

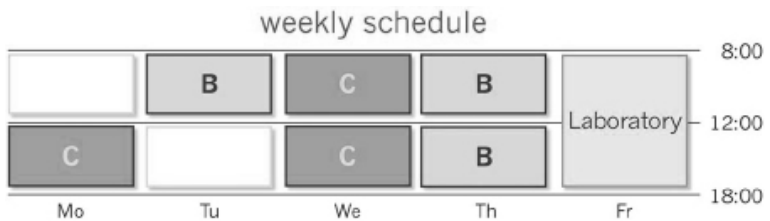
Bonn-Cologne Graduate School of Physics and Astronomy



Course Overview

Summer Term 2016





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 2016

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.

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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
Zùlpicher Str. 77, 50937 Köln

- TP - Institut für Theoretische Physik (Erweiterungsbau)
Zùlpicher Str. 77a, 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, Th 14-16, LH, IAP, Bonn Exercises: 1 hr in groups included	M. Weitz
physics640	Photonic Devices Tu 12-14, Fr 10-12, LH, IAP, Bonn Exercises: 1 hr in groups included	S. Linden
physics716	Statistical Methods of Data Analysis Fr 10-12, LH, HISKP, Bonn Exercises: 1 hr in groups	I. Brock
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
53103	Computational Many-Body Physics 3 hrs lectures & 1 hr exercises Mo 14-15.30, SR TP, We 14-15.30, CR1 TP, Cologne	R. Bulla
53118	Astrochemistry 2 hrs We 14-15.30, SR I. PI, Exercises: 1 hr Fr 13-14.30, CR THP, Cologne	P. Schilke, S. Thorwirth
53122	Semiconductor Physics, Nano- and Information Technology 2 hrs Tu 12-13.30, SR II. PI, Cologne	R. Wördenweber
53127	Quantum Field Theory in Curved Spacetime 2 hrs Mo 16-17.30, SR THP, Cologne	C. Kiefer



Special BCGS Courses

53128	Statistical Genetics 4 hrs lectures & tutorials, We 14-15.30, Fr 10-11.30, CR2 TP, Cologne	M. Lässig
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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.

Seminars

physics651	Joint BCGS Seminar on Detectors in Nuclear and Particle Physics Mo 14-16, SR II, HSIKP, Bonn	R. Beck, I. Brock, K. Desch, J. Dingfelder, J. Kaminski, B. Ketzer, N. Wermes
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53406	Advanced Seminar: Disentangling Quantum Matter with Quantum Information Theory 2 hrs Fr 14-15.30, SR TP, Cologne	D. Groß, S. Trebst
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Intensive Courses

physics721	BCGS Intensive Week (Advanced Topics in Hadron Physics): Hadron Physics Summer School (HPSS 2016) September 5-9, 2016, JUFA Jülich	R. Beck, C. Hanhart, B. Kubis, T. Luu, A. Nogga, et al.
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physics737 (planned)	BCGS Intensive Week (Advanced Topics in Photonics and Quantum Optics)	F. Vewinger
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	BCGS Intensive Week: Electric transport in 2D Materials 1 week, August 7-20, 2016, Cologne Details will be announced soon.	A. Grüneis
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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	E. von Törne
physics732	Optics Lab, Bonn 4 to 6 weeks on agreement http://www.iap.uni-bonn.de/opticslab/	F. Vewinger, S. Linden, D. Meschede, M. Weitz
53199	Miniforschung (Internship during semester break for advanced students), Cologne	Professors and Lecturers of the Physics Institutes

General Courses

physics712	Advanced Electronics and Signal Processing Tu 10, Th 12-14, LH, HISKP, Bonn Exercises: 1 hr in groups	P.-D. Eversheim, H. Krüger
physics754	General Relativity and Cosmology Mo 16-18, Tu 16, LH I, PI, Bonn Exercises: 2 hrs in groups	A. Klemm
physics775	Nuclear Reactor Physics We 14-16, SR II, HISKP, Bonn	A. Gillitzer
53116	Data Analysis in Physics and Astronomy 2 hrs Th 14-15.30, CR THP, Exercises: 1 hr Fr 12-12.45, CR THP, Cologne	M. Röllig

Particle and Nuclear Physics

physics632	Physics of Hadrons Tu 8-10, Th 12, SR I, HISKP, Bonn Exercises: 1 hr in groups	F. Klein
physics633	High Energy Collider Physics Mo 10-12, LH, HISKP, Th 8-10, SR I, HISKP, Bonn Exercises: 1 hr in groups included	K. Desch, P. Wagner
physics636	Advanced Theoretical Particle Physics Mo 12, Tu 14-16, LH I, PI, Bonn Exercises: 2 hrs in groups	M. Drees
physics637	Advanced Theoretical Hadron Physics We 14-17, SR I, HISKP, Bonn Exercises: 2 hrs in groups	T. Luu, A. Wirzba
physics639	Advanced Topics in High Energy Particle Physics Tu, Th 10-12, LH, IAP, Bonn Exercises: 1 hr in groups included	J. Dingfelder
physics713	Particle Detectors and Instrumentation Tu 14-16, We 13, LH, HISKP, Bonn Exercises: 1 hr in groups	R. Beck, H. Schmieden
physics714	Advanced Accelerator Physics We, Th 10-12, SR I, HISKP, Bonn Exercises: 1 hr in groups included	W. Hillert
physics722	Advanced Gaseous Detectors - Theory and Practice Tu 12-14, Th 14-16, LH, HISKP, Bonn Exercises: 1 hr in groups included	B. Ketzer
physics755	Quantum Field Theory We 10-12, Th 9, LH, HISKP, Bonn Exercises: 2 hrs in groups	U. Meißner, A. Rusetsky
physics765	Advanced Topics in QFT: Conformal Field Theory Th 13, Fr 13-15, LH, IAP, Bonn Exercises: 2 hrs in groups	H. Jockers

physics654	Seminar on Non-Accelerator Particle and Astroparticle Physics Fr 10-12, CR II 1.049, PI, Bonn	K. Desch, M. Drees, H. Dreiner, H.-P. Nilles
53106	Particle Physics 3 hrs on agreement, SR IKP, Cologne	D. Gotta, H. Ströher, mit M. Hartmann, mit I. Keshelashvili
53111	Theoretical Nuclear Physics III (Symmetries in Atomic Nuclei) 2 hrs We 16-17.30, SR IKP, Cologne	J. Jolie
53123	Physics of Detectors 2 hrs Tu 10-11.30, SR IKP, Cologne	A. Zilges
53405	Advanced Seminar on Nuclear Physics 2 hrs Mo 16-17.30, SR IKP, Cologne	J. Jolie, P. Reiter, A. Zilges, H. Ströher, D. Gotta, A. Dewald, mit C. Fransen

Astronomy and Astrophysics

astro821	Astrophysics of galaxies Th 15-18, R 0.012, AlfA, Bonn Exercises: 2 hrs in groups	P. Kroupa
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	F. Bertoldi
astro8402	X-ray astronomy Fr 13-15, R 0.012, AlfA, Exercises: 2 hrs Fr 15-17, Cip-Pool, AlfA, Bonn	T. Reiprich
astro8404	Radiointerferometry: Methods and Science We 10-13, R 0.006, AlfA, Bonn	F. Bertoldi, M. Kramer, R. Mauersberger, S. Mühle

Astronomy and Astrophysics

astro845	Observational cosmology Th 13-15, R 0.012, AlfA, Bonn Exercises: 1 hr in groups	K. Basu, C. Porciani
astro847	Optical Observations Fr 11-13, R 0.012, AlfA, Exercises: 2 hrs Mo 9-11, Cip-Pool, AlfA, Bonn	H. Hildebrandt, T. Schrabback
astro849	Multiwavelength Observations of Galaxy Clusters Mo 15.30-17, R 0.008, AlfA, Bonn Exercises: 1 hr in groups	T. Reiprich, Y. Zhang
astro8504	The physics of compact objects Tu 9-11, R 0.008, AlfA, Bonn Exercises: 2 hrs in groups	T. Tauris
astro851	Stellar and Solar Coronae Th 13-15.15, R 0.01, MPIfR, Bonn	M. Massi
astro852	Gravitational lensing Tu 10-12, R 0.012, AlfA, Bonn Exercises: 1 hr in groups	P. Schneider
astro858	Nucleosynthesis Th 11-13, Fr 9, R 0.008, AlfA, Bonn Exercises: 1 hr in groups	N. Langer
astro830	Seminar on astronomy and astrophysics Mo 14-15.30, R 0.008, AlfA, Bonn	Y. Zhang, F. Bertoldi, J. Kerp, U. Klein, M. Kramer, P. Kroupa, N. Langer, M. Massi, R. Mauersberger, K. Menten, C. Porciani, T. Reiprich, P. Schneider, T. Tauris
6952	Seminar on theoretical dynamics Fr 14.15-15.45, R 3.010, AlfA, Bonn	P. Kroupa, J. Pflamm-Altenburg
6953	Seminar on stellar systems: star clusters and dwarf galaxies Tu 16.15-17.45, R 3.010, AlfA, Bonn	P. Kroupa, J. Pflamm-Altenburg

6954	Seminar on galaxy clusters Th 15-17, R 0.006, AlfA, Bonn	T. Reiprich, Y. Zhang
6956	Seminar on cosmology Mo 11-13, R 0.008, AlfA, Bonn	C. Porciani, T. Reiprich, P. Schneider
6957	Seminar on cosmology and selected problems in gravitational lensing research Tu 14-16, R 3.010, AlfA, Bonn	C. Porciani, P. Schneider
6958	Seminar on radio astronomy Th 18-19.30, R 0.006, AlfA, Bonn	F. Bertoldi, J. Kerp, U. Klein, M. Kramer
53100	Molecular Physics II 3 hrs Mo 10-11.30, Tu 12, SR I. PI, Exercises: 1 hr Tu 13 SR I. PI, Cologne	O. Asvany
53101	Methods of Molecular Physics 2 hrs Th 16-17.30, CR1 TP, Cologne	O. Asvany, S. Brünken, K. Jacobs, mit N. Honingh
53105	Galaxy Dynamics 2 hrs Tu 10-11.30, SR I. PI, Exercises: 1 hr Th 12, SR II. PI, Cologne	A. Eckart
53112	Optical/Infrared Interferometry 2 hrs We 12-13.30, SR I. PI, Exercises: 1 hr Fr 11, SR II. PI, Cologne	L. Labadie
53115	Physics of the Interstellar Medium 2 hrs We 10-11.30, SR I. PI, Exercises: 1hr Tu 14-15.30, CR THP, Cologne (every second week)	V. Ossenkopf
53119	Experimental Methods in Astrophysics 2 hrs Mo 12-13.30, SR I. PI, Exercises: 1 hr Fr 9, CR1 TP, Cologne	J. Stutzki
53120	Hydrodynamics 2 hrs Th 10-11.30, SR I. PI, Exercises: 1 hr Tu 14, SR I. PI, Cologne	S. Walch-Gassner

53126	Relativity and Cosmology II 4 hrs We 8-9.30, Fr 10-11.30, SR TP, Exercises: 2 hrs Th 14-15.30, CR1 TP, Cologne	C. Kiefer
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53403	Advanced Seminar on Topical Subjects of Astrophysics 2 hrs Mo 14-15.30, SR I. PI, Cologne	A. Eckart, L. Labadie, P. Schilke, S. Schlemmer, J. Stutzki, S. Walch-Gassner
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Condensed Matter and Statistical Physics, Photonics

physics613	Condensed Matter Physics Mo 12-14, We 10-12, LH, IAP, Bonn Exercises: 1 hr in groups included	S. Linden
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physics638	Advanced Theoretical Condensed Matter Physics Tu 11, Th 10-12, LH, HISKP, Bonn Exercises: 2 hrs in groups	H. Monien
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physics738	Lecture on Advanced Topics in Quantum Optics: Basics of Quantum Information We 12-14, LH, IAP, Bonn Exercises: 1 hr in groups	M. Köhl
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physics740	Hands-on Seminar: Experimental Optics and Atomic Physics Mo 9-11, IAP, Bonn	M. Weitz and co-workers
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physics7502	Random Walks and Diffusion Th 14-16, SR II, HISKP, Bonn Exercises: 1 hr in groups included	G. Schütz
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physics773	Physics in Medicine II: Fundamentals of Medical Imaging Mo 10-12, We 12, SR I, HISKP, Bonn Exercises: 1 hr in groups	K. Lehnertz
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physics652	Seminar Photonics/Quantum Optics Mo 14-16, LH, IAP, Bonn	M. Köhl, D. Meschede
physics656	Seminar Medical Physics: Physical Fundamentals of Medical Imaging Mo 14-16, SR I, HISKP, Bonn	K. Lehnertz
53100	Molecular Physics II 3 hrs Mo 10-11.30, Tu 12, SR I. PI, Exercises: 1 hr Tu 13 SR I. PI, Cologne	O. Asvany
53101	Methods of Molecular Physics 2 hrs Th 16-17.30, CR1 TP, Cologne	O. Asvany, S. Brünken, K. Jacobs, mit N. Honingh
53102	Magnetism 2 hrs Th 10-11.30, SR II. PI, Cologne	M. Braden
53107	Condensed Matter Physics II 3 hrs We 10-11.30, Fr 10, SR II. PI, Cologne	M. Grüninger
53108	Introduction to strange and topological quantum matter 2 hrs We 16-17.30, CR1 TP, Exercises: 1 hr Th 16-17.30, SR TP, Cologne (every second week)	M. Hermanns, P. Strack
53109	Generated Dynamics of Markov and Quantum Processes 2 hrs Th 17-18.30, CR2 TP, Cologne	M. Janßen
53113	Photons and Matter 2 hrs Tu 10-11.30, SR II. PI, Exercises: 1 hr Tu 14-15.30, SR II. PI, Cologne (every second week)	P. van Loosdrecht
53114	High Temperature Superconductors 2 hrs Fr 14-15.30, SR II. PI, Cologne	J. Röhler
53117	Quantum Field Theory I 4 hrs Mo, We 12-13.30, SR THP, Exercises: 2 hrs Tu 10-11.30, SR THP, Cologne	S. Diehl

Condensed Matter and Statistical Physics, Photonics

53121	Introduction to Network Science 2 hrs We 10-11.30, CR1 TP, Exercises: 1 hr We 12, CR1 TP, Cologne	D. Witthaut
53125	Experimental Methods in Solid State Physics 2 hrs We 16-17.30, SR II. PI, Cologne	Y. Ando, M. Braden, A. Grüneis, M. Grüninger, J. Hemberger, P. van Loosdrecht, T. Lorenz, T. Michely
53129	QFT III - Topological Quantum Field Theory 4 hrs Mo, We 14-15.30, SR TP, Tutorials: 2 hrs Th 10-11.30, SR TP, Cologne	A. Altland
53400	Advanced Seminar on Current Problems in Solid State Physics: Nobel Prizes in Solid State Physics 2 hrs Mo 14-15.30, SR II. PI, Cologne	Y. Ando, M. Braden, A. Grüneis, M. Grüninger, J. Hemberger, P. van Loosdrecht, T. Lorenz, T. Michely
53104	Fundamentals of Spintronics 2 hrs We 14-15.30, CR THP, Cologne	D. E. Bürgler



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