THP, Cologne	<i>A. Kiendler-Scharr</i>
53115	Physics of the Interstellar Medium 2 hrs We 10-11.30, SR I. PI, Exercises: 1 hr Mo 10, SR II. PI, Cologne	<i>V. Ossenkopf</i>

Astronomy and Astrophysics

53119	Molecular Physics II 3 hrs Mo 10-11.30, Tu 12, SR I. PI, Exercises: 1 hr Tu 13 SR I. PI, Cologne	<i>S. Schlemmer</i>
53120	Experimental Methods in Astrophysics 2 hrs Mo 12-13.30, SR I. PI, Exercises: 1 hr Fr 13, CR THP, Cologne	<i>J. Stutzki</i>
53124	Hydrodynamics 2 hrs Th 10-11.30, CR THP, Exercises: 1 hr Tu 10, SR IKP, Cologne	<i>S. Walch</i>
53125	Optical/Infrared Interferometry 2 hrs Th 10-11.30, SR I. PI, Exercises: 1 hr Mo 12, SR I. PI, Cologne	<i>L. Labadie</i>
53404	Advanced Seminar on Topical Subjects of Astrophysics 2 hrs Mo 14-15.30, SR I. PI, Cologne	<i>A. Eckart, L. Labadie, P. Schilke, S. Schlemmer, J. Stutzki</i>
53408	Advanced Seminar on Current Problems in Theoretical Astrophysics 2 hrs We 8-9.30, SR I. PI, Cologne	<i>S. Pfalzner</i>

Condensed Matter and Statistical Physics, Photonics

physics638	Advanced Theoretical Condensed Matter Physics Th 13, Fr 10-12, LH, HISKP, Bonn Exercises: 2 hrs in groups	<i>C. Kollath</i>
physics740	Hands-on Seminar: Experimental Optics and Atomic Physics Mo 9-11, IAP, Bonn	<i>M. Weitz and co-workers</i>

physics762	Transport in Mesoscopic Systems We 10-12, LH, IAP, Bonn Exercises: 1 hr in groups	<i>J. Kroha</i>
physics773	Physics in Medicine II: Fundamentals of Medical Imaging Mo 10-12, LH, HISKP, We 12, SR I, HISKP, Bonn Exercises: 1 hr in groups	<i>K. Lehnertz</i>
physics652	Seminar on Advanced Topics in Photonics and Quantum Optics Th 16-18, LH, IAP, Bonn	<i>F. Vewinger</i>
physics654	Seminar on Explicit Methods in Number Theory Tu 14-16, SR I, PI, Bonn	<i>S. Krämer, H. Monien</i>
physics655	Seminar on Selected Topics in Environmental Physics Th 14-16, LH 118, AVZ, Bonn	<i>B. Diekmann</i>
physics656	Seminar Medical Physics: Physical Fundamentals of Medical Imaging Mo 14-16, SR I, HISKP, Bonn	<i>K. Lehnertz, T. Stöcker</i>
physics657	Seminar on Scanning Probe Microscopy Mo 15-17, LH, IAP, Bonn	<i>E. Soergel</i>
53100	Condensed Matter Physics II 3 hrs We 10-11.30, Fr 10, SR II. PI, Cologne	<i>M. Braden</i>
53103	Statistical Physics of Soft and Biological Matter 4 hrs Tu & Fr 14-15.30, LH II, Exercises: 2 hrs Tu 16-17.30, LH II, Cologne	<i>G. Gompper</i>
53105	Reversible and Irreversible Stochastic Processes Exercises: 2 hrs Th 17.45-19.15, CR THP, Cologne	<i>M. Janßen</i>
53109	Experimental Methods in Molecular Physics 2 hrs Tu 12-13.30, CR THP, Exercises: 1 hr Th 14 SR THP, Cologne	<i>A. Kiendler-Scharr</i>
53111	Photons and Matter 2 hrs Tu 10-11.30, SR II. PI, Cologne	<i>P. van Loosdrecht</i>

Condensed Matter and Statistical Physics, Photonics

53112	Magnetism 2 hrs Th 10-11.30, SR II. PI, Cologne	<i>T. Lorenz</i>
53114	Qualitative Methods in Theoretical Physics 4 hrs Mo 10-11.30, Fr 12-13.30, SR THP, Exercises: 2 hrs We 10-11.30, LH II, Dep. of Chem., Cologne	<i>T. Nattermann</i>
53116	High Temperature Superconductors 2 hrs Fr 14-15.30, SR II. PI, Cologne	<i>J. Röhler</i>
53119	Molecular Physics II 3 hrs Mo 10-11.30, Tu 12, SR I. PI, Exercises: 1 hr Tu 13 SR I. PI, Cologne	<i>S. Schlemmer</i>
53123	Quantum Field Theory I 4 hrs Mo 12-13.30, SR THP, We 12-13.30, LH III, Exercises: 2 hrs Tu 14-15.30, SR THP, Cologne	<i>M. Zirnbauer</i>
53400	Advanced Seminar on Current Problems in Solid State Physics: Dynamical Properties of Solids 2 hrs Mo 14-15.30, SR II. PI, Cologne	<i>M. Braden, C. Busse, M. Grüninger, J. Hemberger, P. van Loosdrecht, T. Lorenz, T. Michely</i>
53402	Advanced Seminar: Spintronics 2 hrs We 14-15.30, CR THP, Cologne	<i>D. E. Bürgler</i>
53409	Advanced Seminar - Quantum knots: Monopoles, skyrmions and Majorana fermions in condensed matter systems 2 hrs Tu 12-13.30, SR THP-Container, Cologne	<i>A. Rosch, S. Trebst</i>

BCGS Poster Session

Once a year, BCGS-students present their scientific work in a poster session providing insights into their research projects.

The next session will take place

27.06.2014, 14.00 h, in Bonn

As usual, there will be a colloquium talk on a current topic at the end of the session. More details will be announced before long.

We cordially invite all interested students and faculty to discuss at the posters and the informal get-together after the talk.



Universität Bonn
Bonn-Cologne Graduate School
of Physics and Astronomy
Wegelerstr. 8
53115 Bonn
Germany

Phone: +49 228 733482
Fax: +49 228 736836
Email: gradschool.physics@uni-bonn.de
<http://www.gradschool.physics.uni-bonn.de>

Universität Köln
Bonn-Cologne Graduate School
of Physics and Astronomy
Zùlpicher Str. 77
50937 Köln
Germany

Phone: +49 221 4703554
Fax: +49 221 4706727
Email: gradschool.physics@uni-koeln.de
<http://www.gradschool.physics.uni-koeln.de>