

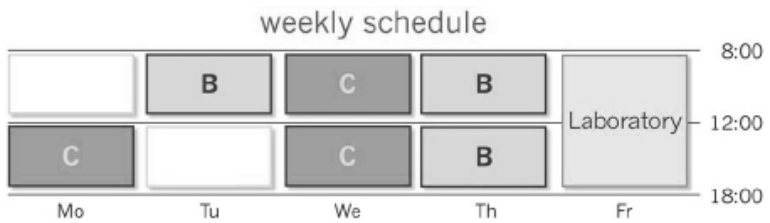
Bonn-Cologne Graduate School
of Physics and Astronomy



Course Overview

Summer Term 2017





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 2017

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
Zülpicher Str. 77, 50937 Köln

- TP - Institut für Theoretische Physik (Erweiterungsbau)
Zülpicher 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
physics636	Advanced Theoretical Particle Physics Tu 10-12, LH HISKP, Th 10-12, LH I, PI, Bonn Exercises: 2 hrs in groups	H. Dreiner
physics640	Photonic Devices Tu 8-10, Th 12-14, LH, IAP, Bonn Exercises: 1 hr in groups included	S. Linden
physics738	Lecture on Advanced Topics in Quantum Optics: Ultracold Quantum Gases We 14-16, LH, IAP, Bonn Exercises: 1 hr in groups Video broadcast on demand, please contact vewinger@iap.uni-bonn.de	F. Vewinger
astro8402	X-ray Astronomy Fr 13-15, R 0.012, AlfA, Bonn Exercises: 1 hr in groups	T. Reiprich
astro845	Observational Cosmology Th 13-15, R 0.012, AlfA, Bonn Exercises: 1 hr in groups	C. Porciani, K. Basu
14756.2032	The Early Universe 2 hrs Mo 16-17.30, SR THP, Cologne	C. Kiefer
14756.2033	Quantum Black Holes 2 hrs We 10-11.30, SR THP, Cologne	C. Kiefer
14756.2034	Evolutionary Biology and Population Genetics for Physicists 4 hrs lectures & tutorials, We 14-15.30 CR1 TP, Fr 10-11.30, CR2 TP, Cologne	J. Krug

Special BCGS Courses

14756.2039	Statistical Physics of Soft and Biological Matter for Physicists 4 hrs Tu, Fr 12-13.30, CR1 TP, Exercises 2 hrs Tu 14-15.30 CR1 TP, Cologne	G. Gompper
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14756.2037	Topology for Physicists 4 hrs Tu 14-15.30, We 12-13.30, SR TP, Cologne	M. Zirnbauer
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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 14756.5010	Joint BCGS Seminar on Detectors in Nuclear and Particle Physics Mo 14-16, SR I, HSIKP, Bonn, or Lib IKP, Cologne	J. Dingfelder, F. Klein, N. Wermes; P. Reiter
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Intensive Courses

14756.2054	BCGS Intensive Week on Numerical Modeling in Astrophysics September 11-15, 2017, Cologne https://hera.ph1.uni-koeln.de/~walch/BCGS/Intensive_Week_2017.html	S. Walch-Gassner
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physics719	BCGS Intensive Week: The Hunt for the Higgs Boson October 2-6, 2017, Bonn https://www.hep1.physik.uni-bonn.de/teaching/intensiveweek/index	E. von Törne
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14756.2055	BCGS Intensive Week: Topics in Advanced Spectroscopy of Solids October 2-6, 2017, Cologne	F. Parmigiani, P. v. Loosdrecht
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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, M. Köhl, S. Linden, D. Meschede, M. Weitz

General Courses

physics712	Advanced Electronics and Signal Processing Tu 9, Th 10-12, LH, HISKP, Bonn Exercises: 1 hr in groups	P.-D. Eversheim, H. Krüger
physics716	Statistical Methods of Data Analysis Fr 8-10, LH, IAP, Bonn Exercises: 1 hr in groups	Ph. Bechtle
physics754	General Relativity and Cosmology Mo 12, Tu 16-18, LH I, PI, Bonn Exercises: 2 hrs in groups	S. Förste
physics775	Nuclear Reactor Physics We 14-16, SR II, HISKP, Bonn	A. Gillitzer
14756.2016	Data Analysis in Physics and Astronomy 2 hrs Th 14-15.30, SR I. PI, Exercises: 1 hr Fr 12-12.45, CR THP, Cologne	M. Röllig

Particle and Nuclear Physics

physics632	Physics of Hadrons Mo 12-14, Fr 9, LH, HISKP, Bonn Exercises: 1 hr in groups	R. Beck, B. Ketzner
physics633	High Energy Collider Physics Tu 12-14, Th 8.45-10.10, LH, IAP, Bonn Exercises: 1 hr in groups included	J. Dingfelder
physics637	Advanced Theoretical Hadron Physics We 14-17, SR I, HISKP, Bonn Exercises: 2 hrs in groups	C. Hanhart, T. Luu, A. Wirzba
physics639	Advanced Topics in High Energy Particle Physics We 12-14, Fr 10-12, LH, IAP, Bonn Exercises: 1 hr in groups included	F. Bernlochner
physics713	Particle Detectors and Instrumentation We 10-12, We 13, SR I, HISKP, Bonn Exercises: 1 hr in groups	A. Thiel
physics718	C++ Programming in High Energy Physics We 8-10, LH, IAP, Bonn Exercises: 1 hr in groups	E. von Törne
physics722	Advanced Gaseous Detectors - Theory and Practice Tu, Th 14-16, SR II, HISKP, Bonn Exercises: 1 hr in groups included	B. Ketzner
physics755	Quantum Field Theory Mo 10-12, We 9, LH, HISKP, Bonn Exercises: 2 hrs in groups	B. Kubis
physics763	Advanced Topics in String Theory Mo 16-18, Tu 14, LH I, PI, Bonn Exercises: 2 hrs in groups	A. Klemm
physics769	Lattice QCD We 10-12, Th 9, SR II, HISKP, Bonn Exercises: 2 hrs in groups	C. Urbach, A. Rusetsky

physics653	Seminar on Theoretical Hadron Physics We 12-14, SR II, HISKP, Bonn	C. Hanhart, T. Luu, A. Rusetsky, C. Urbach, Q. Wang, A. Wirzba
physics654	Seminar on Theoretical Particle Physics Fr 10-12, CR II 1.049, PI, Bonn	M. Drees, H. Dreiner, H.-P. Nilles
14756.2006	Particle Physics 3 hrs Tu 13, We 12:13.30, SR IKP, Cologne	D. Gotta, H. Ströher
14756.2023	Physics of Detectors 2 hrs Th 10-11.30, SR IKP, Cologne	A. Zilges
14756.2036	Nuclear Astrophysics 2 hrs We 10-11.30, SR IKP, Cologne	A. Zilges
14756.5003	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
14756.5005	Advanced Seminar: Details on Lifetime Measurements of Excited Nuclear States 2 hrs Fr 14-15.30, Lib IKP, Cologne	A. Dewald

Astronomy and Astrophysics

astro821	Astrophysics of Galaxies Th 15-18, R 0.012, AlfA, Bonn Exercises: 1 hr 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, A. Karim
astro8404	Radiointerferometry: Methods and Science We 10-13, R 0.006, AlfA, Bonn	F. Bertoldi, M. Kramer, B. Magnelli, R. Mauersberger, S. Mühle

Astronomy and Astrophysics

astro847	Optical Observations Fr 11-13, R 0.012, AlfA, Bonn Exercises: 1 hr in groups	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
astro8504	Lecture on Advanced Topics in Modern Astrophysics: The Physics of Compact Objects Th 9-11, R 0.008, AlfA, Bonn Exercises: 1 hr 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	Astronomy Professors and Lecturers
6952	Seminar on Theoretical Dynamics Fr 14-16, R 3.010, AlfA, Bonn	P. Kroupa
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
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
6971	Seminar on Stellar Evolution and Hydrodynamics Do 13.30-15, R 3.010, AlfA, Bonn	N. Langer
14756.2000	Molecular Physics II 3 hrs Mo 10-11.30, Tu 12, SR I. PI, Exercises: 1 hr Tu 13, SR I. PI, Cologne	S. Schlemmer
14756.2001	Methods of Molecular Astrophysics 2 hrs Th 16-17.30, SR I. PI, Cologne	S. Schlemmer, O. Asvany, S. Brünken, S. Thorwirth
14756.2035	Active Galaxies 2 hrs Tu 10-11.30, SR I. PI, Exercises: 1 hr We 12, SR II. PI, Cologne	A. Eckart
14756.2043	Observational Methods in Infrared Astronomy 2 hrs Tu 14-15.30, SR I. PI, Exercises: 1 hr We 13, CR1 TP, Cologne	L. Labadie
14756.2044	Star Formation 2 hrs We 12-13.30, SR I. PI, Exercises: 1 hr Mo 10, SR IKP Cologne	P. Schilke
14756.2045	Introduction to Atmospheric Physics 2 hrs Th 12-13.30, CR2 TP, Cologne (Lecture starts April 27, 2017)	A. Kiendler-Scharr
14756.5002	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

Condensed Matter and Statistical Physics, Photonics

physics638	Advanced Theoretical Condensed Matter Physics We 11, Fr 10-12, LH, HISKP, Bonn Exercises: 2 hrs in groups	C. Kollath
physics740	Hands-on Seminar: Experimental Optics and Atomic Physics We 9-11, IAP, Bonn	M. Weitz and co-workers
physics7504	Theory of Superconductivity and Suprafluidity Tu 12-14, LH I, PI, Bonn Exercises: 1 hr in groups	H. Monien
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
physics652	Seminar Photonics/Quantum Optics Mo 14-16, LH, IAP, Bonn	F. Vewinger
physics656	Seminar Medical Physics: Physical Fundamentals of Medical Imaging Mo 14-16, SR II, HISKP, Bonn	K. Lehnertz
14756.2000	Molecular Physics II 3 hrs Mo 10-11.30, Tu 12, SR I. PI, Exercises: 1 hr Tu 13 SR I. PI, Cologne	S. Schlemmer
14756.2001	Methods of Molecular Astrophysics 2 hrs Th 16-17.30, SR I. PI, Cologne	S. Schlemmer, O. Asvany, S. Brünken, S. Thorwirth
14756.2002	Magnetism 2 hrs Th 10-11.30, SR II. PI, Cologne	J. Hemberger
14756.2007	Condensed Matter Physics II 3 hrs Mo 12-13.30, Fr 10, SR II. PI, Exercises: 1 hr Fr 11 SR II. PI, Cologne	P. van Loosdrecht

14756.2012	Physics of Surfaces and Nanostructures 2 hrs Mo 16-17.30, SR II. PI, Cologne	T. Michely
14756.2017	Quantum Field Theory I 4 hrs Mo 12-13.30, We 14-15.30, SR THP, Exercises: 2 hrs Tu 10-11.30, SR THP, Cologne	A. Rosch
14756.2025	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
14756.2031	Solid State Spectroscopy 2 hrs Tu 10-11.30, SR II. PI, Cologne	A. Grüneis
14756.2038	Introduction to Statistical Optics 2 hrs Th 10-11.30, CR2 TP, Cologne	M. Sperl, P. Born
14756.2040	Information Theory and Statistical Physics 4 hrs lectures & tutorials, We 16-17.30, Th 12-13.30, CR1 TP, Cologne	J. Berg
14756.2041	Field Theory of Non-Equilibrium Systems 2 hrs Tu 10-11.30, SR TP, Exercises: 2 hrs Th 14-15.30, CR1 TP, Cologne	S. Diehl
14756.2042	Computational Many-Body Physics Block Course, September 6-29, 2017, Cologne For further information, please contact bulla@thp.uni-koeln.de	R. Bulla
14756.2046	Semiconductor Physics, Nano- and Information Technology 2 hrs Tu 12-13.30, SR II. PI, Cologne	R. Wördenweber
14756.5000	Advanced Seminar on Current Problems in Solid State Physics Recent highlights in experimental solid-state physics: Advanced Materials 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

Condensed Matter and Statistical Physics, Photonics

14756.5008	Advanced Seminar on Quantum Simulations with Ultracold Atoms 2 hrs Fr 12-13.30, SR TP, Cologne	S. Diehl, A. Rosch
14756.5009	Advanced Seminar on Physics of Power Systems and Supply Networks 2 hrs We 10-11.30, CR 2 TP, Cologne	D. Witthaut
14756.5011	Block Seminar on Mathematical Optimization and Quantum Information Theory August 7-9, 2017, Physikzentrum Bad Honnef Interested students should send an email to david.gross@thp.uni-koeln.de or to frank.vallentin@uni-koeln.de The first meeting where the topics are distributed will be in April 2017. http://www.thp.uni-koeln.de/gross/opt-qi-summer17.html	D. Groß



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