



# Research in Germany

PHYSICS





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## Imprint

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## PHYSICS

## PREFACE

This brochure provides a first insight into research in Germany in the field of physics and is especially recommended to early career researchers from abroad.

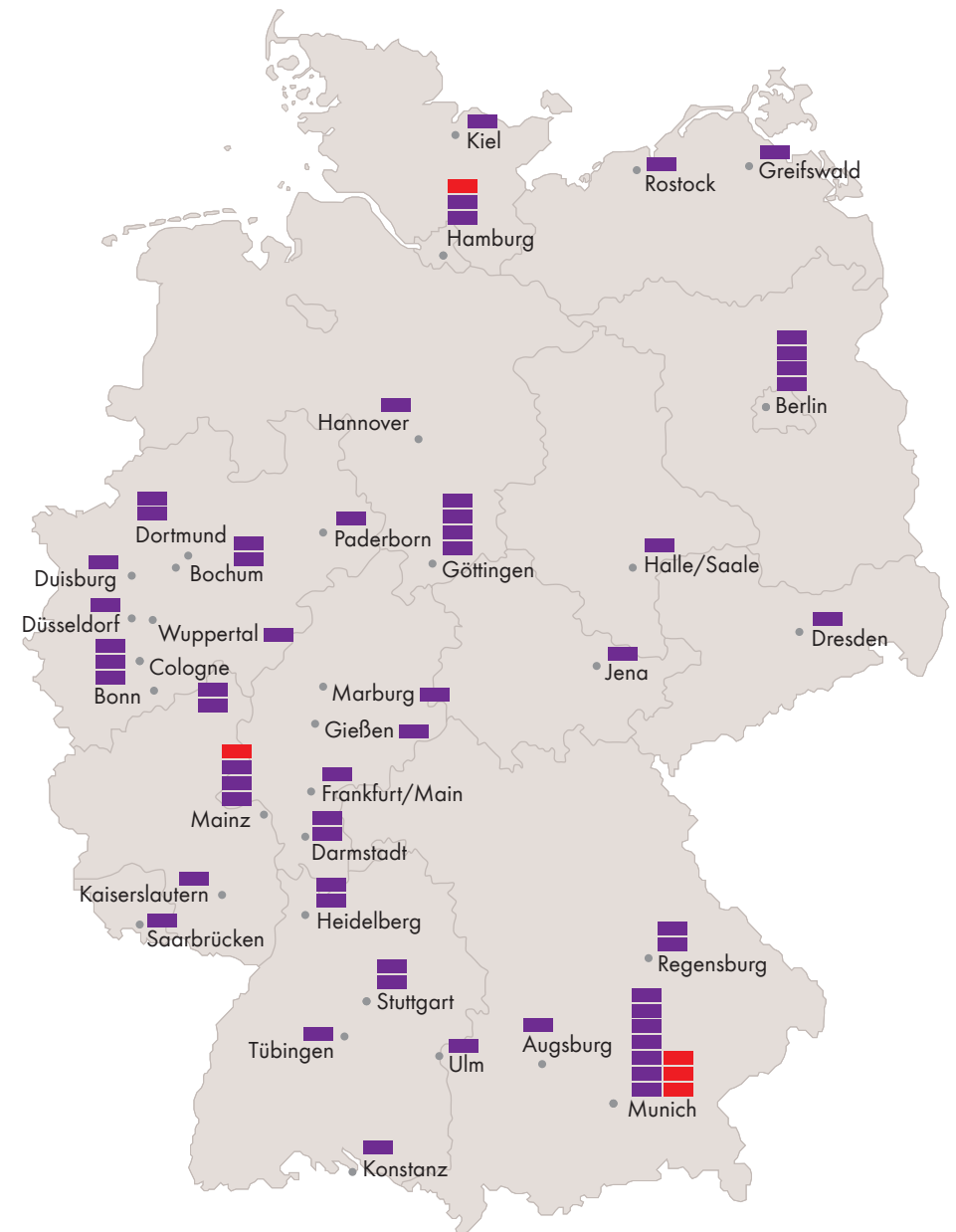
Physics' research in Germany is conducted at universities and at non-university research institutions. Almost all universities and many universities of applied sciences host a section in this field. The spectrum ranges from small thematically focused working groups to large scale research facilities and the topics cover the whole scope of physics.

This brochure is intended to give an initial overview. The following maps and tables highlight research consortia and graduate training programmes at universities and non-university research institutes with a main focus on physics.

On top of this, there is a lot more to discover: e.g. the DFG funds a multitude of individual projects in the area of physics. These individual grants outweigh the research consortia both in number and in overall funding volume. Towards the end of this brochure, you will find a link to the online database GEPRIS that provides an overview of all DFG funded research projects. You will also find additional important links for further information about programmes in the field of physics and profiles of German universities and research institutions.

We invite you to explore the many opportunities that Germany has to offer and welcome your feedback.

# CENTRES OF RESEARCH



■ Clusters of Excellence

■ Collaborative Research Centres/Transregions

DFG funded Priority Programmes and Research Units are not shown on the map since they are not necessarily located at a single location; they are listed on pages 15 and 17.

**Clusters of Excellence (EXC)** were established at universities in the framework of the German Excellence Initiative and promote cutting-edge research. Their objective is to engage in scientific networking and collaboration in research fields of particular promise for the future. They also offer excellent training conditions and career opportunities for early career researchers.

**Collaborative Research Centres (CRC)** are organisational units established at universities which enable researchers to pursue an outstanding research programme crossing the boundaries of disciplines, institutes, departments and faculties. The traditional Collaborative Research Centre is generally applied for by one university and is conducted by researchers of that university. Early career support is a key objective of the Collaborative Research Centre Programme. Early career researchers may get involved in a CRC in numerous ways, for example within the framework of an Integrated Research Training Group. Collaborative Research Centres are funded for a period of up to 12 years.

**Transregios (TRR)** are Collaborative Research Centres in which up to three universities collaborate with each other and submit a joint application. The contributions of the cooperative partners are essential, complementary and synergetic to the joint research objective. Funding facilitates close, nationwide collaboration among the participating universities and researchers, as well as networking and shared use of resources. There is also the option of international Transregios.

| Location                                                                                      | Institution                                                                                      | Title                                                                                                     | Funded Since | Contact                                                                                                                |
|-----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------|
| CLUSTERS OF EXCELLENCE                                                                        |                                                                                                  |                                                                                                           |              |                                                                                                                        |
|  Hamburg   | Universität Hamburg                                                                              | The Hamburg Centre for Ultrafast Imaging (CUI) (EXC 1074)                                                 | 2012         | <a href="http://www.cui.uni-hamburg.de">www.cui.uni-hamburg.de</a>                                                     |
|  Mainz     | Johannes Gutenberg-Universität Mainz                                                             | Precision Physics, Fundamental Interactions and Structure of Matter (PRISMA) (EXC 1098)                   | 2012         | <a href="http://www.prisma.uni-mainz.de">www.prisma.uni-mainz.de</a>                                                   |
|  Munich    | Ludwig-Maximilians-Universität München<br>Technische Universität München                         | Munich-Centre for Advanced Photonics (MAP) (EXC 158)                                                      | 2006         | <a href="http://www.munich-photonics.de">www.munich-photonics.de</a>                                                   |
|  Munich    | Ludwig-Maximilians-Universität München<br>Technische Universität München<br>Universität Augsburg | Nanosystems Initiative Munich (NIM) (EXC 4)                                                               | 2006         | <a href="http://www.nano-initiative-munich.de">www.nano-initiative-munich.de</a>                                       |
|  Munich    | Ludwig-Maximilians-Universität München<br>Technische Universität München                         | Excellence Cluster Universe (EXC 153)                                                                     | 2006         | <a href="http://www.universe-cluster.de">www.universe-cluster.de</a>                                                   |
| COLLABORATIVE RESEARCH CENTRES                                                                |                                                                                                  |                                                                                                           |              |                                                                                                                        |
|  Berlin    | Freie Universität Berlin                                                                         | Elementary Processes in Molecular Switches at Surfaces (CRC 658)                                          | 2005         | <a href="http://www.physik.fu-berlin.de/einrichtungen/sfb/sfb658">www.physik.fu-berlin.de/einrichtungen/sfb/sfb658</a> |
|  Berlin    | Humboldt Universität zu Berlin                                                                   | Hybrid Inorganic/Organic Systems for Opto-Electronics (HIOS) (CRC 951)                                    | 2011         | <a href="http://www.physik.hu-berlin.de/sfb951">www.physik.hu-berlin.de/sfb951</a>                                     |
|  Berlin  | Technische Universität Berlin                                                                    | Control of Self-organizing Nonlinear Systems: Theoretical Methods and Concepts of Application (CRC 910)   | 2011         | <a href="http://www.itp.tu-berlin.de/sfb910">www.itp.tu-berlin.de/sfb910</a>                                           |
|  Berlin  | Technische Universität Berlin                                                                    | Semiconductor Nanophotonics: Materials, Models, Devices (CRC 787)                                         | 2008         | <a href="http://www.sfb787.tu-berlin.de">www.sfb787.tu-berlin.de</a>                                                   |
|  Cologne | Universität zu Köln                                                                              | Conditions and Impact of Star Formation - Astrophysics, Instrumentation and Laboratory Research (CRC 956) | 2011         | <a href="http://www.sfb956.de">www.sfb956.de</a>                                                                       |

## CENTRES OF RESEARCH

| Location                                                                                      | Institution                                    | Title                                                                                                                                                                  | Funded Since | Contact                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Darmstadt    | Technische Universität Darmstadt               | <b>Nuclear Structure, Nuclear Astrophysics and Fundamental Experiments at Low Momentum Transfer at the Superconducting Darmstadt Accelerator (S-DALINAC) (CRC 634)</b> | 2003         | <a href="http://www.ikp.tu-darmstadt.de/sfb634">www.ikp.tu-darmstadt.de/sfb634</a>                                                                                                    |
|  Dresden      | Technische Universität Dresden                 | <b>Correlated Magnetism: From Frustration to Topology (CRC 1143)</b>                                                                                                   | 2014         | <a href="http://tu-dresden.de/forschung/forschungskompetenz/sonderforschungsbereiche/sfb1143">http://tu-dresden.de/forschung/forschungskompetenz/sonderforschungsbereiche/sfb1143</a> |
|  Göttingen    | Georg-August-Universität Göttingen             | <b>Astrophysical Flow Instabilities and Turbulence (CRC 963)</b>                                                                                                       | 2012         | <a href="http://www.uni-goettingen.de/en/215327.html">www.uni-goettingen.de/en/215327.html</a>                                                                                        |
|  Göttingen    | Georg-August-Universität Göttingen             | <b>Atomic Scale Control of Energy Conversion (CRC 1073)</b>                                                                                                            | 2013         | <a href="http://www.uni-goettingen.de/en/437142.html">www.uni-goettingen.de/en/437142.html</a>                                                                                        |
|  Göttingen    | Georg-August-Universität Göttingen             | <b>Collective Behavior of Soft and Biological Matter (CRC 937)</b>                                                                                                     | 2011         | <a href="http://www.uni-goettingen.de/en/198253.html">www.uni-goettingen.de/en/198253.html</a>                                                                                        |
|  Göttingen    | Georg-August-Universität Göttingen             | <b>Nanoscale Photonic Imaging (CRC 755)</b>                                                                                                                            | 2007         | <a href="http://www.uni-goettingen.de/en/318955.html">www.uni-goettingen.de/en/318955.html</a>                                                                                        |
|  Halle/Saale  | Martin-Luther-Universität Halle-Wittenberg     | <b>Functionality of Oxide Interfaces (CRC 762)</b>                                                                                                                     | 2008         | <a href="http://www.physik.uni-halle.de/sfb762">www.physik.uni-halle.de/sfb762</a>                                                                                                    |
|  Hamburg      | Universität Hamburg                            | <b>Light Induced Dynamics and Control of Correlated Quantum Systems (CRC 925)</b>                                                                                      | 2011         | <a href="http://photon.physnet.uni-hamburg.de/sfb">http://photon.physnet.uni-hamburg.de/sfb</a>                                                                                       |
|  Hamburg    | Universität Hamburg                            | <b>Particles, Strings, and the Early Universe (CRC 676)</b>                                                                                                            | 2006         | <a href="http://www.iexp.uni-hamburg.de/sfb676">www.iexp.uni-hamburg.de/sfb676</a>                                                                                                    |
|  Hannover   | Gottfried Wilhelm Leibniz Universität Hannover | <b>Relativistic Geodesy and Gravimetry with Quantum Sensors (geo-Q) (CRC 1128)</b>                                                                                     | 2014         | <a href="http://www.geoq.uni-hannover.de/geoq.html">www.geoq.uni-hannover.de/geoq.html</a>                                                                                            |
|  Heidelberg | Ruprecht-Karls-Universität Heidelberg          | <b>The Milky Way System (CRC 881)</b>                                                                                                                                  | 2011         | <a href="http://www.zah.uni-heidelberg.de/sfb881">www.zah.uni-heidelberg.de/sfb881</a>                                                                                                |
|  Konstanz   | Universität Konstanz                           | <b>Controlled Nanosystems: Interaction and Interfacing to the Macroscale (CRC 767)</b>                                                                                 | 2008         | <a href="http://www.sfb767.uni-konstanz.de">www.sfb767.uni-konstanz.de</a>                                                                                                            |

## CENTRES OF RESEARCH

| Location                                                                                        | Institution                            | Title                                                                                                                    | Funded Since | Contact                                                                                                                      |
|-------------------------------------------------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------|
|  Mainz       | Johannes Gutenberg-Universität Mainz   | <b>The Low-Energy Frontier of the Standard Model: From Quarks and Gluons to Hadrons and Nuclei (CRC 1044)</b>            | 2012         | <a href="http://sfb1044.kph.uni-mainz.de/sfb1044/">http://sfb1044.kph.uni-mainz.de/sfb1044/</a>                              |
|  Marburg     | Philipps-Universität Marburg           | <b>Structure and Dynamics of Internal Interfaces (CRC 1083)</b>                                                          | 2013         | <a href="http://www.uni-marburg.de/sfb1083">www.uni-marburg.de/sfb1083</a>                                                   |
|  Munich      | Ludwig-Maximilians-Universität München | <b>Nanoagents for the Spatiotemporal Control of Molecular and Cellular Reactions (CRC 1032)</b>                          | 2012         | <a href="http://www.sfb1032.physik.uni-muenchen.de">www.sfb1032.physik.uni-muenchen.de</a>                                   |
|  Munich      | Technische Universität München         | <b>Solid-State Quantum Information Processing: Physical Concepts and Material Aspects (CRC 631)</b>                      | 2003         | <a href="http://sfb631.wmi.badw-muenchen.de">http://sfb631.wmi.badw-muenchen.de</a>                                          |
|  Regensburg  | Universität Regensburg                 | <b>Spin Phenomena in Reduced Dimensions (CRC 689)</b>                                                                    | 2006         | <a href="http://www.app.uni-regensburg.de/Fakultaeten/Physik/sfb689">www.app.uni-regensburg.de/Fakultaeten/Physik/sfb689</a> |
|  Rostock     | Universität Rostock                    | <b>Strong Correlations and Collective Effects in Radiation Fields: Coulomb Systems, Clusters and Particles (CRC 652)</b> | 2005         | <a href="http://web.physik.uni-rostock.de/sfb">http://web.physik.uni-rostock.de/sfb</a>                                      |
|  Saarbrücken | Universität des Saarlandes             | <b>Physical Modeling of Non-Equilibrium Processes in Biological Systems (CRC 1027)</b>                                   | 2013         | <a href="http://www.sfb1027.uni-saarland.de">www.sfb1027.uni-saarland.de</a>                                                 |
|  Stuttgart  | Universität Stuttgart                  | <b>Dynamic Simulation of Systems with Large Particle Numbers (CRC 716)</b>                                               | 2007         | <a href="http://www.sfb716.uni-stuttgart.de">www.sfb716.uni-stuttgart.de</a>                                                 |
| COLLABORATIVE RESEARCH CENTRES/TRANSREGIOS                                                      |                                        |                                                                                                                          |              |                                                                                                                              |
|  Augsburg  | Universität Augsburg                   | <b>From Electronic Correlations to Functionality (TRR 80)</b>                                                            | 2010         | <a href="http://www.trr80.de">www.trr80.de</a>                                                                               |
|  Munich    | Technische Universität München         |                                                                                                                          |              |                                                                                                                              |
|  Bochum    | Ruhr-Universität Bochum                | <b>Symmetries and Universality in Mesoscopic Systems (TRR 12)</b>                                                        | 2003         | <a href="http://www.sfbtr12.uni-koeln.de">www.sfbtr12.uni-koeln.de</a>                                                       |
|  Cologne   | Universität zu Köln                    |                                                                                                                          |              |                                                                                                                              |
|  Duisburg  | Universität Duisburg-Essen             |                                                                                                                          |              |                                                                                                                              |
|  Munich    | Ludwig-Maximilians-Universität München |                                                                                                                          |              |                                                                                                                              |

## CENTRES OF RESEARCH

| Location                | Institution                                    | Title                                                                                             | Funded Since | Contact                                                                                                                            |
|-------------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------|
| Beijing (China)         | Peking University                              | <b>Symmetries and the Emergence of Structure in Quantum Chromodynamics (QCD) (TRR 110)</b>        | 2012         | <a href="http://crc110.hiskp.uni-bonn.de">http://crc110.hiskp.uni-bonn.de</a>                                                      |
| Bonn                    | Rheinische Friedrich-Wilhelms-Universität Bonn |                                                                                                   |              |                                                                                                                                    |
| Munich                  | Technische Universität München                 |                                                                                                   |              |                                                                                                                                    |
| Bochum                  | Ruhr-Universität Bochum                        | <b>Subnuclear Structure of Matter (TRR 16)</b>                                                    | 2004         | <a href="http://sfb-tr16.physik.uni-bonn.de/vfs/en">http://sfb-tr16.physik.uni-bonn.de/vfs/en</a>                                  |
| Bonn                    | Rheinische Friedrich-Wilhelms-Universität Bonn |                                                                                                   |              |                                                                                                                                    |
| Gießen                  | Justus-Liebig-Universität Gießen               |                                                                                                   |              |                                                                                                                                    |
| Bonn                    | Rheinische Friedrich-Wilhelms-Universität Bonn | <b>The Dark Universe (TRR 33)</b>                                                                 | 2006         | <a href="http://www.darkuniverse.uni-hd.de">www.darkuniverse.uni-hd.de</a>                                                         |
| Heidelberg              | Ruprecht-Karls-Universität Heidelberg          |                                                                                                   |              |                                                                                                                                    |
| Munich                  | Ludwig-Maximilians-Universität München         |                                                                                                   |              |                                                                                                                                    |
| Darmstadt               | Technische Universität Darmstadt               | <b>Multiscale Simulation Methods for Soft Matter Systems (TRR 146)</b>                            | 2014         | <a href="http://trr146.de">http://trr146.de</a>                                                                                    |
| Mainz                   | Johannes Gutenberg-Universität Mainz           |                                                                                                   |              |                                                                                                                                    |
| Dortmund                | Technische Universität Dortmund                | <b>Coherent Manipulation of Interacting Spin Excitations in Tailored Semiconductors (TRR 160)</b> | 2014         | <a href="http://www.e2.physik.tu-dortmund.de/cms/index.php/trr160-menu">www.e2.physik.tu-dortmund.de/cms/index.php/trr160-menu</a> |
| St. Petersburg (Russia) | St. Petersburg State University                |                                                                                                   |              |                                                                                                                                    |
| Dortmund                | Technische Universität Dortmund                | <b>Tailored Nonlinear Photonics: From Fundamental Concepts to Functional Structures (TRR 142)</b> | 2014         | <a href="http://trr142.uni-paderborn.de">http://trr142.uni-paderborn.de</a>                                                        |
| Paderborn               | Universität Paderborn                          |                                                                                                   |              |                                                                                                                                    |
| Düsseldorf              | Heinrich-Heine-Universität Düsseldorf          | <b>Relativistic Laser Plasma Dynamics (TRR 18)</b>                                                | 2004         | <a href="http://www.laserphy.uni-duesseldorf.de/e296">www.laserphy.uni-duesseldorf.de/e296</a>                                     |
| Jena                    | Friedrich-Schiller-Universität Jena            |                                                                                                   |              |                                                                                                                                    |
| Munich                  | Ludwig-Maximilians-Universität München         |                                                                                                   |              |                                                                                                                                    |

## CENTRES OF RESEARCH

| Location       | Institution                               | Title                                                                          | Funded Since | Contact                                                                                        |
|----------------|-------------------------------------------|--------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------|
| Frankfurt/Main | Goethe-Universität Frankfurt am Main      | <b>Condensed Matter Systems with Variable Many-Body Interactions (TRR 49)</b>  | 2007         | <a href="http://www.tr49.de">www.tr49.de</a>                                                   |
| Kaiserslautern | Technische Universität Kaiserslautern     |                                                                                |              |                                                                                                |
| Mainz          | Johannes Gutenberg-Universität Mainz      |                                                                                |              |                                                                                                |
| Greifswald     | Ernst-Moritz-Arndt-Universität Greifswald | <b>Fundamentals of Complex Plasmas (TRR 24)</b>                                | 2005         | <a href="http://www.tr24.uni-greifswald.de">www.tr24.uni-greifswald.de</a>                     |
| Kiel           | Christian-Albrechts-Universität zu Kiel   |                                                                                |              |                                                                                                |
| Regensburg     | Universität Regensburg                    | <b>Hadron Physics from Lattice Quantum Chromodynamics (QCD) (TRR 55)</b>       | 2008         | <a href="http://www.physik.uni-regensburg.de/sfbtr55">www.physik.uni-regensburg.de/sfbtr55</a> |
| Wuppertal      | Bergische Universität Wuppertal           |                                                                                |              |                                                                                                |
| Stuttgart      | Universität Stuttgart                     | <b>Control of Quantum Correlations in Tailored Matter (CO.CO.MAT) (TRR 21)</b> | 2005         | <a href="http://www.physik.uni-stuttgart.de/TR21">www.physik.uni-stuttgart.de/TR21</a>         |
| Tübingen       | Eberhard-Karls-Universität Tübingen       |                                                                                |              |                                                                                                |
| Ulm            | Universität Ulm                           |                                                                                |              |                                                                                                |



## RESEARCH UNITS

-FUNDED BY DFG-

**Research Units (FOR)** often contribute to establishing new research directions. Research Units are made up of a team of researchers working together on a research project which is often of an interdisciplinary nature. Research Units consist of several researchers and subprojects. The subprojects of a Research Unit are often located at several locations throughout Germany. Research Units are generally funded for up to six years.

Research Units are not shown on the map. Only the titles of the thematic focus and the project websites are listed.



## RESEARCH UNITS

| Title                                                                                                               | Funded Since | Contact                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Advanced Computational Methods for Strongly Correlated Quantum Systems (FOR 1807)                                   | 2013         | <a href="https://for1807.physik.uni-wuerzburg.de">https://for1807.physik.uni-wuerzburg.de</a>                                                                                                                                                        |
| Quark Flavour Physics and Effective Field Theories (FOR 1873)                                                       | 2012         | <a href="http://www.physik.uni-siegen.de/qfet/">www.physik.uni-siegen.de/qfet/</a>                                                                                                                                                                   |
| Networks on Networks: The Interplay of Structure and Dynamics in Spatial Ecological Networks (FOR 1748)             | 2012         | <a href="http://www.fkp.tu-darmstadt.de/groups/ag_drossel/ldr/for_1748/for_1748.en.jsp">www.fkp.tu-darmstadt.de/groups/ag_drossel/ldr/for_1748/for_1748.en.jsp</a>                                                                                   |
| Metallic Nanowires on the Atomic Scale: Electronic and Vibrational Coupling in Real World Systems (FOR 1700)        | 2012         | <a href="http://www.atomicwires.de">www.atomicwires.de</a>                                                                                                                                                                                           |
| Dynamics and Interactions of Semiconductor Nanowires for Optoelectronics (FOR 1616)                                 | 2012         | <a href="http://www.for1616.uni-jena.de">www.for1616.uni-jena.de</a>                                                                                                                                                                                 |
| Diamond Materials for Quantum Application (FOR 1493)                                                                | 2011         | <a href="http://gepris.dfg.de">http://gepris.dfg.de</a><br>Keyword: FOR 1493                                                                                                                                                                         |
| Topological Electronics (FOR 1483)                                                                                  | 2010         | <a href="http://ep3.physik.uni-wuerzburg.de/wikis/Topotronics">http://ep3.physik.uni-wuerzburg.de/wikis/Topotronics</a>                                                                                                                              |
| Nonlinear Response to Probe Vitrification (FOR 1394)                                                                | 2010         | <a href="http://cms.uni-konstanz.de/physik/dfg-forschergruppe">http://cms.uni-konstanz.de/physik/dfg-forschergruppe</a>                                                                                                                              |
| Dynamical Mean-Field Approach with Predictive Power for Strongly Correlated Materials (FOR 1346)                    | 2010         | <a href="http://www.physik.uni-augsburg.de/for1346">www.physik.uni-augsburg.de/for1346</a>                                                                                                                                                           |
| Controlling the Electronic Structure of Semiconductor Nanoparticles by Doping and Hybrid Formation (FOR 1282)       | 2010         | <a href="http://www.ioap.tu-berlin.de/menue/forschung/for_1282_2013-2017/for_1282">www.ioap.tu-berlin.de/menue/forschung/for_1282_2013-2017/for_1282</a>                                                                                             |
| Magnetisation of Interstellar and Intergalactic Media: The Prospects of Low-Frequency Radio Observations (FOR 1254) | 2010         | <a href="https://astro.uni-bonn.de/~cosmag">https://astro.uni-bonn.de/~cosmag</a>                                                                                                                                                                    |
| Electron Correlation-Driven Phenomena in Surfaces and Interfaces with Tunable Interactions (FOR 1162)               | 2009         | <a href="http://www.physik.uni-wuerzburg.de/institute_einrichtungen/physikalisches_institut/dfg_forschergruppe_for1162/for_1162">www.physik.uni-wuerzburg.de/institute_einrichtungen/physikalisches_institut/dfg_forschergruppe_for1162/for_1162</a> |
| Physics of Microplasmas (FOR 1123)                                                                                  | 2009         | <a href="http://www.for1123.rub.de">www.for1123.rub.de</a>                                                                                                                                                                                           |
| Polarization Field Control in Nitride Light Emitters (PolarCoN) (FOR 957)                                           | 2008         | <a href="http://www.uni-ulm.de/en/in/polarcon.html">www.uni-ulm.de/en/in/polarcon.html</a>                                                                                                                                                           |



## PRIORITY PROGRAMMES

- FUNDED BY DFG -

**Priority Programmes (SPP)** have a programmatic focus and have the purpose of advancing knowledge in an emerging field of research through collaborative networked support. They are characterised by their enhanced quality of research through the use of new methods and forms of collaboration in emerging fields. As a rule, one programme can consist of up to 30 individual researchers and subprojects located at several institutions across Germany; it usually has one coordinating person. Priority Programmes normally receive funding for a period of six years.

Priority Programmes are not shown on the map. Only the titles of the overall themes and the project website are listed.

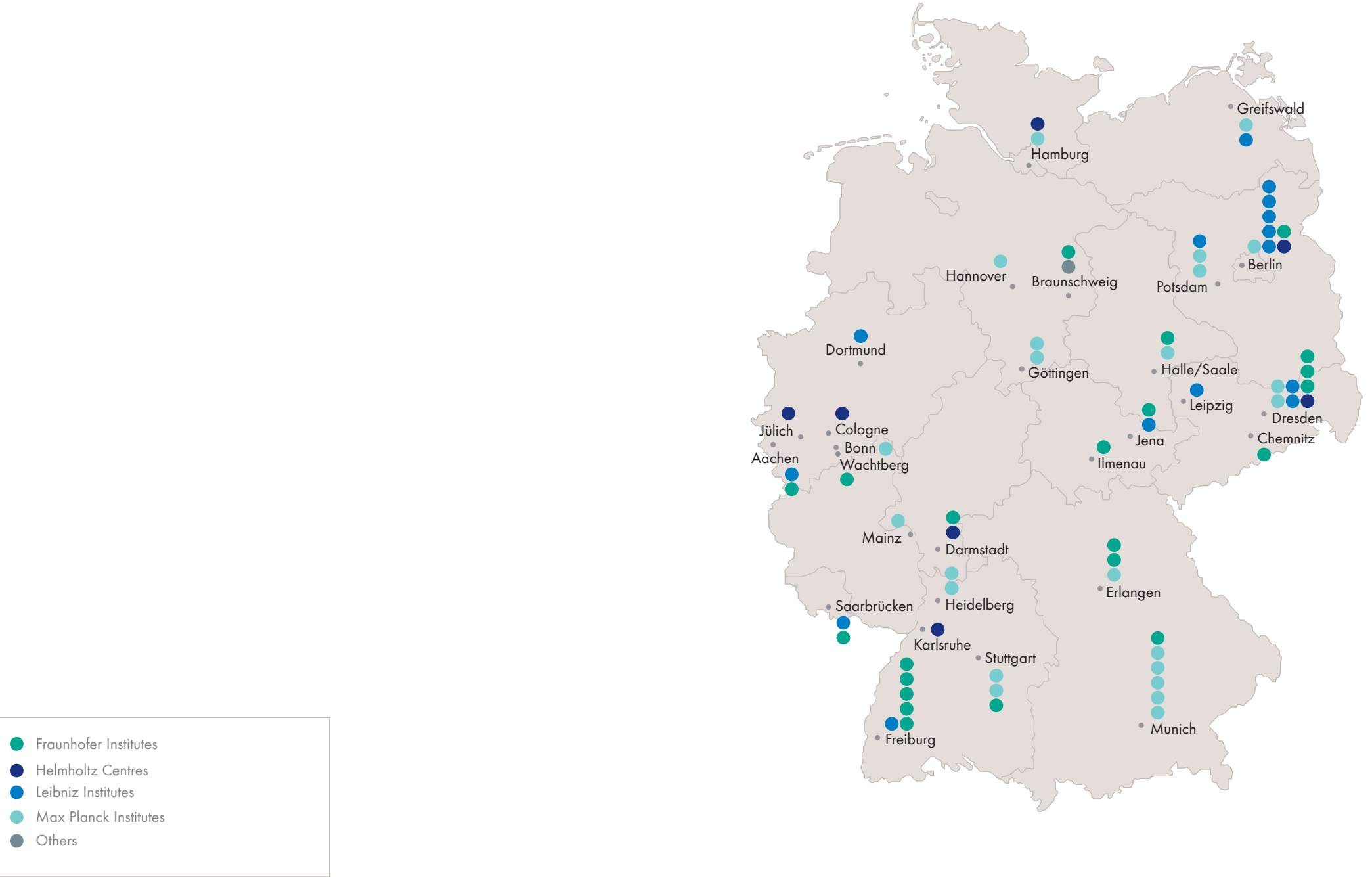


## PRIORITY PROGRAMMES

| Title                                                                                              | Funded Since | Contact                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Quantum Dynamics in Tailored Intense Fields (QTIF) (SPP 1840)                                      | 2015         | <a href="http://www.qutif.de">www.qutif.de</a>                                                                                                                                                 |
| Microswimmers - From Single Particle Motion to Collective Behavior (SPP 1726)                      | 2014         | <a href="http://www.fz-juelich.de/ics/ics-2/EN/Leistungen/ConferencesAndWorkshops/SPP1726/_node.html">www.fz-juelich.de/ics/ics-2/EN/Leistungen/ConferencesAndWorkshops/SPP1726/_node.html</a> |
| Topological Insulators: Materials - Fundamental Properties - Devices (SPP 1666)                    | 2013         | <a href="http://www.helmholtz-berlin.de/forschung/oe/em/m-dynamik/projekte/topologische-isolatoren">www.helmholtz-berlin.de/forschung/oe/em/m-dynamik/projekte/topologische-isolatoren</a>     |
| Physics of the Interstellar Medium (SPP 1573)                                                      | 2011         | <a href="http://www.ism-spp.de">www.ism-spp.de</a>                                                                                                                                             |
| Spin Caloric Transport (SpinCaT) (SPP 1538)                                                        | 2011         | <a href="http://www.spincat.info">www.spincat.info</a>                                                                                                                                         |
| Precision Experiments in Particle- and Astrophysics with Cold and Ultracold Neutrons (SPP 1491)    | 2010         | <a href="http://gepris.dfg.de">http://gepris.dfg.de</a><br>Keyword: SPP 1491                                                                                                                   |
| Graphene (SPP 1459)                                                                                | 2010         | <a href="http://www.tu-chemnitz.de/physik/SPP1459">www.tu-chemnitz.de/physik/SPP1459</a>                                                                                                       |
| High Temperature Superconductivity in Iron Pnictides (SPP 1458)                                    | 2010         | <a href="http://www.pniktid-supraleiter.de">www.pniktid-supraleiter.de</a>                                                                                                                     |
| Ultrafast Nanooptics (SPP 1391)                                                                    | 2009         | <a href="http://www.ultrafast-nanooptics.org">www.ultrafast-nanooptics.org</a>                                                                                                                 |
| Nanostructured Thermoelectric Materials: Theory, Model Systems and Controlled Synthesis (SPP 1386) | 2009         | <a href="http://www.spp1386thermoelectrics.de">www.spp1386thermoelectrics.de</a>                                                                                                               |



NON-UNIVERSITY RESEARCH INSTITUTIONS



# RESEARCH AT NON-UNIVERSITY RESEARCH INSTITUTIONS

**Fraunhofer Society** is one of the world's leading organisations for applied research with an annual research budget of 2 billion euros, 67 institutes and more than 23,000 employees. Fraunhofer's R&D portfolio covers a wide range of fields, including health, security, communications, transport, energy and the environment. [www.fraunhofer.de](http://www.fraunhofer.de)

**The Helmholtz Association** contributes to solving major challenges facing society, science and industry with world-level research in six areas: energy, earth and environment, health, key technologies, structure of matter and aeronautics, space and transport. With more than 34,000 employees in 18 research centres and an annual budget of approximately 3.76 billion euros, the Helmholtz Association is Germany's largest scientific organisation. [www.helmholtz.de](http://www.helmholtz.de)

**The Leibniz Association** is an umbrella organisation of 89 research institutes. The annual budget amounts to 1.45 billion euros. Some 8,800 researchers – more than 1,100 of them from abroad – work on a widely diverse range of subjects, including the humanities and social sciences, economics, spatial and life sciences, mathematics, natural and engineering sciences and environmental research. [www.leibniz-association.eu](http://www.leibniz-association.eu)

**The Max Planck Society** for the Advancement of Science is one of Germany's largest independent non-profit research organisations. The Max Planck Society has been allocated just under 1.53 billion euros for 2013. A combined total of more than 10,000 researchers, postdoctoral/junior researchers and visiting researchers at 83 Max Planck Institutes conduct basic research in the natural sciences, life sciences, social sciences and humanities. One third of the researchers and more than half of the junior and visiting researchers come from abroad. [www.mpg.de](http://www.mpg.de)

## RESEARCH AT NON-UNIVERSITY RESEARCH INSTITUTIONS

| Location               | Institution                                                                             | Contact                                                              |
|------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| FRAUNHOFER INSTITUTES  |                                                                                         |                                                                      |
| ● Aachen               | Fraunhofer Institute for Laser Technology (ILT)                                         | <a href="http://www.ilt.fraunhofer.de">www.ilt.fraunhofer.de</a>     |
| ● Berlin               | Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute (HHI)             | <a href="http://www.hhi.fraunhofer.de">www.hhi.fraunhofer.de</a>     |
| ● Braunschweig         | Fraunhofer Institute for Surface Engineering and Thin Films (IST)                       | <a href="http://www.ist.fraunhofer.de">www.ist.fraunhofer.de</a>     |
| ● Chemnitz             | Fraunhofer Institute for Electronic Nano Systems (ENAS)                                 | <a href="http://www.enas.fraunhofer.de">www.enas.fraunhofer.de</a>   |
| ● Darmstadt            | Fraunhofer Institute for Structural Durability and System Reliability (LBF)             | <a href="http://www.lbf.fraunhofer.de">www.lbf.fraunhofer.de</a>     |
| ● Dresden              | Fraunhofer Institute for Organic Electronics, Electron Beam and Plasma Technology (FEP) | <a href="http://www.fep.fraunhofer.de">www.fep.fraunhofer.de</a>     |
| ● Dresden              | Fraunhofer Institute for Material and Beam Technology (IWS)                             | <a href="http://www.iws.fraunhofer.de">www.iws.fraunhofer.de</a>     |
| ● Dresden              | Fraunhofer Institute for Photonic Microsystems (IPMS)                                   | <a href="http://www.ipms.fraunhofer.de">www.ipms.fraunhofer.de</a>   |
| ● Erlangen             | Fraunhofer Institute for Integrated Circuits (IIS)                                      | <a href="http://www.iis.fraunhofer.de">www.iis.fraunhofer.de</a>     |
| ● Erlangen             | Fraunhofer Institute for Integrated Systems and Device Technology (IISB)                | <a href="http://www.iisb.fraunhofer.de">www.iisb.fraunhofer.de</a>   |
| ● Freiburg             | Fraunhofer Institute for Applied Solid State Physics (IAF)                              | <a href="http://www.iaf.fraunhofer.de">www.iaf.fraunhofer.de</a>     |
| ● Freiburg             | Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut (EMI)                 | <a href="http://www.emi.fraunhofer.de">www.emi.fraunhofer.de</a>     |
| ● Freiburg             | Fraunhofer Institute for Solar Energy Systems (ISE)                                     | <a href="http://www.ise.fraunhofer.de">www.ise.fraunhofer.de</a>     |
| ● Freiburg Halle/Saale | Fraunhofer Institute for Mechanics of Materials (IWM)                                   | <a href="http://www.iwm.fraunhofer.de">www.iwm.fraunhofer.de</a>     |
| ● Freiburg             | Fraunhofer Institute for Physical Measurement Techniques (IPM)                          | <a href="http://www.ipm.fraunhofer.de">www.ipm.fraunhofer.de</a>     |
| ● Ilmenau              | Fraunhofer Institute for Digital Media Technology (IDMT)                                | <a href="http://www.idmt.fraunhofer.de">www.idmt.fraunhofer.de</a>   |
| ● Jena                 | Fraunhofer Institute for Applied Optics and Precision Engineering (IOF)                 | <a href="http://www.iof.fraunhofer.de">www.iof.fraunhofer.de</a>     |
| ● Munich               | Fraunhofer Institute for Modular Solid State Technologies (EMFT)                        | <a href="http://www.emft.fraunhofer.de">www.emft.fraunhofer.de</a>   |
| ● Saarbrücken          | Fraunhofer Institute for Nondestructive Testing (IZFP)                                  | <a href="http://www.izfp.fraunhofer.de">www.izfp.fraunhofer.de</a>   |
| ● Stuttgart            | Fraunhofer Institute for Building Physics (IBP)                                         | <a href="http://www.ibp.fraunhofer.de">www.ibp.fraunhofer.de</a>     |
| ● Wachtberg            | Fraunhofer Institute for High Frequency Physics and Radar Techniques (FHR)              | <a href="http://www.fhr.fraunhofer.de">www.fhr.fraunhofer.de</a>     |
| HELMHOLTZ CENTRES      |                                                                                         |                                                                      |
| ● Berlin               | Helmholtz-Zentrum Berlin für Materialien und Energie (HZB)                              | <a href="http://www.helmholtz-berlin.de">www.helmholtz-berlin.de</a> |
| ● Cologne              | German Aerospace Center (DLR)                                                           | <a href="http://www.dlr.de">www.dlr.de</a>                           |

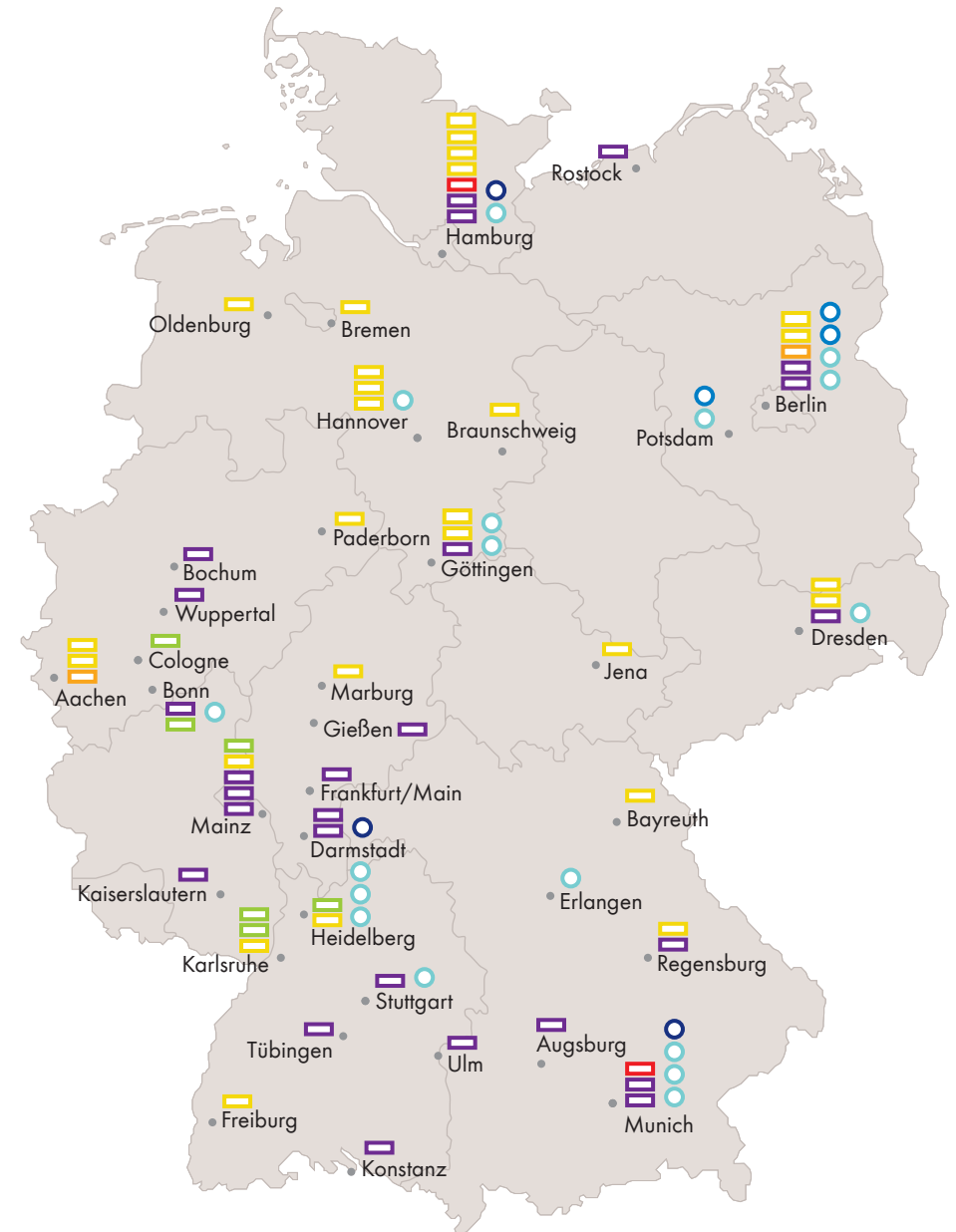
## RESEARCH AT NON-UNIVERSITY RESEARCH INSTITUTIONS

| Location              | Institution                                                                                            | Contact                    |
|-----------------------|--------------------------------------------------------------------------------------------------------|----------------------------|
| ● Darmstadt           | GSI Helmholtzzentrum für Schwerionenforschung                                                          | www.gsi.de                 |
| ● Dresden-Rossendorf  | Helmholtz-Zentrum Dresden-Rossendorf (HZDR)                                                            | www.hzdr.de                |
| ● Hamburg             | Deutsches Elektronen-Synchrotron (DESY)                                                                | www.desy.de                |
| ● Jülich              | Forschungszentrum Jülich (FZ Jülich)                                                                   | www.fz-juelich.de          |
| ● Karlsruhe           | Karlsruhe Institute of Technology (KIT)                                                                | www.kit.edu                |
| LEIBNIZ INSTITUTES    |                                                                                                        |                            |
| ● Aachen              | DWI – Leibniz Institute for Interactive Materials                                                      | www.dwi.rwth-aachen.de     |
| ● Berlin              | Ferdinand-Braun-Institut, Leibniz-Institut fuer Hoechstfrequenztechnik (FBH)                           | www.fbh-berlin.com         |
| ● Berlin              | Leibniz Institute for Crystal Growth (IKZ)                                                             | www.ikz-berlin.de          |
| ● Berlin              | Max Born Institute for Nonlinear Optics and Short Pulse Spectroscopy im Forschungsverbund Berlin (MBI) | www.mbi-berlin.de          |
| ● Berlin              | Paul-Drude-Institut für Festkörperelektronik (PDI)                                                     | www.pdi-berlin.de          |
| ● Berlin Dortmund     | Leibniz-Institut für Analytische Wissenschaften (ISAS)                                                 | www.isas.de                |
| ● Dresden             | Leibniz Institute of Polymer Research Dresden (IPF)                                                    | www.ipfdd.de               |
| ● Dresden             | Leibniz Institute for Solid State and Materials Research Dresden (IFW)                                 | www.ifw-dresden.de         |
| ● Freiburg            | Kiepenheuer-Institut für Sonnenphysik (KIS)                                                            | www.kis.uni-freiburg.de    |
| ● Greifswald          | Leibniz Institute for Plasma Science and Technology (INP Greifswald)                                   | www.inp-greifswald.de      |
| ● Jena                | Institute of Photonic Technology (IPHT)                                                                | www.ipht-jena.de           |
| ● Leipzig             | Leibniz Institute for Surface Modification (IOM)                                                       | www.iom-leipzig.de         |
| ● Potsdam             | Leibniz Institute for Astrophysics Potsdam (AIP)                                                       | www.aip.de                 |
| ● Saarbrücken         | Leibniz Institute for New Materials (INM)                                                              | www.inm-gmbh.de            |
| MAX PLANCK INSTITUTES |                                                                                                        |                            |
| ● Berlin              | Fritz Haber Institute of the Max Planck Society (FHI-Berlin)                                           | www.fhi-berlin.mpg.de      |
| ● Bonn                | Max Planck Institute for Radio Astronomy (MPIfR)                                                       | www.mpifr-bonn.mpg.de      |
| ● Dresden             | Max Planck Institute for Chemical Physics of Solids (CPFS)                                             | www.cpfs.mpg.de            |
| ● Dresden             | Max Planck Institute for the Physics of Complex Systems (MPIPKS)                                       | www.mpi PKS-dresden.mpg.de |
| ● Erlangen            | Max Planck Institute for the Science of Light (MPL)                                                    | www.mpl.mpg.de             |
| ● Garching (Munich)   | Max Planck Institute for Astrophysics (MPA-Garching)                                                   | www.mpa-garching.mpg.de    |

## RESEARCH AT NON-UNIVERSITY RESEARCH INSTITUTIONS

| Location                       | Institution                                                          | Contact               |
|--------------------------------|----------------------------------------------------------------------|-----------------------|
| ● Garching (Munich)            | Max Planck Institute for Extraterrestrial Physics (MPE)              | www.mpe.mpg.de        |
| ● Garching (Munich)            | Max Planck Institute of Quantum Optics (MPQ)                         | www.mpq.mpg.de        |
| ● Garching (Munich) Greifswald | Max Planck Institute for Plasma Physics (IPP)                        | www.ipp.mpg.de        |
| ● Göttingen                    | Max Planck Institute for Dynamics and Self-Organization (DS)         | www.ds.mpg.de         |
| ● Göttingen                    | Max Planck Institute for Solar System Research (MPS)                 | www.mps.mpg.de        |
| ● Halle/Saale                  | Max Planck Institute of Microstructure Physics (MPI-Halle)           | www.mpi-halle.mpg.de  |
| ● Hamburg                      | Max Planck Institute for the Structure and Dynamics of Matter (MPSD) | www.mpsd.mpg.de       |
| ● Heidelberg                   | Max Planck Institute for Astronomy (MPIA)                            | www.mpia.de           |
| ● Heidelberg                   | Max Planck Institute for Nuclear Physics (MPIK)                      | www.mpi-hd.mpg.de     |
| ● Mainz                        | Max Planck Institute for Polymer Research (MPIP)                     | www.mpip-mainz.mpg.de |
| ● Munich                       | Max Planck Institute for Physics (MPP)                               | www.mpp.mpg.de        |
| ● Potsdam-Golm                 | Max Planck Institute of Colloids and Interfaces (MPIKG)              | www.mpi kg.mpg.de     |
| ● Potsdam-Golm Hannover        | Max Planck Institute for Gravitational Physics (AEI)                 | www.aei.mpg.de        |
| ● Stuttgart                    | Max Planck Institute for Intelligent Systems (IS)                    | www.is.mpg.de         |
| ● Stuttgart                    | Max Planck Institute for Solid State Research (FKF)                  | www.fkf.mpg.de        |
| OTHERS                         |                                                                      |                       |
| ● Braunschweig                 | Physikalisch-Technische Bundesanstalt (PTB)                          | www.ptb.de            |

# GRADUATE TRAINING



# GRADUATE TRAINING

- FUNDED BY DFG -

**Graduate Schools (GSC)** were established at universities in the framework of the German Excellence Initiative. Their objective is to provide training and qualification for outstanding doctoral students from Germany and abroad within an excellent research environment. They serve as an instrument of quality assurance in promoting early career researchers and offer large networks that cover wide areas of research.

**Research Training Groups (RTG)** combine an ambitious research programme at universities with comprehensive training, tailored supervision and academic freedom to form an ideal environment for a successful doctorate. Research Training Groups can also have an interdisciplinary approach. They are funded for a period of up to nine years.

**International Research Training Groups (IRTG)** provide opportunities for joint doctoral training programmes between German universities and universities abroad. The research and study programmes are jointly developed and supervised. Doctoral students in the programme spend six months at the partner institution.

**Integrated Research Training Groups** (within Clusters of Excellence or Collaborative Research Centres/Transregios) offer ideal research environments for doctoral researchers. The main aim of these structured training programmes is to provide young scientists and academics with opportunities to independently carry out research at an early stage of their career. The programmes further take care to closely integrate early career researchers into an academic network. Working in Clusters of Excellence or Collaborative Research Centres projects, doctoral researchers achieve additional qualifications. As research assistants in these projects, they contribute to the Research Centre's success. They are closely involved with the projects and have access to the entire project infrastructure.

## GRADUATE TRAINING

| Location                                                                                           | Institution                                         | Title                                                                                                        | Funded Since | Contact                                                                                                      |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------|--------------------------------------------------------------------------------------------------------------|
| GRADUATE SCHOOLS                                                                                   |                                                     |                                                                                                              |              |                                                                                                              |
|  Bonn           | Rheinische Friedrich-Wilhelms-Universität Bonn      | Bonn-Cologne Graduate School of Physics and Astronomy (BCGS) (GSC 260)                                       | 2007         | <a href="http://www.gradschool.physics.uni-bonn.de">www.gradschool.physics.uni-bonn.de</a>                   |
| Cologne                                                                                            | Universität zu Köln                                 |                                                                                                              |              |                                                                                                              |
|  Heidelberg     | Ruprecht-Karls-Universität Heidelberg               | Heidelberg Graduate School of Fundamental Physics (HGSFP) (GSC 129)                                          | 2006         | <a href="http://www.fundamental-physics.uni-hd.de">www.fundamental-physics.uni-hd.de</a>                     |
|  Karlsruhe      | Karlsruhe Institute of Technology                   | Karlsruhe School of Elementary Particle and Astroparticle Physics: Science and Technology (KSETA) (GSC 1085) | 2012         | <a href="http://www.kseta.kit.edu">www.kseta.kit.edu</a>                                                     |
|  Karlsruhe      | Karlsruhe Institute of Technology                   | Karlsruhe School of Optics and Photonics (KSOP) (GSC 21)                                                     | 2006         | <a href="http://ksop.ids.schools.kit.edu">http://ksop.ids.schools.kit.edu</a>                                |
|  Mainz          | Johannes Gutenberg-Universität Mainz                | Materials Science in Mainz (MAINZ) (GSC 266)                                                                 | 2008         | <a href="http://www.mainz.uni-mainz.de">www.mainz.uni-mainz.de</a>                                           |
| RESEARCH TRAINING GROUPS                                                                           |                                                     |                                                                                                              |              |                                                                                                              |
|  Aachen         | Rheinisch-Westfälische Technische Hochschule Aachen | Particle and Astroparticle Physics in the Light of Large Hadron Collider (LHC) (RTG 1675)                    | 2012         | <a href="http://www1b.physik.rwth-aachen.de/~kolleg2012">www1b.physik.rwth-aachen.de/~kolleg2012</a>         |
|  Aachen         | Rheinisch-Westfälische Technische Hochschule Aachen | Quantum Many-Body Methods in Condensed Matter Systems (RTG 1995)                                             | 2014         | <a href="http://www.rtg1995.rwth-aachen.de">www.rtg1995.rwth-aachen.de</a>                                   |
|  Bayreuth       | Universität Bayreuth                                | Photophysics of Synthetic and Biological Multichromophoric Systems (RTG 1640)                                | 2010         | <a href="http://www.multichromophores.uni-bayreuth.de">www.multichromophores.uni-bayreuth.de</a>             |
|  Berlin       | Humboldt Universität zu Berlin                      | Mass, Spectrum, Symmetry: Particle Physics in the Era of the Large Hadron Collider (RTG 1504)                | 2009         | <a href="http://www.masse-spektrum-symmetrie.de">www.masse-spektrum-symmetrie.de</a>                         |
| Dresden                                                                                            | Technische Universität Dresden                      |                                                                                                              |              |                                                                                                              |
|  Berlin       | Technische Universität Berlin                       | Nonequilibrium Collective Dynamics in Condensed Matter and Biological Systems (RTG 1558)                     | 2009         | <a href="http://www.iip.tu-berlin.de/GRK1558">www.iip.tu-berlin.de/GRK1558</a>                               |
|  Braunschweig | Technische Universität Braunschweig                 | Metrology for Complex Nanosystems (NANOMET) (RTG 1952)                                                       | 2014         | <a href="http://www.tu-braunschweig.de/mib/graduate/nanomet">www.tu-braunschweig.de/mib/graduate/nanomet</a> |

## GRADUATE TRAINING

| Location                                                                                                 | Institution                                                       | Title                                                                                                              | Funded Since | Contact                                          |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------|--------------------------------------------------|
| <br>Bremen<br>Oldenburg  | Universität Bremen<br>Carl von Ossietzky<br>Universität Oldenburg | <b>Models of Gravity</b><br>(RTG 1620)                                                                             | 2012         | www.models-of-gravity.org                        |
| <br>Dresden              | Technische<br>Universität Dresden                                 | <b>Itinerant Magnetism and Superconductivity in Intermetallic Compounds</b><br>(RTG 1621)                          | 2011         | http://tu-dresden.de/forschung/dfg1621           |
| <br>Freiburg             | Albert-Ludwigs-Universität Freiburg                               | <b>Mass and Symmetries after the Discovery of the Higgs Particle at the Large Hadron Collider (LHC)</b> (RTG 2044) | 2014         | TBA                                              |
| <br>Göttingen            | Georg-August-Universität Göttingen                                | <b>Mathematical Structures in Modern Quantum Physics</b><br>(RTG 1493)                                             | 2008         | www.uni-goettingen.de/en/132772.html             |
| <br>Göttingen<br>Hamburg | Georg-August-Universität Göttingen<br>Universität Hamburg         | <b>Extrasolar Planets and their Host Stars</b> (RTG 1351)                                                          | 2007         | www.hs.uni-hamburg.de/grk/index.html             |
| <br>Hamburg              | Universität Hamburg                                               | <b>Mathematics Inspired by String Theory and Quantum Field Theory (QFT)</b><br>(RTG 1670)                          | 2011         | http://grk1670.math.uni-hamburg.de               |
| <br>Hamburg              | Universität Hamburg                                               | <b>Functional Metal-Semiconductor Hybrid Systems</b> (RTG 1286)                                                    | 2006         | www3.physnet.uni-hamburg.de/GrK/gk_mmhhs         |
| <br>Hamburg              | Universität Hamburg                                               | <b>Physics with New Advanced Coherent Radiation Sources</b><br>(RTG 1355)                                          | 2006         | http://photon.physnet.uni-hamburg.de/en/grk      |
| <br>Hannover            | Gottfried Wilhelm Leibniz Universität Hannover                    | <b>Analysis, Geometry and String Theory</b> (GRK 1463)                                                             | 2008         | www.grk1463.uni-hannover.de                      |
| <br>Hannover           | Gottfried Wilhelm Leibniz Universität Hannover                    | <b>Fundamentals and Applications of Ultra-Cold Matter</b> (RTG 1729)                                               | 2012         | www.rtg1729.uni-hannover.de                      |
| <br>Hannover           | Gottfried Wilhelm Leibniz Universität Hannover                    | <b>Quantum Mechanical Noise in Complex Systems</b><br>(RTG 1991)                                                   | 2014         | www.rtg1991.uni-hannover.de                      |
| <br>Heidelberg         | Ruprecht-Karls-Universität Heidelberg                             | <b>Particle Physics beyond the Standard Model</b> (RTG 1940)                                                       | 2014         | www.thphys.uni-heidelberg.de/~gk_ppbsm/doku.php? |
| <br>Jena               | Friedrich-Schiller-Universität Jena                               | <b>Quantum and Gravitational Fields</b> (RTG 1523)                                                                 | 2009         | www.qgf.uni-jena.de                              |

## GRADUATE TRAINING

| Location                                                                                                                | Institution                                                             | Title                                                                                                                                      | Funded Since | Contact                                                     |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------|
| <br>Karlsruhe                        | Karlsruhe Institute of Technology                                       | <b>Elementary Particle Physics at Highest Energy and Precision</b> (RTG 1694)                                                              | 2011         | www.kceta.kit.edu/grk1694                                   |
| <br>Mainz                            | Johannes Gutenberg-Universität Mainz                                    | <b>Symmetry Breaking in Fundamental Interactions</b><br>(RTG 1581)                                                                         | 2009         | www.symmetrybreaking.uni-mainz.de                           |
| <br>Marburg                          | Philipps-Universität Marburg                                            | <b>Functionalization of Semiconductors</b> (RTG 1782)                                                                                      | 2012         | www.uni-marburg.de/grk1782                                  |
| <br>Paderborn                        | Universität Paderborn                                                   | <b>Micro- and Nanostructures in Optoelectronics and Photonics (CeOPP)</b><br>(RTG 1464)                                                    | 2008         | http://pace.uni-paderborn.de/studienprogramm/ceopp-grk.html |
| <br>Regensburg                       | Universität Regensburg                                                  | <b>Electronic Properties of Carbon Based Nanostructures (CBN)</b><br>(RTG 1570)                                                            | 2008         | www.physik.uni-regensburg.de/forschung/gk_carbonano         |
| INTERNATIONAL RESEARCH TRAINING GROUPS                                                                                  |                                                                         |                                                                                                                                            |              |                                                             |
| <br>Aachen<br><br>Osaka (Japan)      | Rheinisch-Westfälische Technische Hochschule Aachen<br>Osaka University | <b>Selectivity in Chemo- and Biocatalysis (SeleCa)</b><br>(IRTG 1628)                                                                      | 2010         | www.seleca.rwth-aachen.de                                   |
| <br>Berlin<br><br>São Paulo (Brazil) | Humboldt Universität zu Berlin<br>Universidade de São Paulo             | <b>Dynamical Phenomena in Complex Networks: Fundamentals and Applications</b> (IRTG 1740)                                                  | 2011         | www.physik.hu-berlin.de/irtg1740                            |
| INTEGRATED RESEARCH TRAINING GROUPS IN CLUSTERS OF EXCELLENCE                                                           |                                                                         |                                                                                                                                            |              |                                                             |
| <br>Hamburg                         | Universität Hamburg                                                     | <b>Graduate School of the Hamburg Centre for Ultrafast Imaging (CUI)</b> (EXC 1074)                                                        | 2012         | www.cui.uni-hamburg.de/en/graduate-school                   |
| <br>Munich                         | Ludwig-Maximilians-Universität München                                  | <b>Nanosystems Initiative Munich (NIM) Graduate Program</b> (EXC 4)                                                                        | 2006         | http://www.nano-initiative-munich.de/en/graduate-program    |
| INTEGRATED RESEARCH TRAINING GROUPS IN COLLABORATIVE RESEARCH CENTRES                                                   |                                                                         |                                                                                                                                            |              |                                                             |
| <br>Berlin                         | Freie Universität Berlin                                                | <b>Integrated Research Training Group "Molecules at Surfaces" within: Elementary Processes in Molecular Switches at Surfaces</b> (CRC 658) | 2009         | www.physik.fu-berlin.de/en/einrichtungen/sfb/sfb658/IGK     |



## GRADUATE TRAINING

| Location                                                                                    | Institution                            | Title                                                                                                                                                                                                      | Funded Since | Contact                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Berlin     | Technische Universität Berlin          | Integrated Research Training Group "School of Nanophotonics" within: Semiconductor Nanophotonics: Materials, Models, Devices (CRC 787)                                                                     | 2008         | <a href="http://www.sfb787.tu-berlin.de/menue/the_integrated_graduate_school/parameter">www.sfb787.tu-berlin.de/menue/the_integrated_graduate_school/parameter</a>                                                |
|  Darmstadt  | Technische Universität Darmstadt       | Integrated Research Training Group within: Nuclear Structure, Nuclear Astrophysics and Fundamental Experiments at Low Momentum Transfer at the Superconducting Darmstadt Accelerator (S-DALINAC) (CRC 634) | 2012         | <a href="http://www.ikp.tu-darmstadt.de/sfb634/integriertes_graduiertenkolleg">www.ikp.tu-darmstadt.de/sfb634/integriertes_graduiertenkolleg</a> (DE)                                                             |
|  Dresden    | Technische Universität Dresden         | Integrated Research Training Group within: Correlated Magnetism: From Frustration to Topology (CRC 1143)                                                                                                   | 2015         | <a href="http://tu-dresden.de/forschung/forschungskompetenz/sonderforschungsbereiche/sfb1143/mgkfolder/mgk">http://tu-dresden.de/forschung/forschungskompetenz/sonderforschungsbereiche/sfb1143/mgkfolder/mgk</a> |
|  Göttingen  | Georg-August-Universität Göttingen     | Integrated Research Training Group within: Atomic Scale Control of Energy Conversion (CRC 1073)                                                                                                            | 2013         | <a href="http://www.uni-goettingen.de/en/irtg/438103.html">www.uni-goettingen.de/en/irtg/438103.html</a>                                                                                                          |
|  Hamburg    | Universität Hamburg                    | Integrated Research Training Group within: Light Induced Dynamics and Control of Correlated Quantum Systems (CRC 925)                                                                                      | 2011         | <a href="http://photon.physnet.uni-hamburg.de/de/sfb">http://photon.physnet.uni-hamburg.de/de/sfb</a>                                                                                                             |
|  Hamburg  | Universität Hamburg                    | Integrated Research Training Group within: Particles, Strings, and the Early Universe (CRC 676)                                                                                                            | 2006         | <a href="http://www.iexp.uni-hamburg.de/sfb676/graduate_school">www.iexp.uni-hamburg.de/sfb676/graduate_school</a>                                                                                                |
|  Konstanz | Universität Konstanz                   | Integrated Research Training Group within: Controlled Nanosystems: Interaction and Interfacing to the Macroscale (CRC 767)                                                                                 | 2008         | <a href="http://www.sfb767.uni-konstanz.de/irtg">www.sfb767.uni-konstanz.de/irtg</a>                                                                                                                              |
|  Munich   | Ludwig-Maximilians-Universität München | Integrated Research Training Group within: Nanoagents for Spatiotemporal Control of Molecular and Cellular Reactions (CRC 1032)                                                                            | 2012         | <a href="http://www.sfb1032.physik.uni-muenchen.de/graduate_program">www.sfb1032.physik.uni-muenchen.de/graduate_program</a>                                                                                      |

## GRADUATE TRAINING

| Location                                                                                           | Institution                                    | Title                                                                                                                                                        | Funded Since | Contact                                                                                                                                |
|----------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------|
|  Rostock        | Universität Rostock                            | Integrated Research Training Group within: Strong Correlations and Collective Effects in Radiation Fields: Coulomb Systems, Clusters and Particles (CRC 652) | 2005         | <a href="http://web.physik.uni-rostock.de/grk">http://web.physik.uni-rostock.de/grk</a> (DE)                                           |
| INTEGRATED RESEARCH TRAINING GROUPS IN COLLABORATIVE RESEARCH CENTRES/TRANSREGIOS                  |                                                |                                                                                                                                                              |              |                                                                                                                                        |
|  Augsburg       | Universität Augsburg                           | Integrated Research Training Group within: From Electronic Correlations to Functionality (TRR 80)                                                            | 2010         | <a href="http://www.trr80.de/trr80/index.php?ID=3500&amp;">www.trr80.de/trr80/index.php?ID=3500&amp;</a>                               |
|  Bochum         | Ruhr-Universität Bochum                        | Integrated Research Training Group within: Subnuclear Structure of Matter (TRR 16)                                                                           | 2004         | <a href="http://sfb-tr16.physik.uni-bochum.de/vfs/en/homepage">http://sfb-tr16.physik.uni-bochum.de/vfs/en/homepage</a>                |
|  Bonn           | Rheinische Friedrich-Wilhelms-Universität Bonn |                                                                                                                                                              |              |                                                                                                                                        |
|  Gießen         | Justus-Liebig-Universität Gießen               |                                                                                                                                                              |              |                                                                                                                                        |
|  Darmstadt      | Technische Universität Darmstadt               | Integrated Research Training Group within: Multiscale Simulation Methods for Soft-Matter Systems (TRR 146)                                                   | 2014         | <a href="http://trr146.de/en/irtg">http://trr146.de/en/irtg</a>                                                                        |
|  Mainz          | Johannes Gutenberg-Universität Mainz           |                                                                                                                                                              |              |                                                                                                                                        |
|  Frankfurt/Main | Goethe-Universität Frankfurt am Main           | Integrated Research Training Group within: Condensed Matter Systems with Variable Many-Body Interactions (TRR 49)                                            | 2007         | <a href="http://lucky.physik.uni-kl.de/~tr49/mgk">http://lucky.physik.uni-kl.de/~tr49/mgk</a>                                          |
|  Kaiserslautern | Technische Universität Kaiserslautern          |                                                                                                                                                              |              |                                                                                                                                        |
|  Mainz        | Johannes Gutenberg-Universität Mainz           |                                                                                                                                                              |              |                                                                                                                                        |
|  Regensburg   | Universität Regensburg                         | Integrated Research Training Group within: Hadron Physics from Lattice Quantum Chromodynamics (QCD) (TRR 55)                                                 | 2008         | <a href="http://www.physik.uni-regensburg.de/sfbtr55/Seiten/training.php">www.physik.uni-regensburg.de/sfbtr55/Seiten/training.php</a> |
|  Wuppertal    | Bergische Universität Wuppertal                |                                                                                                                                                              |              |                                                                                                                                        |
|  Stuttgart    | Universität Stuttgart                          | Integrated Research Training Group within: Control of Quantum Correlations in Tailored Matter (CO.CO.MAT) (TRR 21)                                           | 2005         | <a href="http://www.physik.uni-stuttgart.de/TR21/en/mgk">www.physik.uni-stuttgart.de/TR21/en/mgk</a>                                   |
|  Tübingen     | Eberhard-Karls-Universität Tübingen            |                                                                                                                                                              |              |                                                                                                                                        |
|  Ulm          | Universität Ulm                                |                                                                                                                                                              |              |                                                                                                                                        |



## GRADUATE TRAINING

### - AT NON-UNIVERSITY RESEARCH INSTITUTIONS -

**Helmholtz Graduate Schools** provide a roof under which a varied number of curricula in different fields, or across disciplines, can find a home. Helmholtz Graduate Schools constitute a valuable addition to the wide range of training programmes available within the Helmholtz Association. They offer optimal conditions for PhD students to work and enable them to create a network of contacts with fellow university researchers while also fostering the integration of participants into the research environment.

**Leibniz Graduate Schools** were established to foster the systematic promotion of junior researchers. Young researchers are given the opportunity to do their doctorates in an excellent, collaborative, cross-disciplinary research environment. To this end, Leibniz institutions cooperate closely with universities. As every Leibniz institution focuses on clearly defined, socially-relevant themes, doctoral candidates have a wealth of networking opportunities in a large, dedicated scientific community. The particular character of research at the institutions in the Leibniz Association, which includes fundamental, large-scale and application-oriented research, means doctoral candidates can conduct research from basic idea right through to application.

**International Max Planck Research Schools (IMPRS)** offer talented German and international junior scientists the opportunity to earn a doctorate under excellent research conditions. The research schools are established by one or several Max Planck Institutes. These IMPRS work in close cooperation with universities and other – sometimes international – research institutions. This provides an extraordinary framework for the graduate students to work in, and is a great advantage in interdisciplinary research projects, or in projects that require special equipment.

### GRADUATE TRAINING

| Location                                          | Title                                                                     | Contact                                                                                                                    |
|---------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| HELMHOLTZ GRADUATE SCHOOLS                        |                                                                           |                                                                                                                            |
| ○ Darmstadt                                       | Helmholtz Graduate School for Hadron and Ion Research (HGS-HiRe for FAIR) | <a href="http://hgs-hire.de">http://hgs-hire.de</a>                                                                        |
| ○ Garching (Munich)                               | International Helmholtz Graduate School for Plasma Physics (HEPP)         | <a href="https://www.ipp.mpg.de/hepp">https://www.ipp.mpg.de/hepp</a>                                                      |
| ○ Hamburg                                         | PIER Helmholtz Graduate School                                            | <a href="http://graduateschool.pier-campus.de">http://graduateschool.pier-campus.de</a>                                    |
| LEIBNIZ GRADUATE SCHOOLS                          |                                                                           |                                                                                                                            |
| ○ Berlin                                          | Leibniz Graduate School Dynamics in New Light (DinL)                      | <a href="http://www.mbi-berlin.de/DinL">www.mbi-berlin.de/DinL</a>                                                         |
| ○ Berlin                                          | Leibniz Graduate School of Molecular Biophysics (FMP)                     | <a href="http://www.fmp-berlin.info/education/lgs">www.fmp-berlin.info/education/lgs</a>                                   |
| ○ Potsdam                                         | Leibniz Graduate School for Quantitative Spectroscopy in Astrophysics     | <a href="http://www.aip.de/en/for-students/leibniz-graduate-school">www.aip.de/en/for-students/leibniz-graduate-school</a> |
| INTERNATIONAL MAX PLANCK RESEARCH SCHOOLS (IMPRS) |                                                                           |                                                                                                                            |
| ○ Berlin                                          | IMPRS for Complex Surfaces in Material Science                            | <a href="http://www.imprs-cs.mpg.de">www.imprs-cs.mpg.de</a>                                                               |
| ○ Berlin                                          | IMPRS Functional Interfaces in Physics and Chemistry                      | <a href="http://www.imprs-cs.mpg.de">www.imprs-cs.mpg.de</a>                                                               |
| ○ Bonn                                            | IMPRS for Astronomy and Astrophysics                                      | <a href="http://www.mpifr-bonn.mpg.de/en/imprs">www.mpifr-bonn.mpg.de/en/imprs</a>                                         |
| ○ Dresden                                         | IMPRS for Dynamical Processes in Atoms, Molecules and Solids              | <a href="http://www.imprs-dynamics.mpg.de">www.imprs-dynamics.mpg.de</a>                                                   |
| ○ Erlangen                                        | IMPRS Physics of Light                                                    | <a href="http://www.mpl.mpg.de/de/imprs">www.mpl.mpg.de/de/imprs</a>                                                       |
| ○ Garching (Munich)                               | IMPRS of Advanced Photon Science                                          | <a href="http://www2.mpg.de/APS">www2.mpg.de/APS</a>                                                                       |
| ○ Garching (Munich)                               | IMPRS for Astrophysics                                                    | <a href="http://www.imprs-astro.mpg.de">www.imprs-astro.mpg.de</a>                                                         |
| ○ Göttingen                                       | IMPRS for Physics of Biological and Complex Systems                       | <a href="http://www.uni-goettingen.de/en/58718.html">www.uni-goettingen.de/en/58718.html</a>                               |
| ○ Göttingen                                       | IMPRS for Solar System Science at the University of Göttingen             | <a href="http://www.mps.mpg.de/73264/imprs">www.mps.mpg.de/73264/imprs</a>                                                 |
| ○ Hamburg                                         | IMPRS for Ultrafast Imaging and Structural Dynamics                       | <a href="http://www.imprs-ufast.de">www.imprs-ufast.de</a>                                                                 |
| ○ Hannover                                        | IMPRS on Gravitational Wave Astronomy                                     | <a href="http://imprs-gw.aei.mpg.de">http://imprs-gw.aei.mpg.de</a>                                                        |
| ○ Heidelberg                                      | IMPRS for Astronomy and Cosmic Physics at the University of Heidelberg    | <a href="http://www2.mpi.de/imprs-hd">www2.mpi.de/imprs-hd</a>                                                             |
| ○ Heidelberg                                      | IMPRS for Quantum Dynamics in Physics, Chemistry and Biology              | <a href="http://www.mpi-hd.mpg.de/imprs-qd">www.mpi-hd.mpg.de/imprs-qd</a>                                                 |

## GRADUATE TRAINING

| Location                                                                                      | Title                                                       | Contact                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Heidelberg   | IMPRS for Precision Tests of Fundamental Symmetries         | <a href="http://www.mpi-hd.mpg.de/imprs-ptfs">www.mpi-hd.mpg.de/imprs-ptfs</a>                                                                                                 |
|  Munich       | IMPRS on Elementary Particle Physics                        | <a href="http://www.mppmu.mpg.de/imprs">www.mppmu.mpg.de/imprs</a>                                                                                                             |
|  Potsdam-Golm | IMPRS for Geometric Analysis, Gravitation and String Theory | <a href="http://www.aei.mpg.de/169836/IMPRS_for_Geometric_Analysis_Gravitation_String_Theory">www.aei.mpg.de/169836/IMPRS_for_Geometric_Analysis_Gravitation_String_Theory</a> |
|  Stuttgart    | IMPRS for Condensed Matter Science                          | <a href="http://www.imprs-cms.mpg.de">www.imprs-cms.mpg.de</a>                                                                                                                 |



## PHYSICAL **SOCIETIES AND ASSOCIATIONS** IN GERMANY:

## **NOTES:**

Deutsche Gesellschaft für Biophysik (DGfB): [www.dgfb.org](http://www.dgfb.org)

Deutsche Gesellschaft für Elektronenmikroskopie (DGE): [www.dge-homepage.de](http://www.dge-homepage.de)

Deutsche Physikalische Gesellschaft (DPG): [www.dpg-physik.de](http://www.dpg-physik.de)

German Astronomical Society (AG): [www.astronomische-gesellschaft.org](http://www.astronomische-gesellschaft.org)

German Bunsen Society for Physical Chemistry (DBG): [www.bunsen.de](http://www.bunsen.de)

German Crystallographic Society (DGK): <http://dgk-home.de>

German Scientific Laser Society (WLT): [www.wlt.de](http://www.wlt.de)

The German Branch of the European Optical Society (DGaO): [www.dgao.de](http://www.dgao.de)

## **OPEN POSITIONS:**

Research in Germany: [www.research-in-germany.de/jobs](http://www.research-in-germany.de/jobs)

EURAXESS – Researchers in Motion: [www.ec.europa.eu/euraxess/jobs](http://www.ec.europa.eu/euraxess/jobs)

Fraunhofer Society: [www.fraunhofer.de/en/jobs-career](http://www.fraunhofer.de/en/jobs-career)

Helmholtz Association: [www.helmholtz.de/en/jobs\\_talents](http://www.helmholtz.de/en/jobs_talents)

Leibniz Association: [www.leibniz-gemeinschaft.de/karriere](http://www.leibniz-gemeinschaft.de/karriere) (DE)

Max Planck Society: [www.mpg.de/jobboard](http://www.mpg.de/jobboard)

## NOTES: