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**PD Dr. Andreas Koch**

# CURRICULUM VITAE

**PD Dr. Andreas Koch**
Zentrum für Astronomie der Universität Heidelberg
Asronomisches Rechen-Institut
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69120 Heidelberg
Germany

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## EDUCATION AND SCIENTIFIC QUALIFICATIONS

Habilitation ("PD"), Ruprecht-Karls Universität Heidelberg — Jan. 2015
(Post-educational research and teaching qualification)

Ph.D., University of Basel, Switzerland — Sep. 2006
*Grade*: Summa cum laude (best grade)
*Thesis title*: Chemical and kinematical evolution in nearby dwarf spheroidal galaxies

M. Sc. ("Dipl. Phys."), Ruprecht-Karls Universität Heidelberg — Jan. 2003
*Grade*: Sehr gut (best grade)
*Thesis title*: The luminosity function of the globular cluster Pal 5 and its tidal tails

## SCIENTIFIC CARREER

Researcher — Since Oct. 2017
Astronomisches Rechen-Institut, University of Heidelberg, Germany

Reader in Astrophysics *(equivalent to Full Professor, W3*) — Aug. 2017 – Nov. 2017
Lancaster University, UK

Senior Lecturer *(equivalent to Associate Professor*) — Mar. 2016 – Jul. 2017
Lancaster University, UK

Emmy Noether-research group leader — May 2011 – May 2016
*(equivalent to Assistant Professor*)
Landessternwarte, University of Heidelberg, Germany

Postdoctoral Fellow, Science and Technology Facilities Council — Dec. 2008 – Apr. 2011
University of Leicester, UK

Visiting research scientist — Oct. – Nov. 2008
Astronomisches Rechen-Institut, University of Heidelberg

Joint postdoctoral scholar with Oct. 2006 – Sep. 2008
Dr. R. Michael Rich, University of California Los Angeles and
Dr. Andrew McWilliam, Carnegie Observatories

Visiting research scientist Jan. 2005 and Jan. 2006
Carnegie Observatories, Pasadena

Ph.D. student; University of Basel, Switzerland Mar. 2003 – Sep. 2006

Students' research project, Max-Planck Institute for Jan. 2001
Nuclear Physics, Heidelberg
*Advisors*: Dr. A. Kohnle, Prof. W. Hofmann
*Project title*: Sensitivity characteristics of photomultipliers for the HESS-telescope

ERASMUS exchange studies, Uppsala Astronomical Aug. – Dec. 2000
Observatory, Sweden
*Grade*: VG (best grade)
*Advisor*: Prof. B. Edvardsson
*Project title*: Europium abundances in F and G disk dwarfs

## AWARDS AND HONOURS

Reiff Lecture, Reiff Foundation, Germany Nov. 2014
Emmy Noether Grant Award, DFG, Germany May 2011
Postdoctoral Fellowship, Science and Technology Facilities Council (UK) Dec. 2008
Ludwig Biermann Award, Astronomische Gesellschaft, Germany Sep. 2008
Camille & Henry Dreyfus-Award, University of Basel, CH Feb. 2006
EU Marie Curie Visiting Fellowship, Institute of Astronomy, Sep. – Dec. 2006
Cambridge, UK

## RESEARCH INTERESTS

*Galaxy formation and evolution and near-field cosmology, including:*
- Chemical evolution of galactic stellar halos, globular clusters, and dwarf galaxies
- Nucleosynthesis of the elements
- Dynamics of stellar systems, dark matter
- Morphology of galaxies, halos, and tidal streams

## PUBLICATION RECORD

111 refereed publications (39 first author)
2 articles recently submitted
82 conference proceedings (28 first author)
5754 citations (ADS, as of Dec. 12, 2019)
*h*-index of 40 (only first author: 20)
*ORCID-ID:* 0000-0002-9859-4956

## MANAGEMENT EXPERIENCE

PI of three subprojects (~800,000 €) within the collaborative research center (SFB 881) *"The Milky Way System"*, University of Heidelberg — 2019 – present

Director of the *Dame Kathleen Ollerenshaw Observatory* at Lancaster University — 2017

Affiliate P.I. for the Large Synoptic Survey Telescope (LSST) UK consortium — 2016

Participation in Management Program of the Excellence Initiative of the German federal and state governments, "*Towards a professorship*" — 2014

Co-ordinator for the Science Working Group "Disk/Bar/Bulge" of the 4MOST spectrograph project — 2011 – 2014

Management of a 1 M€ Emmy-Noether research grant — 2011 – 2016

## STUDENT AND POSTDOC SUPERVISION

*Postdocs:*

*(i)* Dongwook Lim — 2019 – present
*(ii)* Alessandro Savino — 2019 – present
*(iii)* Matthias Frank — 2012 – 2017

*Ph.D. students:*

*(i)* Verónica Ferreirós-López (Lancaster University) — 2016 – present
*(ii)* Benjamin Hendricks (University of Heidelberg) — 2012 – 2015
*(iii)* Nikolay Kacharov (University of Heidelberg) — 2011 – 2015

*Master (MSc) students:*

*(i)* Philipp Siebold (University of Heidelberg) — 2019 – 2020
*(ii)* Joshua Tapley (Lancaster University) — 2016 – 2017
*(iii)* Michael Hanke (University of Heidelberg) — 2015 – 2016
*(iv)* Michael Seifert (University of Heidelberg) — 2015 – 2016

*Bachelor (BSc) students:*

*(i)* Emma Louise Espersen Knudsen (Aalborg University, Denmark; co-supervised) — Dec. 2017 – May 2018
*(ii)* Ivalu Barlach Christensen (Aalborg University, Denmark; co-supervised) — Dec. 2017 – May 2018
*(iii)* Michael Hanke (University of Heidelberg) — Apr. – Jul. 2014

*Thesis for German civil service license ("Staatsexamensarbeit")*

*(i)* Michael Czuray (University of Heidelberg) — Oct. 2014 – Sep. 2015

*External Ph.D. examiner (9 between 2013 – 2019):*
Sven Buder, Yulong Zhuang, Katharina Wollenberg, Ellen M. Manning, Valeriy Vasiliev, Peter Kuzma, Cheng Liu, Mohamad Abbas, Anthony R. Conn (Universities of Heidelberg, Tasmania, Australian National University, Lund, and Strasbourg)

*External diploma / MSc examiner (10 between 2012 – 2019):*
Valeria Pollitino, Jan Eberhardt, Nico Winkel, Fabian Scheuermann, Uddipta Bhardwaj, Gesa Grüning, Michael Hanke, Anselm Weber, Matthias Samland, Benjamin Röck (all at University of Heidelberg)

*Ph.D. thesis committee adviser (9 between 2011 – 2019):*
Arvind Hughes, Matteo Mazzarini, Raúl Dominguez, Alina Boecker, Abdalrahman Abohalima, Michael Hanke, Joao Calhau, John J. Vickers, Mohamad Abbas (all at University of Heidelberg)

*Summer- and project students, internships*

| | |
|---|---|
| *(i)* Karolin Voss (University of Heidelberg) | Apr. – Jul. 2018 |
| *(ii)* Ivelin Georgiev (Lancaster University, UK) | Jul. – Oct. 2017 |
| *(iii)* Laurence Day (Lancaster University, UK) | Jul. –Aug. 2016 |
| *(iv)* Peter A. Smith (University of Leicester, UK) | Jul. – Aug. 2009 |

## EXTERNAL REVIEW BOARDS

| | |
|---|---|
| Member of the Strategic Time Allocation Committee for observing time at the Max-Planck Institute for Astronomy | 2019 |
| Member of PhD selection committee for the International Max Planck Research School (IMPRS), Heidelberg | 2019 |
| Referee for DFG (German research council) research grant proposals | 2017 |
| Referee for STFC consolidated grant proposals | 2017 |
| Invited member of the science team for the *WEAVE* spectroscopic survey | 2016 |
| Invited Nominator for the (1.2M$) *Shaw Prize* | 2016 – 2019 |
| Observing Programmes Committee of the European Southern Observatory | 2014 – 2015 |
| External referee for "Fonds zur Förderung der wissenschaftlichen Forschung" (Austrian Science Fund) | 2013 – 2014, 2019 |
| External referee for Macquarie University, Australia, Research Fellowship Scheme | 2013 |
| Time Allocation Committee for the Optical Infrared Coordination Network for Astronomy (Opticon) | 2011 – present |
| Peer reviewer for A&A, AJ, ApJ, MNRAS, PASP, and Nature | 2005 – present |

## SCIENTIFIC ORGANIZING COMMITTEES

Member of Scientific Organizing Committee for Splinter meeting at the Annual Meeting of the German Astronomical Society, Stuttgart, Germany "*The early Milky Way as seen through Galactic Archaeology*" — 2019

Member of Scientific Organizing Committee for international conference on "*Chemical Evolution and Nucleosynthesis Across the Galaxy*", Heidelberg, Germany — 2018

Member of Scientific Organizing Committee for international conference on "*Survival of dense star clusters*", Heidelberg, Germany — 2018

Organization of a mini-workshop on "*Introduction to the Virtual Observatory / How to access Gaia data*", Landessternwarte Heidelberg, Germany — Dec. 2015

Conference Organizer (chair) *"Chemical Oddballs in the Galaxy"* Splinter meeting at the Annual Meeting of the German Astronomical Society, Kiel, Germany — Sep. 2015

Co-ordinator of the astronomy program within the semiannual "Heidelberg Graduate Days" (PhD-level lecture series in physics) — Oct. 2014 – Oct. 2015

Local Organizing Committee at the IAU conference #198, *"Near Field Cosmology with dE Galaxies"*, Les Diableret, Switzerland — May 2005

## INVITED CONFERENCE TALKS

(The conference name is given in quotes, followed by the talk title in *italics*.)

"MOSAIC: Science and Surveys with the ELT Multi-Object Spectrograph" — Mar. 14, 2019
Heidelberg University, Germany
*Dwarf galaxies in the context of ELT/MOSAIC*

"Multiple populations in globular clusters" — Jul. 10, 2018
Sexten Center for Astrophysics, Italy
*Chemo(dynamic) properties of obscure, low-mass globular clusters*

"The Metal-poor Galaxy" — Jul. 05, 2018
Schloss Ringberg, Germany
*Carbon stars as probes of the metal-poor bulge and dwarf galaxies*

"Astro-Convention", Zentrum für Astronomie, — Feb. 22, 2018
Heidelberg University, Germany:
*Galaxy-Science at the ZAH (Keynote Speaker)*

"Stars, Supernovae and Nucleosynthesis IV", — Sep. 05, 2017
Higgs Center for Theoretical Physics, Edinburgh, UK:
*Chemical abundances in globular clusters:*
*BridGCe'ing Galactic components*

"Atomic physics and spectroscopy", DARK Cosmology Center, — Jun. 07, 2017
Kopenhagen, Denmark:
*Chemical tagging of globular clusters and the bulge*

"Dwarf Galaxy Workshop", ESO Garching, Germany: — Oct. 11, 2016
*Oddballs and chemical element patterns in dwarf spheroidal galaxies*

"First stars, galaxies, and black holes: Now and Then", — Jun. 17, 2015
Groningen, The Netherlands:
*Chemical abundances of ultrafaint dwarf galaxies (Highlight talk)*

"Fall meeting of the German Amateur Astronomical Association", Nov. 08, 2014
Bochum, Germany: *Galaxy formation in the act –*
*the role of faint dwarf galaxies*

"Nucleosynthesis and Chemical Evolution", Seattle, USA: Aug. 18, 2014
*The broad variety of abundance patterns in dwarf galaxies*

"Chemical evolution in the Universe: the next 30 years", Sep. 18, 2013
Castiglione della Pescaia, Italy:
*Chemical evolution on smallest scales -*
*hints from observations of dwarf galaxies*

"Assembling the Puzzle of the Milky Way", Le Grand Bornand, France: Apr. 19, 2011
*The puzzling assembly of the Milky Way halo*

IAU Symposium 265, "Chemical abundances in the Universe: Aug. 12, 2009
Connecting first stars to planets", Rio de Janeiro, Brazil:
*Chemical abundances in dSphs and outer halo clusters*

"Back to the Galaxy (II)", Kavli Institute for Theoretical Physics, Sep. 30, 2008
UC Santa Barbara, USA:
*Small-scale chemical evolution in small-scale dwarf spheroidals*

Ludwig Biermann Award lecture, JENAM 2008, Vienna, Austria: Sep. 08, 2008
*Complexity in small-scale dwarf spheroidal galaxies*

IAU Colloquium 198, "Near Field Cosmology with dE Galaxies", Mar. 15, 2005
Les Diablerets, Switzerland: *The Evolutionary History of the Carina dSph*

"Structure & Evolution of the MW and its surroundings" Dec. 08, 2004
Schloss Ringberg, Germany
*Great Circles in the Distribution of M31 Satellites*

## DEPARTMENT SEMINARS AND COLLOQUIA:

49 from 2005 – present:

*Universities of*
Australian National University (Australia); Lancaster (UK); Heidelberg (Germany); Tsukuba (Japan); Seoul (South Korea); Durham (UK); UC Los Angeles (USA); Hertfordshire (UK); UC Irvine (USA); Cambridge (UK); Leicester (UK); Lund (Sweden); Portsmouth (UK); Strasbourg (France); Basel (Switzerland); UW Seattle (USA); UC Santa Cruz (USA); Bonn (Germany).

*Other labs and institutes*:
Max Planck Institute for Astronomy (Germany); Observatoire Paris-Meudon (France); Carnegie Observatories (USA); Caltech (USA); Mullard Space Science Laboratory (UK); DAO (Canada); DARK Cosmology Center (Denmark).

## OBSERVING EXPERIENCE

MIKE (Optical Echelle Spectrograph) at Magellan 6.5-m telescope, Chile
ESI (Optical Echelle Spectrograph) at Keck 10-m telescope, USA
HIRES (Optical High resolution Echelle Spectrograph) at Keck 10-m telescope, USA
DEIMOS (Optical Multiobject Slit Spectrograph) at Keck 10-m telescope, USA
FLAMES (Optical Multiobject Fibre Spectrograph) at ESO/VLT 8-m telescope, Chile
NIRSPEC (Infrared Echelle Spectrograph) at Keck 10-m telescope, USA
OSIRIS (Infrared Imaging Spectrograph) at Keck 10-m telescope, USA
WYFFOS (Optical Multiobject Fibre Spectrograph) at ING/WHT 4-m telescope, Spain
MiniMo (Optical Wide-field imager) at WIYN 3.5-m telescope, USA
WFC (Optical Wide-field Imager) at ING/INT 2.5-m telescope, Spain
Optical Imager at Polaris/Centurion 70-cm telescope, USA

## MEMBERSHIPS

| | |
|---|---|
| European Astronomical Society (EAS) | 2019 – present |
| Elected member of Collaborative Research Center (SFB) 881 "The Milky Way System", University of Heidelberg | 2012 – 2016, 2017 – present |
| International Astronomical Union (IAU) | 2012 – present |
| American Astronomical Society (AAS) | 2006 – 2017 |
| Astronomische Gesellschaft Germany (AG) | 2002 – present |

## PUBLIC OUTREACH AND MARKETING

*Outreach Activities:*

| | |
|---|---|
| Mini-research project with 12$^{th}$-year high school students, Lancaster University and Lancaster Girls Grammar School | 2016 |
| Project host for work experience program for (8$^{th}$ – 9$^{th}$ grade) high-school students ("BoGy") | 2019 |

*Press Releases:*

| | |
|---|---|
| *(i)* Rich et al.: *"New lights from ghostly galaxy outskirts"* | 2019 |
| *(ii)* Kunder et al.: *"Surprising Origin of Milky Way's Ancient Core"* | 2016 |
| *(iii)* Rich et al.: *"Watching a tiny galaxy grow"* | 2012 |
| *(iv)* Koch: *"DFG fördert Emmy Noether-Nachwuchsgruppe in der Astronomie"* | 2011 |
| *(v)* Kunder et al.: *"New Insight into the Bar in the Center of the Milky Way"* | 2011 |
| *(vi)* Collins et al.: *A Thick disk in M31* | 2009 |
| *(vii)* Koch & Grebel: *Planar alignment of M31 satellite galaxies* | 2009 |

*Public talks at*

| | |
|---|---|
| - Eddington Astronomical Society, Kendal, UK | 2017 |
| - Faculty of Science and Technology, Lancaster, UK | 2016 |
| - Annual meeting of the German Amateur Astronomer Society | 2014 |

- Haus der Astronomie (Public Outreach Center of the Center for Astronomy of the University of Heidelberg) 2013, 2014
- Astronomische Vereinigung Lilienthal, Germany 2005, 2006
- Astronomischer Verein Basel, Switzerland 2006
- Willhelm-Foerster Sternwarte Berlin, Germany 2005

*Articles for popular science magazines:*

*Germany*: Physik Journal; Sterne & Weltraum; Himmelspolizey
*Austria*: Star Observer
*Switzerland*: Bulletin of the ETH Zürich; Uni Nova; Faszination Universum

## LANGUAGES

German (*native*), English (*fluent*), Danish (*conversational*), Italian (*conversational*)

# LIST OF GRANTS

**PD Dr. Andreas Koch**

## Third-party grants exceeding € 100,000:

*Nov. 2018:*
P.I. of three subprojects within the Collaborative Research Center (SFB) 881 „The Milky Way system“ (DFG); Astronomisches Rechen-Institut, Heidelberg University, Germany — **€ 899,600.--**

*Jul. 2014:*
HST grant (Cycle 22, ID13758, “The Age-Metallicity relationship of the Galactic bulge via Stromgren photometry“, P.I. A. Koch). Shared with and administered by the University of California at Los Angeles, USA — **US$ 131,596.--**

*May 2011 – Apr. 2016:*
Emmy-Noether research grant (DFG, Ko 4161/1, “Galactic halos“); Landessternwarte Heidelberg, Germany — **€ 1,000,000.--**

*Dec. 2008 – Apr. 2011:*
Postdoctoral Fellowship of the Science & Technology Facilities Council, UK — **GB£ 284,576.--**

## Third-party grants below € 100,000:

*Aug. 2014:*
Visiting Fellowship, Institute for Nuclear Theory, University of Washington, Seattle, USA — **US$ 1,400.--**

*Jul. 2012 – Jul. 2013:*
Three visitor grants to invite collaborators within the Sonderforschungsbereich “The Milky Way System“ at the University of Heidelberg, one of them shared with Dr. A. Huxor (ARI Heidelberg) — **€ 3,430.--**

*2012 – 2013 :*
Three travel grants for PhD students (International Max Planck Research School; Heidelberg Graduate School for Fundamental Physics) — **€ 2,270.--**

*Mar. 2010:*
International Travel Grant of the Royal Society, UK — **GB£ 2,580.--**

*Mar. 2008*
HST grant (Archival, ID 11182.04-A), “The Mass of the Milky Way: Orbits for Leo I and Leo II“, P.I. A. Koch). Shared with and administered by the University of California at Los Angeles, USA — **US$ 16,661.--**

*Sep. – Nov. 2005:*
EU Marie Curie Visiting Fellowship, Institute of Astronomy, Cambridge, UK — **GB£ 4,142.--**

# LIST OF LECTURES

**PD Dr. Andreas Koch**

## LECTURES:

**"Galactic and Extragalactic Astrophysics" (2+2+1 hours; 6 ECTS)**
Lecture with seminars, tutorials, and written exam for BSc, MSc, and PhD students. This lecture is a "core course" for Master studies of experimental physics in Heidelberg (MVAstro3).
*Taught in*: Summer term 2018; Winter term 2019/2020
*Taught at:* Heidelberg University
*Language:* English
*Course description:* Galaxy classification, Milky Way as a galaxy, spiral and elliptical galaxies, scaling relations, dark matter, cosmological structure formation. Includes lectures, exercise groups, and a seminar.

**"Basic Physics Skills" (20-hour module; 8 credits)**
Lecture with seminars and written exam for first-year Bachelor students
*Taught in*: Winter term 2016
*Taught at:* Lancaster University
*Language:* English
*Course description:* Problem solving strategies; Order of magnitude approaches; Basic experimental skills; Systematic and random errors and uncertainties; Recording data and log-keeping; Report writing; Statistical data analysis; Gaussian and Poisson distributions.

**"Astrophysics I" (20-hour module; 10 credits)**
Lecture with seminars and written exam for second-year Bachelor and Master students
*Taught in:* Summer term 2016, Summer term 2017
*Taught at:* Lancaster University
*Language:* English
*Course description:* Stellar structure, energy production and transport, Interstellar Medium, gas clouds.

**"Small Stellar Systems" (2 hours/week; 3 ECTS)**
Lecture for Bachelor, Master, and PhD students (MVSpec); Examination: Final report
*Taught in:* Winter term 2014/2015; Winter term 2019/2020
*Taught at:* University of Heidelberg
*Language:* English
*Course description:* "From binaries to Dwarf galaxies and everything in between": Binaries; Star clusters: chemical elements & their formation; dynamics & structure; dwarf galaxies: chemical evolution & dark matter; different flavours of star clusters and dwarf galaxies.

**"Small Stellar Systems" (2 + 2 hours/week; 4 ECTS)**
Lecture for Bachelor, Master, and PhD students (MVSpec) with exercises and written exam
*Taught in:* Winter term 2013/2014, Summer term 2020
*Taught at:* University of Heidelberg
*Language:* English
*Course description:* As above. Includes exercise groups.

**"Astronomical Techniques"** (with Dr. T. Lisker) **(4 + 2 hours/week; 8 ECTS)**
Lecture for Bachelor and Master students with exercises and final exam. This lecture is a "core course" for Master studies of experimental physics in Heidelberg (MKEP5).
*Taught in*: Summer term 2014, Summer term 2015, Winter term 2017/2018
*Taught at:* University of Heidelberg
*Language:* English
*Course description:* Concepts, technologies, and physical principles of modern observational techniques, along with their scientific applications. Includes optical telescopes and detectors, imaging and spectroscopy, characterisation of data, multiwavelength astronomy. Includes lectures and exercise groups

**"Origin of the Elements"** (With Prof. N. Christlieb) **(2 + 2 hours/week; 4 ECTS)**
Lecture for Bachelor, Master, and PhD students (MVSpec) with exericses and final exam
*Taught in:* Summer term 2013
*Taught at:* University of Heidelberg
*Language:* English
*Course description:* Basics of Nuclear Physics and Nucleosynthesis; Big Bang Nucleosynthesis; Stellar structure and evolution; Observation of chemical abundances; Models of galactic chemical evolution; Applications (Globular clusters, Milky Way, dwarf galaxies)

## SEMINARS AND COLLOQUIA:

**"Spectros-coffee"** **(2 hours/week)**
(with Dr. B. Lemasle)
Research seminar from Bachelor to postdoc level
*Taught in:* Winter term 2019/2020
*Taught at:* University of Heidelberg
*Language:* German
*Course description:* Selected topics on stellar spectroscopy

**"Introduction to Astronomy and Astrophysics III"** **(2 hours/week; 2 ECTS)**
(with Profs. H.P Gail, H. Klahr)
Mandatory seminar for Bachelor students (PSem)
*Taught in:* Winter term 2013/2014
*Taught at:* University of Heidelberg
*Language:* German
*Course description:* Selected topics in astronomy from the literature

**"Introduction to Astronomy and Astrophysics III"** **(2 hours/week; 2 ECTS)**
(with Profs. H.P Gail, C. Fendt, R. Mundt)
Mandatory seminar for Bachelor students (PSem)
*Taught in:* Summer term 2014
*Taught at:* University of Heidelberg
*Language:* German
*Course description:* Selected topics in astronomy from the literature

**"IMPRS Ph.D. Research Seminar"** **(2 hours/week; 2 ECTS)**
(with Drs. S. Glover, G. van de Ven)
*Taught in:* Summer term 2012, Winter term 2012/2013
*Taught at:* University of Heidelberg
*Language:* English
*Course description:* Selected topics in astronomy from the literature; presentation of students' research projects

**Organizer "Königstuhl Colloquium"** **(2 hours/week; no ECTS)**
(with Drs. E. Schinnerer, H. Beuther, A. Stutz)
WeeklyAstronomical Colloquium
*Taught in:* Jun. 2013 – Mar. 2016
*Taught at:* University of Heidelberg
*Language:* English
*Course description:* Presentation of current projects and results by visitors and researchers from the Heidelberg institutes.

## TUTORING:

**Tutor for Lecture "Experimental Physics I (Mechanics; Thermodynamics)"**
**for Bachelor students** **(2 hours/week; 7 ECTS)**
*Taught in:* Winter terms 2018/2019; 2015/2016; 2012/2013; 2011/2012
*Taught at:* University of Heidelberg
*Language:* German
*Course description:* Concepts of „Experimental Physics", uncertainties, Newtonian dynamics, collisional mechanics, intertial frames, solid bodies, gravitation, elastic bodies, oscillations and wave mechanics, thermodynamics

**Tutor for Lecture "Experimental Physics II (Electrodynamics; Relativity)"**
**for Bachelor students** **(2 hours/week; 7 ECTS)**
*Taught in:* Summer terms 2018; 2012
*Taught at:* University of Heidelberg
*Language:* German
*Course description:* Transport processes, electrostatics, currents, magnetostatics, magnetism and matter, induction and electromagnetic fields, oscillating circuits, electromagnetic waves, special relativity

**Tutor for Lecture "Introduction to Astronomy and Cosmology"**
**for Bachelor students** **(2 hours/week; 8 ECTS)**
*Taught in:* Summer term 2004, Summer term 2005
*Taught at:* University of Basel, Switzerland
*Language:* German
*Course description:* Astrophysical concepts and quantities; Basics of stellar structure and evolution, radiation and radiative transport, convection, stellar atmospheres, late stages of stellar evolution, compact objects, galaxies, Hubble diagram, chemical evolution; Basic formalism of cosmology, models and parameters