

Appendix 6

Research Fields in the Helmholtz Association

RF-Coordinator Programme spokesperson	Research Field Programme Topic	Participating Centres
Prof. Dr. Eberhard Umbach, KIT	Energy	DLR, FZJ, FZK, GFZ, HZB, KIT, IPP, UFZ
Prof. Dr. Bernd Rech, HZB	Renewable Energies	DLR, FZJ, KIT, GFZ, HZB, UFZ
	Thin Film Photovoltaics	FZJ, HZB
	Concentrating Solar Systems	DLR
	Geothermal Technologies	KIT, GFZ, UFZ
	Energetic Biomass Utilisation	KIT, UFZ
Prof. Dr. Manfred Aigner, DLR	Efficient Energy Conversion and Use	DLR, FZJ, KIT
	Brennstoffaufbereitung und Gasreinigung	KIT
	Kraftwerke	DLR, FZJ, KIT
	Brennstoffzelle	DLR, FZJ
	Supraleitung	KIT
	Energieeffiziente Prozesse	DLR, KIT
	Nuclear Fusion	FZJ, KIT, IPP
	Stellarator research	FZJ, KIT, IPP
	Tokamak physics for ITER and beyond	FZJ, IPP
	ITER technology	FZJ, KIT, IPP
	Fusion technology beyond ITER	KIT, IPP
	Plasma-wall interactions	FZJ, KIT, IPP
	Plasma theory	FZJ, IPP
Dr.-Ing. Joachim U. Knebel,	Nuclear Safety Research	FZJ, KIT
	Safety Research for Nuclear Reactors	FZJ, KIT, HZDR
	Safety Research for Nuclear Waste Disposal	FZJ, KIT, HZDR
	Radiation Research	KIT
Prof. Dr. Armin Grunwald, KIT	Technology, Innovation & Society - joint programme with the RF key technologies	DLR, FZJ, KIT, UFZ
	Science and Technology in Society: Challenges and Expectations	FZJ, KIT
	Key Technologies and Innovation Processes	FZJ, KIT
	Transformation of Energy Systems	FZJ, KIT
	Renewable Energies	DLR, KIT, UFZ
	Efficient Energy Conversion and Use	FZJ, KIT
Prof. Dr. Reinhard F. J. Hüttl, GFZ / Prof. Dr. Georg Teutsch, UFZ	Earth and Environment: Programmes starting in 2014	AWI, FZJ, GEOMAR, GFZ, HMGU, HZG, KIT, UFZ
Prof. Dr. Onno Oncken, GFZ	Geosystem: The Changing Earth	GEOMAR, GFZ
	Global Processes: Integrated Monitoring and Modelling	GFZ
	Plate Boundary Systems: Understanding the dynamics that affect the human habitat	GEOMAR, GFZ
	Earth Surface and Climate Interactions: Probing records to constrain mechanisms and sensitivities	GFZ
	Natural Hazards and Geosafety: Understanding risks and safeguarding the human habitat	GFZ
	Georesources: From process understanding to holistic exploitation concepts	GFZ

Prof. Dr. Heinrich Miller, AWI	Marine, Coastal and Polar Systems	AWI, HZG
	Changes and regional feedbacks in Arctic and Antarctic	AWI
	Fragile coasts and shelf seas	AWI, GFZ
	The earth system from a polar perspective: Data, modelling and synthesis	AWI
	Research in science-stakeholder interactions	AWI, GFZ
	Service Topic CSC	GFZ
Prof. Dr. Kaj Alexander Hoernle, GEOMAR	Oceans: From the Deep Sea to the Atmosphere	GEOMAR, GFZ
	Ocean Circulation and Climate	GEOMAR
	Ocean Warming, Acidification and Deoxygenation	GEOMAR
	Marine Biodiversity and Ecosystem Evolution	GEOMAR
	Seafloor Dynamics, Hazards and Resources	GEOMAR, GFZ
Prof. Dr. Johannes Orphal, KIT	Atmosphere and Climate	FZJ, GFZ, KIT
	Cloud and weather research	GFZ, KIT
	Land surface processes in the climate system	KIT
	Tropospheric trace substances and their transformation processes	FZJ, KIT
	Composition and dynamics of the upper troposphere and middle atmosphere	FZJ, GFZ, KIT
Prof. Dr. Hauke Harms, UFZ	Terrestrial Environment	FZJ, HMGU, UFZ
	Land Use, Biodiversity, and Ecosystem Services: Sustaining Human Livelihoods	UFZ
	Sustainable Plant Production in a Changing Environment	HMGU, UFZ
	Sustainable Water Resources Management	HMGU, UFZ
	Chemicals in the Environment: Towards Eco-Compatibility and Environmental Health	UFZ
	Terrestrial Systems: From Observation to Prediction	FZJ, HMGU, UFZ
Prof. Dr. Otmar D. Wiestler, DKFZ	Health: Programmes starting in 2014	DKFZ, DZNE, HMGU, HZDR, GSI, HZI, MDC, UFZ
Prof. Dr. Otmar D. Wiestler, DKFZ	Cancer Research	DKFZ, GSI, HZDR, MDC
	Signalling pathways, cell and tumor biology	DKFZ, MDC
	Functional and structural genomics	DKFZ, MDC
	Cancer risk factors and prevention	DKFZ
	Tumor immunology	DKFZ, MDC
	Imaging and radiooncology	DKFZ, GSI, HZDR
	Infections and cancer	DKFZ
	Translational cancer research	DKFZ, MDC
Prof. Dr. Norbert Hübner, MDC	Cardiovascular and Metabolic Disease	DKFZ, MDC
	Basic Concepts	DKFZ, MDC
	Genetics and Pathophysiology	DKFZ, MDC
	Metabolic Dysfunction as Risk Factor	DKFZ, MDC
Prof. Dr. Ulrich Kalinke, HZI	Infection Research	HZI
	Bacterial and Viral Pathogens	HZI
	Immune Response and Interventions	HZI
	Anti-infectives	HZI
Prof. Dr. Pierluigi Nicotera, DZNE	Diseases of the Nervous System	DZNE, MDC
	Molecular Signaling	DZNE, MDC
	Disease Mechanisms and Model Systems	DZNE, MDC
	Clinical and Health Care Research	DZNE, MDC
	Population Studies and Genetics	
Prof. Dr. Wolfgang Wurst, HMGU	Genes and Environment in Common Diseases	HMGU, UFZ
	Systemic Analysis of Genetic and Environmental Factors	HMGU, UFZ
	Diabetes: Pathophysiology, Prevention & Therapy	HMGU

	Chronic Diseases of the Lung and Allergies	HMGU, UFZ
	Mechanisms of Genetic and Environmental Impacts in Health and Disease	HMGU
	Novel Technologies for Biomedical Discovery	HMGU
Prof. Dr.-Ing. Johann-Dietrich Wörner, DLR	Aeronautics, Space and Transport: Programmes starting in 2014	DLR
Dipl.-Ing. Horst Hüners, DLR	Aeronautics	DLR
	Fixed-Wing Aircraft	DLR
	Rotorcraft	DLR
	Propulsion Systems	DLR
	ATM and Operations	DLR
Dr. Hubert Reile, DLR	Space	DLR
	Earth Observation	DLR
	Communication and Navigation	DLR
	Space Science and Exploration	DLR
	Research under Space Conditions	DLR
	Space Transport	DLR
	Space Technology	DLR
Dr.-Ing. Christian Piehler, DLR	Transport	DLR
	Terrestrial Vehicles	DLR
	Traffic Management	DLR
	Transport System	DLR
Prof. Dr. Achim Bachem, FZJ	Key Technologies	FZJ, KIT, HZG
Prof. Dr. Thomas Lippert, FZJ	Supercomputing	FZJ, KIT
	Computational Science and Mathematical Methods	FZJ, KIT
	Grid Technologies and Infrastructures	FZJ, KIT
	Supercomputer Facility	FZJ
Prof. Dr.-Ing. Rainer Waser, FZJ	Fundamentals of Future Information Technology	FZJ
	Frontiers of charge based electronics	FZJ
	Spintronics and Quantum Information	FZJ
	Sensorics and bioinspired systems	FZJ
	Exploratory materials and phenomena	FZJ
	Peter Grünberg-Centre (PG-C)	FZJ
Prof. Dr. Horst Hahn, KIT	Nano and Micro Systems	KIT
	Grundlagen	KIT
	Technologie	KIT
	Systeme	KIT
	Karlsruhe Nano Micro Facility (KNMF)	KIT
Prof. Dr. Norbert Huber, HZG	Advanced Engineering Materials	HZG
	Leight-Weight Structural Materials	HZG
	Mechanics and Joining of Light-weight Materials	HZG
	Functionalised Materials	HZG
Prof. Dr. Gerhard Gompper, FZJ	BioSoft: Molecular Systems and Biological Information Processing	FZJ
	Soft Matter Composites	FZJ
	Structural Biology	FZJ
	Physics of the Cell	FZJ
Dr. Christof Wöll, KIT	BioInterfaces: Molecular and Cellular Interactions at Functional Interfaces	KIT
	Biological Key Targets	KIT
	Synthetic Biomimetic Tools	KIT
	Biofunctional Surfaces	KIT
	Biofilms and Antifouling	KIT
Prof. Dr. Armin Grunwald, KIT	Technology, Innovation & Society - joint programme with the RF key technologies, see RF energy	FZJ, KIT, UFZ
	Science and Technology in Society:Challenges and Expectations	FZJ, KIT
	Key technologies and innovation	FZJ, KIT
	Transformation of Energy Systems	FZJ, KIT
	Renewable energies	DLR, KIT, UFZ
	Efficient Energy Conversion and Use	FZJ, KIT

Prof. Dr. Horst Stöcker, GSI	Structure of Matter	DESY, FZJ, KIT, HZG, GSI, HZB
Prof. Dr. Joachim Mnich, DESY	Elementary Particle Physics	DESY, KIT
	HERA	DESY
	LHC	DESY
	Electron-Positron Linear Collider	DESY
	Theoretical Particle Physics	DESY
	Support for large facilities	DESY
	Computing Programme for Particle Physics	DESY, KIT
	Gridka	KIT
Prof. Dr. Johannes Blümer, KIT	Astroparticle Physics	DESY, KIT
	Ultra-high energy cosmic rays	KIT
	High-energy neutrino astrophysics	DESY
	High-energy gamma-ray astronomy	DESY
	Direct search for Dark Matter	KIT
	Neutrino physics	KIT
	Pierre Auger Observatory	KIT
	Karlsruhe Tritium Neutrino Experiment KATRIN	KIT
Prof. Dr. Klaus Peters, GSI	Physics of Hadrons and Nuclei	FZJ, GSI
	Hadrons Structure and Dynamics (HSD)	FZJ, GSI
	Nuclear and Quark Gluon Matter (NQM)	GSI
	Exotic Nuclei and Nuclear Astrophysics (ENNA)	GSI
	Participation in FAIR	FZJ, GSI
	COSY	FZJ
	SIS 18	GSI
	UNILAC	GSI
Prof. Dr. Andreas Schreyer, HZG	Research with Photons, Neutrons and Ions at large scale Facilities (PNI)	DESY, FZJ, KIT, HZG, GSI, HZB
	Photons	DESY, KIT, HZG, HZB
	ANKA	KIT
	BESSY II	HZB
	DORIS III	DESY
	PETRA III	DESY, HZG
	PACEMS	HZG
	FLASH	DESY
	DESY-participation in XFEL	DESY
	Neutrons	FZJ, HZG, HZB
	FRG-1	HZG
	BER II	HZB
	JCNS	FZJ
	NACEMS	HZG
	Ions	GSI
	Accelerator facilities at GSI	GSI
	GSI-participation in FAIR	GSI
	In-house Research with PNI	DESY, FZJ, KIT, HZG, GSI, HZB, HZDR