

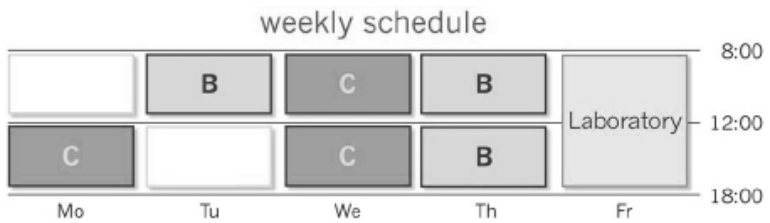
Bonn-Cologne Graduate School
of Physics and Astronomy



Course Overview

Winter Term 2018/2019





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

Winter Term 2018/2019

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.....	6
Particle and Nuclear Physics.....	6
Astronomy and Astrophysics.....	8
Condensed Matter and Statistical Physics, Photonics.....	10
BCGS Grand Opening.....	12

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


- THP NB - Neubau Institut für Theoretische Physik
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

physics614	Laser Physics and Nonlinear Optics Tu, Th 14-16, LH, IAP, Bonn Exercises: 1 hr in groups included	M. Weitz
physics615	Theoretical Particle Physics Mo 16-18, Tu 16, LH I, PI, Bonn Exercises: 2 hrs in groups	M. Drees
physics742	Ultracold Atomic Gases: Experiment and Theory We 10-12, Fr 9, LH, IAP, Bonn Exercises: 1 hr in groups included	M. Köhl
astro811	Stars and Stellar Evolution specific: Stellar Structure and Evolution Th 9-11, R 0.012, AlfA, Fr 8.45-9.45, CIP-Pool, AlfA, Bonn Exercises: 1 hr in groups	N. Langer, L. Grassitelli
astro812	Cosmology Tu 10-13, R 0.012, AlfA, Bonn Exercises: 1 hr in groups	H. Hildebrandt, P. Schneider
astro8503	Radio and x-ray observations of dark matter and dark energy Fr 13-15, R 0.008, AlfA, Bonn Exercises/lab course arranged by appointment	T. Reiprich
14756.2008	Biological Physics I 4 hrs Mo 14-15.30 SR IKP, We 14 SR THP Exercises: 1 hr We 15 SR THP, Cologne	T. Bollenbach
14756.2014	Relativity and Cosmology I 4 hrs Mo 16-17.30, We 10-11.30, SR THP Exercises: 2 hr Th 14-15.30, CR1 THP NB, Cologne	C. Kiefer
14756.2018	Nuclear Physics II (Nuclear Structure and Reactions) 3 hrs We 16, Th 12-13.30 SR IKP, Cologne	P. Reiter

Special BCGS Courses

14756.2026	Introduction to Network Science 3 hrs We 10-12.45, CR2 THP NB, Cologne	D. Witthaut
14756.2027	Computational Soft Matter Physics 3 hrs Tu 14-16.30, CR2 THP NB, Cologne	G. Gompper
14756.2029	Nuclear Astrophysics 2 hrs We 10-11.30, SR IKP, Cologne	A. Zilges

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

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
physics799 astro831	Internships in the Research Group, Bonn	Professors and Lecturers of the Physics/Astronomy Institutes
53199	Miniforschung (Internship during semester break for advanced students), Cologne	Professors and Lecturers of the Physics Institutes

Intensive Courses

	BCGS Intensive Week: The travel of heat in solids Cologne, September 18-24, 2018	K. Behnia, J. Hemberger
physics719	BCGS Intensive Week (Advanced Topics in High Energy Physics): From Hits to Higgs and Tops Bonn, September 24-28, 2018	I. Brock, J. Kroseberg, R. Moles-Valls
	BCGS Intensive Week/Summer School: Advanced Topics Hadron Physics Jülich, September 24-28, 2018	B. Kubis, C. Hanhart, A. Thiel, A. Wirzba
	BCGS Intensive Week: Statistical methods in X-ray astronomy Bonn, December 17-21, 2018 http://www.gradschool.physics.uni-koeln.de/Dokumente/Intensive_Week_X-Ray_Astronomy_2018.pdf	G. Schellenberger, T. Reiprich
14756.2055	BCGS Intensive Week: Numerical methods in N-body dynamics Cologne, February 11-15, 2019	S. Walch-Gassner, F. Dinnbier
14756.2056	BCGS Intensive Week: Experiment and Simulation on Biological Systems Cologne, February 18-22, 2019 http://www.biophysics.uni-koeln.de/index.php?id=12852	J. Berg, B. Maier
physics737	BCGS Intensive Week (Advanced Topics in Photonics and Quantum Optics): Quantum Technologies Bonn, March 25-29, 2019	F. Vewinger, M. Köhl, S. Linden, D. Meschede, M. Weitz

General Courses

physics606	Advanced Quantum Theory Mo 12-14, We 13, LH I, PI, Bonn Exercises: 2 hrs in groups	H. Monien
physics751	Group Theory We 15-17, Fr 9, LH, HISKP, Bonn Exercises: 2 hrs in groups	H. Jockers
physics760	Computational Physics Tu 10-12, SR I, HISKP, Bonn Exercises: 2 hrs in groups	T. Luu, M. Petschlies
physics774	Electronics for Physicists Tu 9, Th 10-12, LH, HISKP, Bonn Exercises: 1 hr in groups	P.-D. Eversheim
14756.2000	Advanced Statistical Physics 4 hrs Tu 8-9.30, Th 10-11.30, LH III, Cologne Exercises: 2 hrs Mo on appointment	M. Krug
14756.2002	Advanced Quantum Mechanics 4 hrs Mo 10-11.30, Tu 14-15.30, LH III, Cologne Exercises: 2 hrs We on appointment	M. Zirnbauer

Particle and Nuclear Physics

physics611	Particle Physics Tu 12-14, Th 8-10, LH I, PI, Bonn Exercises: 1 hr in groups included	Ph. Bechtle
physics612	Accelerator Physics Block course, details to be announced, Bonn	M. Bai

physics616	Theoretical Hadron Physics We 9-12, LH, HISKP, Bonn Exercises: 2 hrs in groups	U. Meißner, A. Rusetsky
physics618	Physics of Particle Detectors Tu 10-12, Th 12-14, LH, HISKP, Bonn Exercises: 1 hr in groups included	B. Ketzer, N. Wermes
physics715	Experiments on the Structure of Hadrons Tu 14-16, CR II, PI, Bonn Exercises: 1 hr in groups	T. Jude, H. Schmieden
physics720	Physics with Antiprotons Th 14-16, SR II, HISKP, Bonn Exercises: 1 hr in groups	A. Gillitzer
physics723	Hands-on Seminar: Detector Construction Fr 12-14, CR I, W 0.027, PI, Bonn	M. Ball, J. Kaminski
physics7501	Advanced Quantum Field Theory Mo 10-12, LH, HISKP, Tu 14-16, LH I, PI, Bonn Exercises: 2 hrs in groups	H. Dreiner
physics752	Superstring Theory Tu 17, Fr 12-14, LH I, PI, Bonn Exercises: 2 hrs in groups	A. Klemm
physics7506	Quark Distributions Functions Th 14-16, SR I, HISKP, Bonn	F. Monti-Steffens, C. Urbach
physics654	Seminar on Current Problems in Theoretical Hadron Physics We 12-14, SR II, HISKP, Bonn	C. Hanhart, M. Mikhasenko, A. Wirzba
14756.2009	Tools for Particle Physics 2 hrs on appointment, SR IKP, Cologne	D. Gotta, H. Ströher
14756.2030	Selected Topics of Future Energy Supply 2 hrs Fr 10-11.30, SR IKP, Cologne	A. Dewald
14756.5004	Advanced Seminar on Nuclear Physics 2 hrs We 14-15.30, SR IKP, Cologne	A. Dewald, D. Gotta, J. Jolie, P. Reiter, H. Ströher, A. Zilges

Astronomy and Astrophysics

astro608	Theoretical Astrophysics We 12, Th 11-13, R 0.012, AlfA, Bonn Exercises: 2 hrs in groups	C. Porciani
astro801	Introduction to Astrophysics Details to be announced, Bonn	P. Schneider
astro841	Radio astronomy: tools, applications and impacts Tu 14-16, Th 15, R 0.012, AlfA, Bonn Exercises arranged by appointment	F. Bertoldi, St. Mühle
astro8531	The Physics of Dense Stellar Systems Mo 15.30-18.30, R 0.012, AlfA, Bonn Exercises arranged by appointment	P. Kroupa
astro856	Quasars and microquasars Th 13-15, R 0.01, MPIfR, Bonn	M. Massi
astro830	Seminar on astronomy and astrophysics Mo 14-15.30, R 0.012, AlfA, Bonn	Astronomy Professors and Lecturers
6952	Seminar on theoretical dynamics Fr 14-16, R 3.010, AlfA, Bonn	P. Kroupa, J. Pflamm-Altenburg
6953	Seminar on stellar evolution and hydrodynamics Th 13.30-15, R 3.010, AlfA, Bonn	N. Langer
6954	Seminar on galaxy clusters Th 15-17, R 0.006, AlfA, Bonn	T. Reiprich
6955	Seminar on selected problems in extragalactic astronomy and cosmology Th 16-18, R 3.010, AlfA, Bonn	C. Porciani, P. Schneider
6959	Seminar on cosmology Tu 14-16, R 3.010, AlfA, Bonn	P. Schneider, C. Porciani, T. Reiprich

6960	Seminar on radio astronomy Th 18-19, R 0.012, Alfa, Bonn	F. Bertoldi, J. Kerp, M. Kramer, M. Massi, K. Menten
6961	Seminar on stars, stellar systems, and galaxies Tu 16-17.30, R 3.010, Alfa, Bonn	P. Kroupa, J. Pflamm-Altenburg
14756.2007	Advanced Astrophysics 4 hrs Tu 10-11.30, We 12-13.30, SR I. PI, Cologne Exercises: 2 hrs on appointment	J. Stutzki, S. Walch-Gassner
14756.2013	Measurement Techniques in Molecular Physics 2 hrs Th 12-13.30, CR THP, Cologne	A. Kiendler-Scharr
14756.2016	Machine Learning in (Astro)Physics 2 hrs We 8-9.30, CR THP, Cologne	S. Pfalzner
14756.2021	Molecular Physics I 3 hrs Tu 12-13.30, Fr 14, SR I. PI, Problem Class: 1 hr Fr 15 SR I. PI, Cologne	S. Schlemmer, O. Asvany
14756.5003	Advanced Seminar on Relativity and Cosmology 2 hrs Th 10-11.30, CR 1 THP NB, Cologne	C. Kiefer
14756.5005	Advanced Seminar in 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

physics617	Theoretical Condensed Matter Physics We 14, Fr 10-12, LH, IAP, Bonn Exercises: 2 hrs in groups	J. Kroha
physics620	Advanced Atomic, Molecular and Optical Physics Tu 12-14, Th 10-12, LH, IAP, Bonn Exercises: 1 hr in groups included	F. Vewinger
physics740	Hands-on Seminar: Experimental Optics and Atomic Physics Mo 9-11, IAP, Bonn	M. Weitz and co-workers
physics7502	Random Walks and Diffusion Th 12-14 and 16-18, SR II, HISKP, Bonn Courses in October and January/February Exercises: 1 hr in groups included	G. Schütz
physics772	Physics in Medicine I: Fundamentals of Analyzing Biomedical Signals Mo 10-12, We 12, SR I, HISKP, Bonn Exercises: 1 hr in groups	K. Lehnertz
physics776	Physics in Medicine III: Physics of Magnetic Resonance Imaging Tu 10-12, Th 16-18, LH, IAP, Bonn Exercises: 1 hr in groups included	T. Stöcker
physics652	Seminar on Precision Measurements with Atoms, Ions, and Molecules Mo 14-16, LH, IAP, Bonn	S. Stellmer
physics655	Computational Physics Seminar on Analyzing Biomedical Signals Mo 14-16, SR I, HISKP, Bonn	K. Lehnertz, B. Metsch

14756.2004	Quantum Field Theory II 4 hrs We 8-9.30, CR1 THP NB, Fr 8-9.30, SR I.PH, Exercises: 2 hrs Th 14-15.30, SR THP NB, Cologne	S. Diehl
14756.2011	Introduction to Neutron Scattering 2 hrs Tu 10-11.30, SR II. PI, Cologne	M. Braden
14756.2012	Condensed Matter Physics I 4 hrs We 10-11.30, Fr 10-11.30, SR II. PI, Cologne Exercises: 1 hr in groups included	T. Lorenz
14756.2013	Measurement Techniques in Molecular Physics 2 hrs Th 12-13.30, CR THP, Cologne	A. Kiendler-Scharr
14756.2017	Superconductivity 2 hrs Mo 10-11.30, SR II. PI, Cologne	A. Grüneis
14756.2020	Solid State Theory 4 hrs Th 8-9.30, Fr 12-13.30, SR THP NB, Cologne Exercises: 1 hr in groups included	S. Trebst
14756.2021	Molecular Physics I 3 hrs Tu 12-13.30, Fr 14, SR I. PI, Problem Class: 1 hr Fr 15 SR I. PI, Cologne	S. Schlemmer, O. Asvany
14756.2024	Quantum Theory and Beyond · Modelling of Processes in Physics Block course, October 23-25, 2018, 10-12 & 14-16, CR THP, Cologne	M. Janßen
14756.2028	Quantum Error Correction 4 hrs Mo 10-11.30, CR2 THP NB, We 12-13.30, CR1 THP NB, Cologne	M. Kastoryano
114756.2031	Physics of Granular Matter 3 hrs Tu 12-13.30, Fr 9, CR THP, Cologne	M. Sperl
14756.5000	Advanced Seminar on Current Problems in Solid State Physics: Spin-orbit coupling, topology, and correlations 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

14756.5002	Advanced Seminar on Statistical and Biological Physics 2 hrs Fr 10-11.30, CR2 THP NB, Cologne	J. Berg, T. Bollenbach, J. Krug, B. Maier
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14756.7000	Scattering! Soft, Functional and Quantum Materials 50th IFF-Spring School, March 11-22, 2019 see: http://www.iff-springschool.de	D. Bürgler
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BCGS Grand Opening

We cordially invite all BCGS members to our welcome party for our new students. The festive event to open the academic year will take place

October 26, 2018
Lecture Hall II
Zülpicher Str. 77 in 50937 Cologne

The colloquium talk will be given at 16.30 h by

Professor Stephanie Wehner, QuTech, TU Delft:



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