

Project groups and projects

Project Number, Title	Research Area	Project Leader(s)	Institute(s); Location(s)	
Project area A – Modelling and characterisation – <i>in silico</i> and <i>in vitro</i>				
A01	Domain-specific languages for developing multi-scale, spatio-temporal, bio-chemical models and their application	Modelling and Simulation	Prof. Dr. rer. nat. habil. Adelinde Uhrmacher	Institute for Computer Science; Rostock
A02	Multi-scale models for studies on electrically active implants in due consideration of uncertainties in the input data	Electromagnetic Field Theory	Prof. Dr. rer. nat. habil. Ursula van Rienen	Institute of General Electrical Engineering; Rostock
A03	Material surface charges and their influence on cell physiology and morphology	Cell Biology	Prof. Dr. agr. habil. J. Barbara Nebe	Centre for Medical Research - Department of Cell Biology
		Interfaces	Prof. Dr. rer. nat. habil. Sylvia Speller	Institute of Physics; Rostock
A04	Electrically conductive multilayer films for implant surfaces	Soft Matter and Biophysics	Prof. Dr. rer. nat. habil. Christiane A. Helm	Institute of Physics; Greifswald
A05	Dielectric characterisation of cells, tissues and materials	Bioelectrics	Prof. Dr. rer. nat. Jürgen F. Kolb	Leibniz Institute for Plasma Science and Technology; Greifswald
A06	Mathematical analysis of parameter dependent multi-scale models for electrically active implants	Scientific Computing	Prof. Dr. Jens Starke	Institute of Mathematics; Rostock
Project area B – Functional materials, energy supply and reliability				
B01	Electrically conductive and piezoactive materials for multifunctional implants for bone and cartilage regeneration	Additive Manufacturing and Biomaterials	Prof. Dr.-Ing. Hermann Seitz	Institute of Microfluidics; Rostock
			Prof. Dr.-Ing. habil. Aldo R. Boccaccini	Institute of Biomaterials; Erlangen
B02	Transformation of mechanical energy as internal energy source for electrically active implants	Biomechanics and Implant Technology	PD Dr.-Ing. habil. Daniel Klüß	Department of Orthopaedics; Rostock

B03	Energy-autonomous platform for electrical stimulation implants	Computers in Technical Systems	Prof. Dr.-Ing. Dirk Timmermann	Institute for Applied Microelectronics and Computer Engineering
		Micro- and Nanotechnology of Electronic Systems	Prof. Dr.-Ing. Dennis Hohlfeld	Institute for Electronic Appliances and Circuits; Rostock
B05	Assessment of the mechanical reliability of porous and functionally graded implant structures by local damage approach	Structural Mechanics	Prof. Dr.-Ing. habil. Manuela Sander	Institute of Structural Mechanics; Rostock
Project area C – Regeneration of tissue structures – <i>in vitro</i> and <i>in vivo</i>				
C01	Electrical stimulation of osseointegration using alloplastic reconstruction plates after mandibular segmental resection	Oral, Maxillofacial and Plastic Surgery	PD Dr. med. habil. Dr. dent. Peer W. Kämmerer	Policlinic of Oral-, Maxillofacial and Plastic Surgery; Rostock
C02	Electrical and mechanical stimulation of hyaline cartilage: Characterisation of biological response and stimulation parameters	Biomechanics and Implant Technology	Prof. Dr. med. habil. Dipl.-Ing. Rainer Bader	Department of Orthopaedics
		Microfluidics	Prof. Dr.-Ing. Hermann Seitz	Institute of Microfluidics; Rostock
C03	Deep brain stimulation in dystonia models: Biological implementation, approximation of stimulation parameters and analysis of mechanisms	Physiology	Prof. Dr. med. habil. Rüdiger Köhling	Oscar-Langendorff-Institute of Physiology; Rostock
		Pharmacology	Prof. Dr. med. vet. habil. Angelika Richter	Institute for Pharmacology, Pharmacy and Toxicology; Leipzig
C04	Effects of deep brain stimulation on adult neurogenesis in a rat model of Parkinson`s disease: Mechanisms of action, stimulation parameters and correlation with behavior	Neurology	Prof. Dr. med. habil. Alexander Storch	Department of Neurology; Rostock

Service Projects				
INF	Infrastructure Support Project	---	Prof. Dr.-Ing. Sascha Spors Prof. Dr. rer. nat. habil. Ursula van Rienen Prof. Dr.-Ing. habil. Manuela Sander	Institute of Communications Engineering Institute of General Electrical Engineering Institute of Structural Mechanics; Rostock
IRTG	Integrated Research Training Group	---	Prof. Dr. med. habil. Alexander Storch Prof. Dr.-Ing. Sascha Spors	Department of Neurology Institute of Communications Engineering; Rostock
Z	Central Tasks of the Collaborative Research Centre	---	Prof. Dr. rer. nat. habil. Ursula van Rienen	Institute of General Electrical Engineering; Rostock