

HealthTechMedicine – Neurosciences



STELLA Neurostimulator

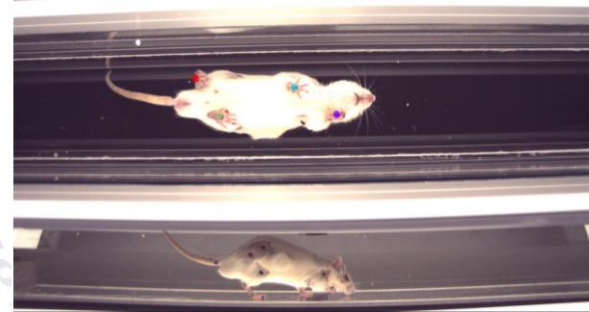
Activity Report

2021
2022

www.neuroscience-rostock.de

Contents

✓ Centre for Transdisciplinary Neurosciences Rostock	1
Structural Progress.....	2
✓ Neuroscience Community in Rostock	3
University Medicine Rostock	3
University of Rostock	10
German Centre for Neurodegenerative Diseases (DZNE)	12
✓ Joint Activities and Advances	13
Insights into the Community's Achievements	13
Internationality: United Neuroscience Campus Lund – Rostock.....	20
Networking and Cooperation	22
Interdisciplinary Publications	23
Applications for Collaborative Research Projects.....	24
Joining Forces for Rostock Neurosciences.....	26
✓ Education and Career	27
Attracting Young Talents in Neurosciences	27
PhD Supervision	27
Support of Young Neuroscientists	28
Qualification Programme.....	30
Masters Course for Clinical and Translational Neurosciences.....	32
✓ Lectures & Events	33
Lecture of Excellence	33
CTNR Lecture Series	34
Community Events.....	35
Imprint.....	39



Centre for Transdisciplinary Neurosciences Rostock

HealthTechMedicine – Neurosciences: Transdisciplinary methods and their application to neurodegenerative diseases

The University Medical Centre Rostock has a strong focus on transdisciplinary research in resilience and prevention of neurodegenerative diseases, and is one of the few institutions in Germany to systematically develop and use methods of participatory innovation in neurodegenerative brain diseases research.

In November 2017, the Centre for Transdisciplinary Neurosciences Rostock (CTNR) was established to bundle the scientific activities of neurosciences and to improve the visibility and outcomes of the University Medical Centre in the field. The centre focuses on “Resilience in Neurodegeneration – from the model to the patient to the population” and represents one of the main scientific areas at the University Medical Centre.

The overall scientific aim of the CTNR is to identify and target resilience mechanisms in neurodegeneration to implement innovative therapeutic concepts for primary and secondary neurodegenerative processes.

The CTNR creates an interface between clinical and basic research and improves the translational approach. Its concepts of funding programmes and educational training for early career scientists cover the needs of the neuroscience community in Rostock.

Rüdiger Köhling



Alexander Storch



The neuroscience community in Rostock also faced new challenges in 2021 and 2022. Many experts visited us within our CTNR events, thus continuing to facilitate excellent scientific exchange nationally and internationally. The expansion of a cooperation with the Lund University was a highlight, so that future neuroscientific research can take place on a joint campus. The members of the CTNR again produced many joint projects and publications during this period. The CTNR is also facing up to the new developments towards HealthTechMedicine – Neurosciences.

The CTNR Board

Angela Kuhla



Stefan Teipel



Markus Kipp



Structural Progress

The CTNR Board and Office are continuously developing **structures and process steps** to counteract the CTNR in its entirety according to the superordinate strategic developments of the University Medicine Rostock.

In 2021 and 2022, the tasks and measures include:

- quarterly board meetings, annual members' meetings,
- the invitation and admission of strategically relevant new members,
- the participation of members in faculty-wide committees (e.g. Steering Committee of the Rostock Academy of Science),
- the participation with expertise in faculty-wide infrastructure concepts (e.g. Woman's Support Plan, Clinician and Medical Scientist Programmes)
- a continuous internal evaluation process by surveying members about their wishes and needs,
- the regular presentation of the members' activities to the faculty leadership and the public (CTNR Activity Report 2019/2020) and
- the adaptation of the CTNR cooperate design, in the form of a new logo and a modern web presence.

In addition, intensive work was carried out on the strategic measures of the CTNR for an external evaluation process of the University Medicine Rostock in 2021. This resulted in a **5 point plan of the CTNR** for strategic planning until 2030. The field of actions were converged at the end of 2022 by the new guiding theme of the University Medicine Rostock "HealthTechMedicine" to "HealthTechMedicine – Neurosciences: Transdisciplinary methods and their application to neurodegenerative diseases".

CTNR fields of action until 2030

- Further elaboration of the unique selling proposition "Participatory translational research: from the cell model to the patient at home"
- Research building "Centre for Participatory Neurosciences (NeuroPart)" together with a new building of the German Centre for Neurodegenerative Diseases (DZNE) with Clinical Trial Unit and Smart Home Lab for structural bundling of research and participation
- Cooperative research projects: DFG Research Training Group "EXCITE" and Clinical Research Unit "Non-replicative Senescence" as the basis for sustainable collaborative research projects
- Master's programme "Clinical and Translational Neurosciences" for sustainable recruitment of young researchers to the Rostock neuroscience community
- Strategic institutional cooperation for internationalisation and (inter)national collaborative projects



Neuroscience Community in Rostock

The Centre for Transdisciplinary Neurosciences offers scientists, clinicians and employees various opportunities to gain experiences from the neuroscience community in Rostock and supports every intention of cooperation. According to the tentative bylaws of the CTNR, independent research group leaders with a focus on neuroscience research at the University Medical Centre Rostock, University Rostock and related institutions can become a member of the CTNR by a formal application process. The membership assembly consists of 46 members and have a collective responsibility for its operation.

University Medicine Rostock



**Markus
Kipp**



**Lars-Ove
Brandenburg**



**Andreas
Wree**

Institute of Anatomy

- Mechanisms of immune cell recruitment into the central nervous system
- Mechanisms of demyelination
- Astrocyte and microglia diversity
- Neuroinflammation, neuroregeneration, neuroproteomics/connectomics

www.anatomie.med.uni-rostock.de



DigiGait™ with a mouse in the running chamber conducting gait analysis.

**Henrik
Rudolf**



**Georg
Fuellen**



Institute for Biostatistics and Informatics in Medicine and Ageing Research

- Omics, bioinformatics for neuroregeneration
- Statistical methods in clinical trials, multi-state models, stepped-wedge designs

www.ibima.med.uni-rostock.de



MEGWARE™ server for artificial intelligence

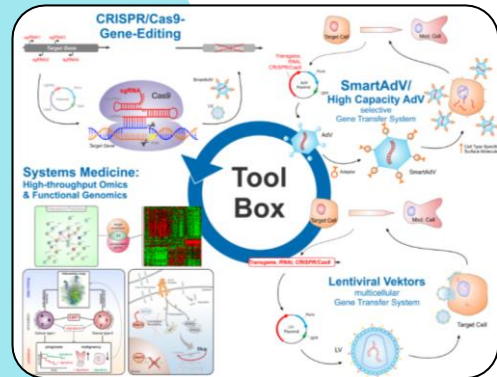


Brigitte M. Pützer

Institute of Experimental Gene Therapy and Cancer Research

- Translational biomedicine
- Molecular and epigenetic mechanisms of cancer progression
- Tumour and stem cell reprogramming, development of gene and RNA-based therapeutics

www.iegt-rostock.de



Viral vector and genome editing technologies

Angela Kuhla



Brigitte Vollmar



Rudolf-Zenker-Institute for Experimental Surgery

- Obesity-associated neurodegeneration and the role of FGF21
- Preclinical research of AD pathology
- Metabolic syndrome, caloric restriction, hepatic-neuronal communication, lipid metabolism



Small animal MRI

www.experimentelle-chirurgie.med.uni-rostock.de



Birgit Völlm

Department of Forensic Psychiatry

- Neurobiology of personality disorders and social cognition
- Forensic psychiatry

www.forensik.med.uni-rostock.de



Participatory research

**Christian
Junghanß**



Tumour research

**Department of Hematology, Oncology,
and Palliative Care**

- Palliative care research
 - Oncology
- Experimental stem cell transplantation
 - Tumor Immunologie

www.onkologie.med.uni-rostock.de



**Ekkehardt
Kumbier**

Section History of Medicine

- History of psychiatry, neurology and medical research including ethical implications
- History of neuroscience in the 20th century, history of science

www.geschmed.med.uni-rostock.de



Research project on psychiatry in the GDR

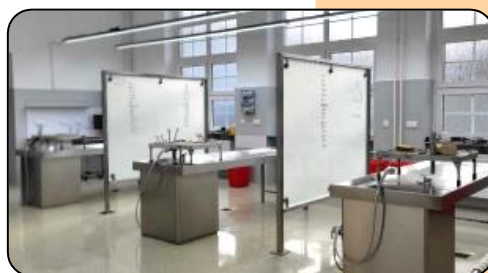
**Andreas
Büttner**



Institute of Legal Medicine

- (Forensic) Neuropathology
 - Forensic and genetic-neurobiological aspects of illegal drug abuse
 - Forensic and genetic-neurobiological aspects of suicide
- Autopsy Service for DZNE and the National Reference Centre for human Prion diseases
 - Chair of the Ethical Commission

www.rechtsmedizin.med.uni-rostock.de



Neuropathological examination



**Simone
Baltrusch**

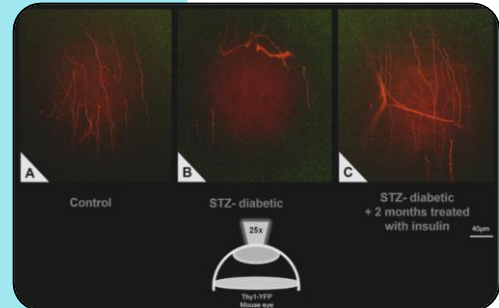


**Markus
Tiedge**

**Institute of Medical Biochemistry
and Molecular Biology**

- Diabetes, metabolic syndrome and aging
- Secretion coupling, diabetic neuropathy
- Autoimmunity, microbiome and aging, mitochondrial function and dynamics

www.biochemie.med.uni-rostock.de



Neuropathy in a mouse model

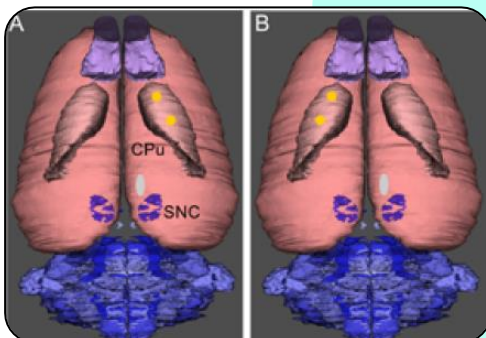
**Carsten
Holzmann**



Institute of Medical Genetics

- Huntington's disease (transgenic BACHD rat model)
- Niemann-Pick Type C1 (NPC1 mouse model)
- Parkinson's disease

www.genetik.med.uni-rostock.de



Dorsal view of reconstructed rat brains



**Peter
Kropp**

**Institute of Medical Psychology
and Medical Sociology**

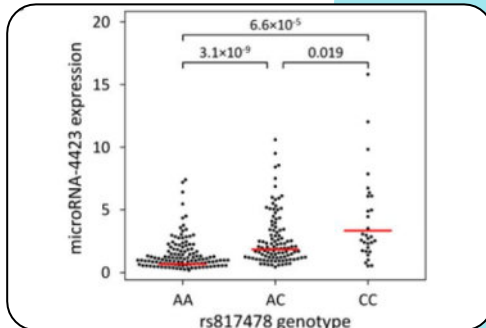
- Attention
- Headache, migraine
- Behaviour therapy

www.imp.med.uni-rostock.de



EEG measurement of brain activities

Uwe
Zettl



Functional characterization
of genetic MS risk loci

Section Neuroimmunology

- Molecular pathomechanisms
- Biomarker research in multiple sclerosis

www.neurologie.med.uni-rostock.de



Alexander
Storch

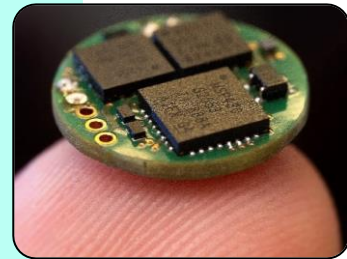


Uwe
Walter

Department of Neurology

- Embryonic neurogenesis, sleep, deep brain stimulation
- Hyperkinetic movement disorders, Parkinson's disease
- Brain sonography, brain death, stroke associated infections

www.neurologie.med.uni-rostock.de



Software defined implantable modular
platform (STELLA)

Thomas
Freiman



Florian
Geßler



Sae-Yeon
Won



Department of Neurosurgery

- Epilepsy, neuroregeneration, experimental oncology, neurooncology, neuromuscular research
- Vascular neurosurgery, traumatic brain injury, epileptic neurosurgery, endoscopic and robotic neurosurgery



Robotic Surgery Assistant (ROSA)
for neurosurgery

www.neurochirurgie.med.uni-rostock.de



Bernd J. Krause

Department of Nuclear Medicine

- Molecular imaging
- PET/CT, radiopharmacy
- Small animal PET/CT imaging

www.nuklear.med.uni-rostock.de



PET/CT Centre

Robert Mlynski



**Dept. of Otorhinolaryngology,
Head and Neck Surgery**

- Active and passive middle ear implants
 - Auditory pathway, plasticity and stem cell biology
- Lateral skull base disease including cholesteatoma, otosclerosis and acoustic neurinoma, quality of life with hearing disorders



Cochlear implants

www.hno.med.uni-rostock.de



Timo Kirschstein



Rüdiger Köhling

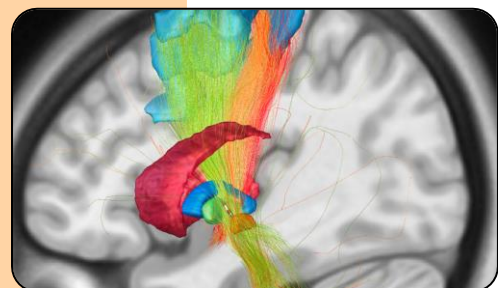


Falko Lange

Oscar-Langendorff-Institute of Physiology

- Experimental neurophysiology
- Epileptology and dystonia research
- Animal models of neurological diseases, cellular and network functional plasticity
- Ischemic stroke, aging, glioblastoma

www.physiologie.med.uni-rostock.de



Deep brain stimulation

Neuroscience Community in Rostock

**Olaf
Reis**



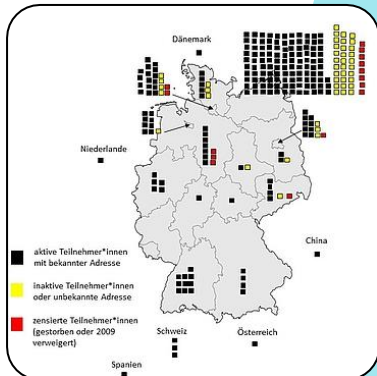
**Michael
Kölch**



**Johannes
Buchmann**



**Christoph
Berger**



Rostock longitudinal study

Department of Psychiatry, Neurology, Psychosomatics, and Psychotherapy in Childhood and Adolescence

- Affective Disorders of children and adolescents
 - Traumatic experiences and impact on (mental) health
- Psychopharmacology, high risk populations for mental disorders

www.kjpp.med.uni-rostock.de



**Carsten
Spitzer**



**Stefan
Teipel**

Department of Psychosomatics and Psychotherapeutic Medicine

- Psychotherapy research, structural and personality disorders, social cognition
- Improving prediction, diagnosis, treatment and care of dementia

www.kpm.med.uni-rostock.de



Recording device for patients with dementia

**Elisabeth
Schültke**



Department of Radiotherapy

- Experimental and microbeam radiotherapy
 - Neuroradiation oncology
 - Regeneration after neurotrauma and in neurodegenerative diseases

www.strahlentherapie.med.uni-rostock.de



Brainlab VERO™ System

Neuroscience Community in Rostock



**Moritz
Frech**



**Andreas
Hermann**



**Jiankai
Luo**



**Jan
Lukas**

Translational Neurodegeneration Section "Albrecht Kossel"

- hiPSC models in NPC1 and FAHN (NBIA)
- Physiological vs. pathological aging & pathophysiology of neurodegenerative diseases
- Pharmacological chaperones for rare monogenetic protein folding diseases
- Functional regulation of argonaute2 in disease and development



*Laser Scanning Microscope (LSM)
900 with AiryScan*

www.albrecht-kossel-institut.med.uni-rostock.de



**Kevin
Peikert**



**Marc-André
Weber**

Institute of Diagnostic and Interventional Radiology, Paediatric Radiology and Neuroradiology



3-Tesla MRT Scanner

- Magnetic resonance imaging
- Non-proton MRI, Magnetic resonance spectroscopy
- Spine imaging, Interventions

www.radiologie.med.uni-rostock.de



**Fritz-Olaf
Lehmann**

University of Rostock

Department of Animal Physiology

- Neurobiology and biomechanics of locomotion in invertebrates
- Drosophila behavioural genetics
- Aerodynamics

www.tierphysiologie.uni-rostock.de



*Vision-induced behaviours in flies
are scored in a flight simulator*

Frederike Hanke



Detection experiment with seal

Marine Science Centre

Sensory systems, mainly vision, of (semi)aquatic animals from periphery to central processing

www.marine-science-center.de



Thomas Kirste

Mobile Multimedia Information Systems

- Artificial intelligence
- Assistive systems
- Computational behaviour analysis

www.mmis.informatik.uni-rostock.de



Gait Real-Time Analysis Interactive Lab

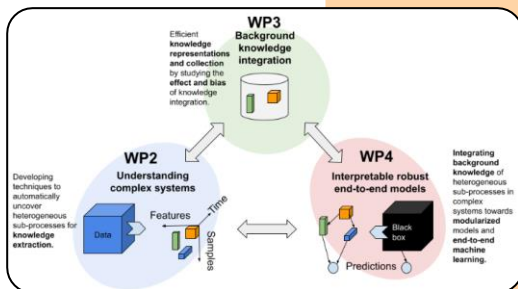
Martin Becker



Intelligent Data Analytics

- Machine learning, multi-modal data fusion, Bayesian modelling and deep learning
- Pattern mining, sequential data analysis, big-data systems, and distributed algorithms
- Interdisciplinary and translational biomedical research

www.bckrlab.org



Applications: Biomedical systems, behavioural analysis, intrusion detection etc.

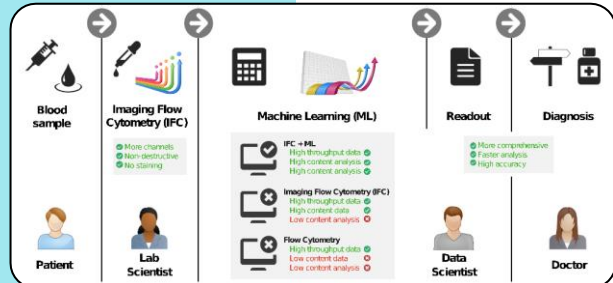


**Olaf
Wolkenhauer**

Systems Biology and Bioinformatics

- Systems biology, bioinformatics
- Systems medicine
- Data science, machine learning, image analysis

www.sbi.uni-rostock.de



Machine learning for diagnostic decisions

German Centre for Neurodegenerative Diseases (DZNE)

**Stefan
Teipel**



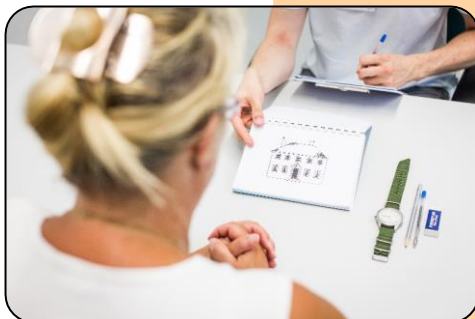
**Alexander
Storch**



**Andreas
Hermann**



**Marina
Boccardi**



Memory clinic in Rostock (DZNE)

**German Centre for
Neurodegenerative Diseases (DZNE)**

- Late-translational dementia research
 - Translational neurodegeneration
 - Non-motor symptoms in Parkinson's disease
 - Clinical dementia research

www.dzne.de

Resigned members from the CTNR in 2021 and 2022:

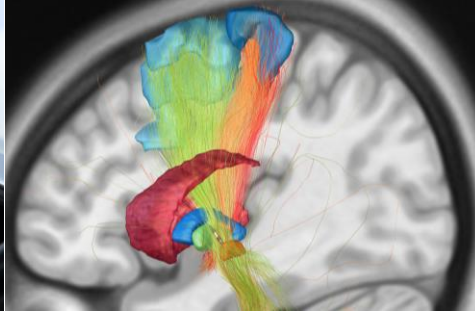
10/2021: Corinna Lühje, Faculty of Philosophy, Institute for Media Research, University of Rostock (moved to Cottbus)

10/2021: Oliver Schmitt, Institute of Anatomy, University Medicine Rostock (retired)

09/2022: Astrid Bertsche, Paediatrics, University Medicine Rostock (moved to Greifswald)

09/2022: Martin Witt, Institute of Anatomy, University Medicine Rostock (retired)

09/2022: Attila Altiner, Institute of General Practice, University Medicine Rostock (moved to Heidelberg)



Joint Activities and Advances

The goal of the CTNR is to bundle the neuroscience activities in Rostock and to improve the possibilities for joint projects and achievements in the field of HealthTechMedicine – Neurosciences: Transdisciplinary methods and their application to neurodegenerative diseases. Therefore, the CTNR strives to bring together scientists from different disciplines and to provide a platform to accelerate the dissemination of information about the activities of the CTNR members.

Insights into the Community's Achievements

February 2021

OP robot for neurosurgery

With the state-of-the-art surgical robot, CTNR member Prof. Thomas Freiman wants to set new standards and anchor his focus on neuro-oncology, paediatric neurosurgery and epilepsy more firmly in Rostock. With the help of the robot ROSA (Robotic Surgery Assistant), the neurosurgeons can now quickly and precisely take samples from the brain and attach electrodes.



March 2021

DFG is funding longitudinal cohort study at the Child and Youth Psychiatry

The German Research Foundation (DFG) approved a consortium application which combines several German longitudinal studies. The Rostock longitudinal study is the oldest of the participating studies, because it started 50 years ago with the birth of around 300 Rostock children. The study has been carried out by the CTNR member PD Dr. Olaf Reis, manages and combines data from very different areas of life.



April 2021

A nationwide supply network for ALS patients



The ALS centre at Rostock University Medical Centre is a central point of contact for those who are sick in the region. With the support of the European Social Fund and the state government, a project was implemented that aims to provide interdisciplinary networked care for all people with ALS in Mecklenburg-Western Pomerania (MV). Principal investigator and CTNR member Prof. Andreas Hermann (right) and case manager Sophie Fischer (left) ensure that patients and their families should be optimally cared for, and regional and supra-regional resources should be consistently improved and used.

May 2021

CTNR member leads Germany-wide study on corona vaccines



Vaccination tolerance in patients with multiple sclerosis is being researched for the first time. A nationwide study by the German Multiple Sclerosis Society and the Rostock University Medical Center examine how the Covid-19 vaccination affects the course of MS in patients. CTNR member Prof. Dr. Uwe Zettl heads the nationwide study on the tolerability of the Covid 19 vaccination in MS patients.

June 2021

Offer for children and adolescents with pain



Rostock University Medical Centre receive EUR 300,000 as start-up funding from the strategy fund of the Federal Ministry of Mecklenburg-Western Pomerania to set up a range of pain medicine for children and adolescents. CTNR member Prof. Michael Kölch plans a comprehensive care chain from outpatient to partial inpatient-to-inpatient care for young patients and their families among others.

July 2021

Joint project "Long-term health consequences of SED injustice"

A transnational research association of the Universities of Magdeburg, Jena, Leipzig and Rostock is investigating what consequences political trauma can have on the health of those affected. Experts from the fields of psychosocial medicine, psychiatry, psychosomatics and psychotherapy are researching, in close cooperation with the state commissioners for the processing of the SED dictatorship, how those still affected today can be better cared for. CTNR member Prof. Carsten Spitzer is responsible for the Rostock subproject.



August 2021

Novel therapy tested in the world's first patients with chorea acanthocytosis

An international consortium led by CTNR member Prof. Andreas Hermann was able to identify a key mechanism for the development of the disease with the help of European funding (E-Rare). An enzyme called Lyn kinase is overactive in the disease, causing damage to important cellular processes. Transferring it to patient care is a task of the CTNR member and Clinician Scientist Dr. Kevin Peikert (photo).



September 2021

Digital conference on "Psychiatry in the GDR"

The conference was organised by CTNR member Prof. Ekkehardt Kumbier and partners of the research network "Psychiatry in Socialism - SiSaP". The aim of the project is the scientific processing of the structures of the GDR health and research system relevant to psychology, psychiatry and psychotherapy for the period from 1945 to 1990. Results and research approaches that have so far been treated very differently and without any reference to the supposed brackets of the health system and the structures of the SED state are to be reunited and opened up.



October 2021

Eye tracking helps ALS patients communicate



CTNR member Prof. Andreas Hermann has received research funding of €205,000 from the Federal Ministry of Education and Research to improve the possibility of communicating via the eyes for ALS patients. The data on the changing eye motor function is used both for the further development of an innovative medical device and for the attending physician, who receives information on the course of the disease.

November 2021

Proper handling of patients in forensic institutions



De-escalation, psychotherapy, risk assessment and addiction treatment are topics that characterise the treatment of delinquent patients in the clinic for forensic psychiatry at Rostock University Medicine.

The clinic celebrates its 20th anniversary and on this occasion, CTNR member Prof. Birgit Völm invites to an interdisciplinary symposium to discuss precisely these topics.

January 2022

State-of-the-art brain scanner for dementia research

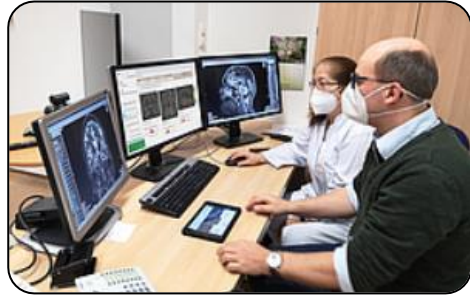


The Rostock University Medical Center and the German Center for Neurodegenerative Diseases (DZNE) have put a state-of-the-art magnetic resonance tomograph (MRT) into service. The cleaning and disposal systems of the brain are to be examined with the new 3 Tesla system. These mechanisms – also known as the glymphatic system – are disrupted in neurodegenerative diseases such as Alzheimer's dementia. The scanner enables detailed imaging of the brain anatomy and is equipped with artificial intelligence to optimize image quality.

February 2022

AI methods analyse the MRI images of the brain

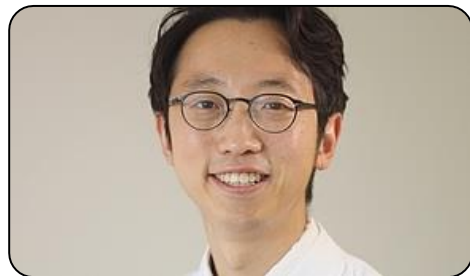
In order to improve diagnostic reliability, CTNR member Prof. Stefan Teipel and Dr. Martin Dybra developed an app that uses artificial neural networks to automatically evaluate the recordings of 3D brain images of MRT and thus detect and mark abnormalities in the brain. They have already demonstrated that the app correctly recognises the anatomical changes typical of Alzheimer's. It is now to be expanded for other diagnostic questions.



March 2022

Accurate measurement of intracranial pressure in brain injuries

CTNR member Dr. Sae-Yeon Won shows that there may be significant brain pressure differences that need to be taken into account during treatment. He was able to show that after operations in the back of the head, where the cerebellum is located, there is a considerable difference in pressure to other parts of the brain for up to 48 hours. For this, he was awarded the Young Investigator Award 2022 of the German Society for Neurointensive and Emergency Medicine (DGNI).



April 2022

ENABLE study - patient and care-related benefits of amyloid PET imaging

The CTNR member Prof. Stefan Teipel lead the study, financed by the Federal Joint Committee (G-BA). CTNR member Prof. Bernd Krause is the coordinator of the PET examinations in the study. The subject of the trial study is the question of whether patients with a confirmed diagnosis of dementia, but whose cause could not be clarified, benefit from an additional examination using amyloid PET.



May 2022

Patient Advisory Board: Patients as researchers



The CTNR members Prof. Birgit Völlm and Prof. Stefan Teipel establish patient advisory board (PART) for participatory research. Patients are experts by experience. Because of their knowledge of their own life situation and experiences with disease and therapy, they possess valuable knowledge that is not available to scientists to this extent. This is precisely what enables them to play an active role in research. While the role of patients in their own treatment, but also in the planning of medical services, is increasingly seen as important, patients are still mostly "research objects" in research and not active participants. The new research project "PART", aims to change this.

June 2022

New surgical method for brain aneurysm successfully applied



CTNR members Dr. Florian Geßler und Dr. Sae-Yeon Won treated a patients aneurysm, a bulge of a blood vessel in the brain, with the so-called "Rapid Ventricular Pacing" procedure. The RVP method significantly reduces the risk of stroke during surgery.

August 2022

Hertie Foundation supports young researchers on the topic of multiple sclerosis



The non-profit Hertie Foundation awards ten scholarships a year within its doctoral programme to medical students who focus on researching multiple sclerosis in their doctoral thesis. Johann Krüger, together with his doctoral supervisor and CTNR member, Prof. Markus Kipp, successfully applied for one of the coveted scholarships. Johann Krüger is working on ways to stimulate repair processes in the central nervous system.

September 2022

With tension and relaxation against migraine

CTNR member Prof. Peter Kropp is the Psychological Director of the Headache Centre North-East. The centre is a supra-regional contact partner in diagnosis and therapy of all forms of headaches and facial pain with close cooperation to other specialist areas of the Rostock University Medical Centre and integration of regional, national and international networks. The aim of the centre is to provide all patients with a tailor-made and effective therapy based on the latest scientific findings.



October 2022

New methods for tissue preservation in anatomy

CTNR member Prof. Markus Kipp and his team are receiving project funding from the German Research Foundation to be able to further explore promising initial results in the investigation of novel tissue fixations. It is important that new preservatives for body and tissue also have an antimicrobial effect so that bacteria and moulds cannot harm the preparations. Therefore, the anatomy team and the team of the Institute of Medical Microbiology, Virology and Hygiene cooperate in this joint project.



November 2022

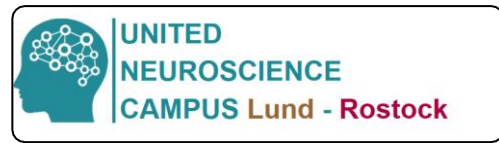
CTNR member appointed to the Federal Youth Advisory Board

Prof. Michael Kölich has been appointed to the Federal Youth Advisory Board (BJK). He is one of 16 experts appointed to the advisory body by the Federal Minister for Family Affairs, Senior Citizens, Women and Youth, Lisa Paus. The experts come from science, practice, associations and politics. The Board advises the Federal Government on fundamental issues of child and youth welfare and child and youth policy. The Board involves young people in its deliberations and formulates statements, position papers and makes recommendations.



Internationality: United Neuroscience Campus Lund – Rostock

Based on more than 15 years of joint individual projects in the field of neurology and clinical memory research, the Centre for Transdisciplinary Neurosciences Rostock, CTNR



together with the research area "Multidisciplinary research focused on Parkinson's disease" (MultiPark) of the Faculty of Medicine of the Lund University (Sweden) developed a joint concept for a "United Neuroscience Campus Lund – Rostock" (UNC). Within the UNC, the research field is expanded to include general research into neurodegenerative diseases such as Alzheimer's diseases, Parkinson's diseases and stroke. The overarching strategic goals of the initiative are the support of young scientists through exchange programmes, internationalisation, increasing the visibility of the neuroscientific community and the encouragement of international research cooperation and publications at both locations.



The initiative of a United Neuroscience Campus Lund – Rostock (UNC) was starting with the **first virtual scientific workshop on “Key questions and methods in the field of neurodegenerative diseases in Lund and Rostock”**, on October 20, 2021. The goals were to get in contact with researchers from Rostock and Lund, to present and get to know the scientific key questions and methods of both scientific locations. The information will lay the basis for future collaborations and projects. The Dean of the Faculty of Medicine Lund, Prof. Kristina Åkesson and the Dean of the University Medical Centre Rostock, Prof. Emil Reisinger welcomed the

participants. The project leader Prof. Alexander Storch (CTNR Speaker) and Prof. Per Odin (Neurology Lund) introduced the initiative. The workshop programme consisted of experimental and clinical key speakers who presented their scientific questions in the field of neurodegenerative diseases. Sixty-two participants from both countries took part online, with six lectures from Rostock and eight from Lund.

On May 5, 2022, after more than a year of working together on the UNC concept using virtual meetings, the **first personal visit to Lund** took place. Welcomed with a city tour through the attractive student city of Lund, representatives of both locations then presented the existing organisational and research infrastructures as well as exchange, training and funding programs. On



f.l.t.r.: Maria Sjöström (Faculty Office - Lund), Virginia Bolowski (CTNR Coordinator - Rostock), Teresa Svarvall (International Office - Lund), Prof. David Gisselsson Nord (Vice Dean - Lund), Ulrika Mundt-Petersen (MultiPark Coordinator - Lund), Prof. Per Odin (UNC Co-Speaker - Lund), Prof. Bernd Krause (Vice Dean - UMR), Prof. Alexander Storch (CTNR/UNC Speaker - Rostock)

Joint Activities and Advances

the following day, strategic issues, measures and necessities for the initiation and long-term implementation of the United Neuroscience Campus were explained.

The first agreed activities within the UNC include the use of ERASMUS modules (staff mobility, traineeship), the co-supervision of doctoral projects, the mutual announcement and invitation to scientific courses and scientific conferences in Rostock and Lund.



The Vice Dean for Budget, Planning and Structure of the University Medical Centre Rostock, Prof. Bernd Krause (right) and the Vice Dean for Internationalization and Recruitment of the Medical Faculty of the University of Lund, Prof. David Gisselsson Nord (left) sign the "Memorandum of Understanding" of both medical faculties.

At the end of the two-day visit, the Vice Dean for Budget, Planning and Structure of the University Medical Centre Rostock, Prof. Bernd Krause, and the Vice Dean for Internationalization and Recruitment of the Medical Faculty of the University of Lund, Prof. David Gisselsson Nord, as well as the Principal Investigators of the UNC, Prof. Alexander Storch and

Prof. Per Odin signed a **“Memorandum of Understanding”**. This agreement seals the future cooperation between the two locations in the field of neuroscience and sets the starting point for future exciting joint projects and exchange programmes that promote young talent within the United Neuroscience Campus Lund-Rostock.

UNC Speaker Prof. Alexander Storch (Neurology, Rostock) and Co-Speaker Prof. Per Odin (Neurology, Lund) sign the joint "Memorandum of Understanding".



UNC efforts in 2021/2022:

- 1st Virtual Neuroscience Workshop Lund – Rostock
- First advertisement of Master Thesis projects
- First bilateral use case study (VALIDATE-PD)
- Start of the common website
- Signing of the “Memorandum of Understanding” in Lund
- Foundation of an UNC Board with monthly Board meetings
- Finalisation of the UNC bylaws
- Admission of members from both locations
- Initiation of first exchange and research stays on both locations

www.neurosciencecampus.com

Networking and Cooperation

The network around the CTNR has steadily expanded through many different cooperation activities:



The CTNR with its members is particularly strong locally linked through research cooperation and activities with the [German Centre for Neurodegenerative Diseases \(DZNE\)](#) - also with the Greifswald location.

Members of the two departments of the [Interdisciplinary Faculty](#) of the University of Rostock "Ageing of the Individual and Society" and "Life, Light & Matter" are regular research partners.



CTNR members are leaders of sub-projects (C03, C04) at the [DFG CRC 1270 ELAINE – “Electrically Active Implants”](#) in the field of deep brain stimulation and of the Integrated Research Training Group (IRTG). In June 2021, the second funding period of the CRC ELAINE was approved. The CRC team can continue their research for four more years.

CTNR members Prof. Thomas Kirste, Prof. Olaf Wolkenhauer, Prof. Stefan Teipel, Prof. Marc-André Weber and Prof. Georg Fuellen are partners of the [Centre for Artificial Intelligence in Mecklenburg – Vorpommern \(KI MV\)](#). The Centre brings practice and science together by first informing and advising interested SMEs. It arranges in-depth consultations with scientists that fit the individual application problems of a company.

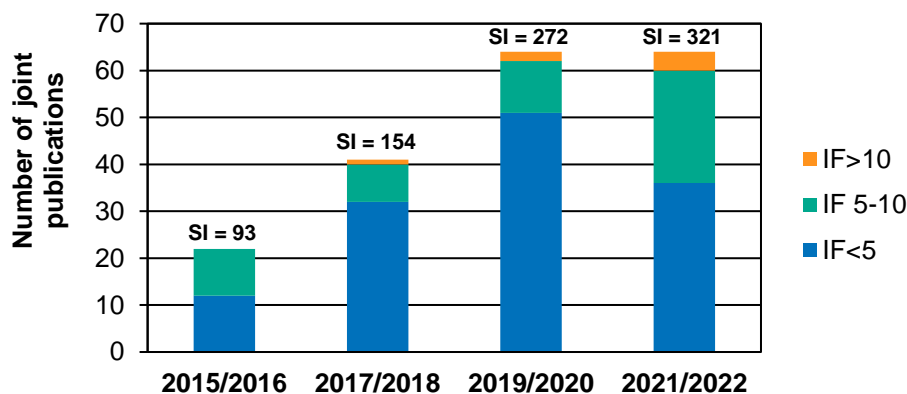


Every year, CTNR members take part in the **research workshop of the University Medical Centre Rostock** to present the research area of Neurosciences and its activities with selected lectures. In 2021, the topic of the workshop was “University research – Innovation through networking”

and “HealthTechMedicine – Medicine meets technology” in 2022. The CTNR has again taken the opportunity to invite topic related speakers from the University of Rostock to become a CTNR member. Networking with the various faculties (Electrical Engineering, Biology, etc.) is thus also being steadily expanded at the local level.

Interdisciplinary Publications

As in the previous period, 64 joint publications by CTNR members from two or more different institutions were published in 2021 and 2022. The following illustration also shows that the number of publications in higher-ranked journals increased significantly (SI = sum of journal impacts).



56 (2019/2020: 52) joint publications of CTNR members from two different institutes, 7 (11) publications from three and one (1) publication from five different institutes were published in 2021 and 2022. The [entire list of joint publications](#) can be viewed on the website. Selected joint publications between CTNR members (**bold**) in 2021 and 2022:

Behrang, Newshan; Heinig, Leo; Frintrop, Linda; Santrau, Emily; Kurth, Jens; **Krause, Bernd**; Atanasova, Dimitrinka; Clarner, Tim; Fragoulis, Athanassios; Joks, Markus; **Rudolf, Henrik**; Meuth, Sven G.; Joost, Sarah; **Kipp, Markus**. (2022): Siponimod ameliorates metabolic oligodendrocyte injury via the sphingosine-1 phosphate receptor 5. In: Proceedings of the National Academy of Sciences of the United States of America 119 (40), e2204509119. DOI: 10.1073/pnas.2204509119.

Fuellen, Georg; **Walter, Uwe**; Henze, Larissa; Böhmert, Jan; Palmer, Daniel; Lee, Soyung; Schmitt, Clemens A.; **Rudolf, Henrik**; Kowald, Axel (2022): Protein Biomarkers in Blood Reflect the Interrelationships Between Stroke Outcome, Inflammation, Coagulation, Adhesion, Senescence and Cancer. In: Cellular and molecular neurobiology, S. 1–12. DOI: 10.1007/s10571-022-01260-1.

Hermann, Andreas; Tarakdjian, Gaël Nils; Temp, Anna Gesine Marie; Kasper, Elisabeth; Machts, Judith; Kaufmann, Jörn; Vielhaber, Stefan; Prudlo, Johannes; Cole, James H.; **Teipel, Stefan**; Dyrba, Martin (2022): Cognitive and behavioural but not motor impairment increases brain age in amyotrophic lateral sclerosis. In: Brain communications 4 (5), fcac239. DOI: 10.1093/braincomms/fcac239.

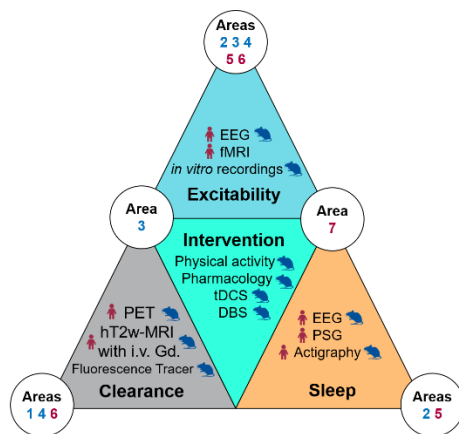
Jäger, Kathrin; Mensch, Juliane; Grimmig, Maria Elisabeth; Neuner, Bruno; Gorzelniak, Kerstin; Türkmen, Seval; Demuth, Ilja; Hartmann, Alexander; Hartmann, Christiane; Wittig, Felix; Sporbert, Anje; **Hermann, Andreas**; **Fuellen, Georg**; Möller, Steffen; Walter, Michael (2022): A conserved long-distance telomeric silencing mechanism suppresses mTOR signaling in aging human fibroblasts. In: Science advances 8 (33), eabk2814. DOI: 10.1126/sciadv.abk2814.

Müller, Luisa; **Kirschstein, Timo**; **Köhling, Rüdiger**; **Kuhla, Angela**; **Teipel, Stefan** (2021): Neuronal Hyperexcitability in APPSWE/PS1dE9 Mouse Models of Alzheimer's Disease. In: Journal of Alzheimer's disease: JAD 81 (3), S. 855–869. DOI: 10.3233/JAD-201540.

Plocksties, Franz; Kober, Maria; Niemann, Christoph; Heller, Jakob; Fauser, Mareike; Nüssel, Martin; Uster, Felix; Franz, Denise; Zwar, Monique; Lüttig, Anika; Kröger, Justin; Harloff, Jörg; Schulz, Axel; Richter, Angelika; **Köhling, Rüdiger**; Timmermann, Dirk; **Storch, Alexander** (2021): The software defined implantable modular platform (STELLA) for preclinical deep brain stimulation research in rodents. In: Journal of neural engineering 18 (5). DOI: 10.1088/1741-2552/ac23e1.

Teipel, Stefan J.; Brügggen, Katharina; Temp, Anna Gesine Marie; Jakobi, Kristina; **Weber, Marc-André**; **Berger, Christoph** (2021): Simultaneous Assessment of Electroencephalography Microstates and Resting State Intrinsic Networks in Alzheimer's Disease and Healthy Aging. In: Frontiers in neurology 12, S. 637542. DOI: 10.3389/fneur.2021.637542.

Applications for Collaborative Research Projects



In November 2022, a draft proposal for a **Research Training Group (RTG)** with the topic “*Functional targets modulating resilience in neurodegeneration: excitability, protein clearance and sleep (EXCITE)*” was submitted at the German Research Foundation (DFG). Since 2019, CTNR members developed, in collaboration with the University of Rostock and the University of Greifswald a scientific and educational programme for studying the interaction between changes of brain clearance, hyperexcitability and sleep-wake

cycle in Alzheimer's disease (AD). The group of Principal Investigators consists of six CTNR members (Prof. Rüdiger Köhling, Prof. Andreas Hermann, Prof. Markus Kipp, Prof. Timo Kirschstein, Prof. Angela Kuhla, and Prof. Stefan Teipel), three young scientists (Julia Ladenbauer, Julia Schumacher, and Wiebke Hermann) and partners from the University of Rostock (Prof. Jens Starke) and the University of Greifswald (Prof. Agnes Flöel).

With the participation of more than one CTNR institute, members submitted further joint applications in 2021/2022:

German Research Foundation (DFG)

- (1) Submission and approval of the renewal proposal for the Collaborative Research Centre 1270/2 “*ELAINE - Electrically Active Implants*”, 2nd funding period: 2021-2025, CTNR members: Prof. Rüdiger Köhling (C03), Prof. Alexander Storch (C04/IRTG)
- (2) Concept development for a proposal at the Excellence Strategy of the German federal and state government (together with University of Kiel), CTNR members: Prof. Alexander Storch, Prof. Olaf Wolkenhauer

Federal Government and Ministry of Education and Research (BMBF)

- (3) Submission and approval of „*ENABLE study - patient and care-related benefits of amyloid PET imaging*“, Federal Joint Committee (G-BA), CTNR members: Prof. Stefan Teipel, Prof. Bernd Krause
- (4) Continuation and additional funding of “*Senescence-Associated Systems diagnostics Kit for cancer and stroke (SASKit)*”, 2nd funding period: 2023-2024, CTNR members: Prof. Georg Fuellen, Prof. Rüdiger Köhling, Prof. Uwe Walter, Prof. Olaf Wolkenhauer (cooperation partner)
- (5) Submission of a draft proposal “*Decision-Making from Clinical Imbalanced Data to Predict Delirium (DECIDE)*”, Medical Informatics Initiative, CTNR members: Prof. Olaf Wolkenhauer, Prof. Stefan Teipel, Prof. Marc-André Weber

Joint Activities and Advances

- (6) Submission of a proposal *“Outcome Prediction and Intervention in Neurologic Diseases (OPEN)”*, Medical Informatics Initiative, CTNR member: Prof. Alexander Storch, IT-Department
- (7) Submission of a concept for a *“German Centre for Mental Health”*, CTNR members: Prof. Michael Kölch, Prof. Carsten Spitzer, Prof. Birgit Völlm
- (8) Submission of a full proposal for a *“German Centre for Child and Adolescent Health (DZKJ)”*, in cooperation with the Greifswald University Medicine (CoMed consortium), CTNR members: Prof. Michael Kölch, Prof. Marc-André Weber

European Union

- (9) Submission of a proposal on *“Linking pre-diagnosis disturbances of physiological systems to neurodegenerative diseases”*, JPND, CTNR members: Prof. Alexander Storch, Prof. Stefan Teipel
- (10) Submission of a proposal *“Marie Skłodowska-Curie Actions: Postdoctoral Fellowships”*, Horizon Europe, CTNR members: Prof. Alexander Storch, Prof. Stefan Teipel

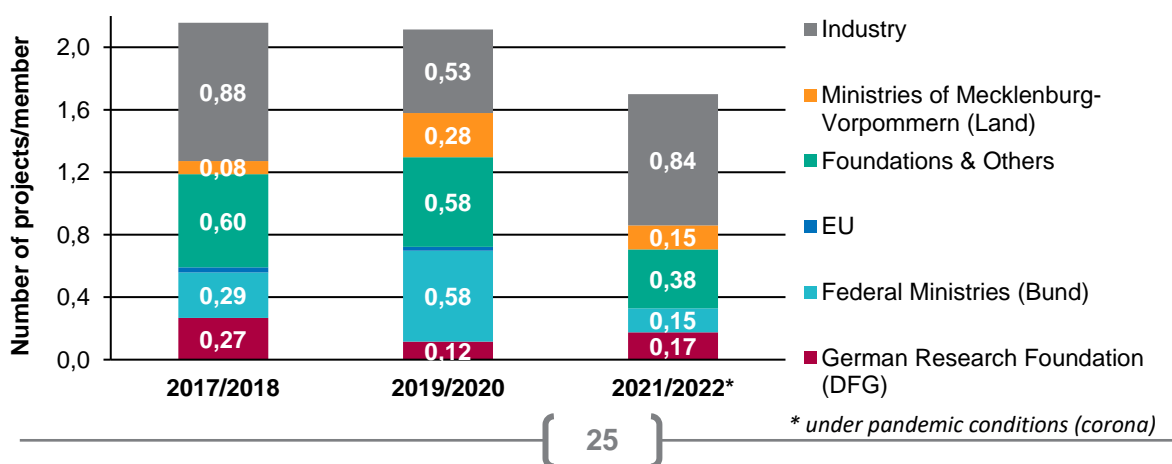
Foundations and others

- (11) Submission of a draft proposal for a faculty-wide Medical Scientist College *„Movement as a holistic prevention of age-related diseases of the heart, joints and brain“*, Else-Kröner-Fresenius Foundation, CTNR members: Prof. Angela Kuhla, Prof. Rüdiger Köhling
- (12) Submission and approval of *“Patient Advisory Board for participatory research (PART)”*, Robert-Bosch Foundation, funding period: 2022-2024, CTNR members: Prof. Stefan Teipel, Prof. Birgit Völlm
- (13) Submission of a proposal at *“Programme of Project-related Personal Exchange”*, DAAD, CTNR members: Prof. Andreas Hermann, Prof. Alexander Storch, Prof. Uwe Walter

Ministry of Mecklenburg-Vorpommern

- (14) Concept development for major instrumentations *“IntelliCage”* and *“Phenomaster”*, EFRE, CTNR members: Prof. Angela Kuhla, Prof. Andreas Hermann, Prof. Markus Kipp, Prof. Rüdiger Köhling, Prof. Alexander Storch, Prof. Brigitte Vollmar

The numbers of approved **individual third-party funding projects per CTNR member** over the last years is shown by funding bodies in the following illustration:



Joining Forces for Rostock Neurosciences

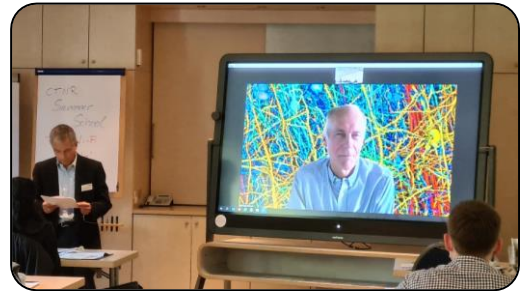
The first **CTNR Summer School**, on 02 - 04 September 2021, on the topic Joining Forces for “Rostock Neurosciences – Technology Expertise Blitz” was a successful platform for the get-to-know and networking of senior and young scientists from Rostock in the field of Neurosciences.



Researchers of CTNR working groups were trained in neuroanatomy by a two-day long **preparation course** in Rostock.

Thirtyeight leader and junior scientists presented together in tandems the current state-of-the-art, their methodologies, applications and on-site technologies on the Summer School location at the hotel in Gremmelin.

Special (virtual) **keynote speaker** was Dimitri Michael Kullmann FRS FMedSci MAE. He is a professor of neurology at the UCL Institute of Neurology, University College London. The Summer School provided networking tools by oral and poster presentations, discussions and a scientific network activity in the evening.



The **best poster was awarded** by a project funding amount of 1,000 € to Sarah Joost and Katerina Manzhula from the Institute of Anatomy for their project about "Exploring an undescribed border structure of the choroid plexus: From three-dimensional macroscopy to ultrastructure".

Summer and **Winter Schools** are planned regularly in the future for working groups of the CTNR and United Neuroscience Campus Lund – Rostock (UNC). Young neuroscientists will be trained in soft skill courses and present the current state-of-the-art, their methodologies, applications and on-site technologies. They will get the possibility to find partners for future joint projects, initiatives and exiting research challenges.





Education and Career

Attracting Young Talents in Neurosciences

The CTNR developed a **recruitment strategy** for young researchers doing excellence science in Rostock. Participation in the CTNR is particularly advertised for masters and doctoral students with posters and flyers. Working groups and project topics were identified and announced on the website. Interested students can apply for positions at the CTNR Office and will then be forwarded to the CTNR members according to the topic of interest. International students in particular are offered support in applying for DAAD or ERASMUS grants. Inquiries from all over the world could be processed and some of them successfully integrated into the CTNR as doctoral students.

Anna Bartalis is one of the first successful recruitments into the CTNR. It started with an application to the CTNR Office in the beginning of 2022 and ended with a PhD position on "Investigation of the effect of mutations in RHOT1 or VPS13D on mitochondrial-ER contact sites and lipid metabolism" at the Translational Neurodegeneration Section "Albrecht Kossel". Soon after, she won the CTNR Poster Prize.



PhD Supervision

Doctoral researchers get the possibility to be **supervised by a Thesis Advisory Committee (TAC)**. The TAC aims to provide guidance for both the doctoral candidate and their supervisors, in order for them to reach a successful end of the project. The CTNR provides a pool of members as potential TAC supervisors.

- The TAC consists of three CTNR members (supervisors).
- TAC Meetings will be organised by the doctoral candidates.
- The TAC meets twice in the 1st year and once per year thereafter (initial and annual report meetings).
- For each TAC meeting, a written report and an oral presentation has to be prepared by the doctoral candidate.
- The meetings focus on the evaluation of the report, presentation, research performance and theoretical knowledge, the evaluation of the thesis project and work done so far, and recommendations for the following year.

The CTNR office developed an information guideline for the CTNR TAC programme and an information platform on the website. The TAC concept is also applied to the dual supervision of doctoral students at the United Neuroscience Campus Lund – Rostock (UNC).

Support of Young Neuroscientists

In the **Neuro Medical Scientist Programme**, medical scientists with a neuroscientific focus are funded who planning to submit or already completed their doctoral thesis. Based on the recommendations of the Science Council, the CTNR thus promotes the early career phase before and after the doctorate. A scientific position is regularly offered for a period of max. 12 months to give young scientists the opportunity to apply for third-party funds or to complete the doctorate. The proposed project should contribute to the strategic aims of the CTNR. In 2021 and 2022, three Medical Scientists were funded by the CTNR.

Apr 2021 – Sept 2021



As a CTNR Medical Scientist, **Janine Petters** tried to find potential drug candidates and aimed to test these substances in her differentiated iPSC-derived liver cell model in order to correct the dysfunctional copper transporter ATP7B in iPSC-derived hepatocytes from Wilson disease patients. Her mentor was Dr. Jan Lukas and her second supervisor Prof. Andreas Hermann.

Apr 2022 - Mar 2023



Fatima Efendics main goal is to establish patient-specific induced pluripotent stem cells (iPSCs) to study the pathophysiological mechanisms of Fatty Acid Hydroxylase-Associated Neurodegeneration (FAHN). As a CTNR Medical Scientist, she focuses on iPSC-derived oligodendrocytes and neurons to study demyelination, which is a major pathophysiological feature of FAHN. Her mentor is Prof. Andreas Hermann and her second supervisor Prof. Markus Kipp.

Apr 2022 - Mar 2023



Luisa Müller is working on preclinical research in Alzheimer's disease rodent models and already conducted several experiments on BL6J and APP^{swe}/PS1^{dE9} mice to unravel the complex relationship between sleep-wake-rhythms and brain clearance. She established the method of intrahippocampal stereotactic injections in the working group. Her mentor is Prof. Stefan Teipel and her second supervisor is Prof. Angela Kuhla.

Education and Career

In addition to the [Rostock Academy of Science](#) – a faculty-wide Clinician and Medical Scientist Programme, the CTNR offered two **Clinician Scientist positions in the neurosciences** for the research protected time of two years within the specialist/subspecialist training time to conduct a theoretical research project in the field of Neurosciences. The programme consists of an individual clinical, scientific and soft skill educational curriculum and runs under the regulation of the Rostock Academy of Science.

Aug 2020 - Jul 2022

Felix Streckenbach was a resident at the Institute of Diagnostic and Interventional Radiology, Pediatric Radiology and Neuroradiology at the University Medical Centre Rostock and member of the clinical research group in Neuroradiology. As a Neuro Clinician Scientist, he worked on the “Development of a biodegradable stent for intracranial aneurysms”. The clinical mentor was Prof. Marc-André Weber and the scientific mentors were Prof. Nils Grabow and Prof. Klaus-Peter Schmitz (Institute for Biomedical Engineering).



Oct 2019 - May 2023

Maxi Kersten is a resident at the Department of Neurology and member of a clinical research group for movement disorders and deep brain stimulation. As a Neuro Clinician Scientist, Maxi Kersten works on "Functional characterization of the basal ganglia-cortex network to improve individual clinical efficacy of deep brain stimulation in movement disorders". The clinical mentor is Prof. Alexander Storch and the scientific mentor is Prof. Rüdiger Köhling.



In 2023, as part of the realignment of the CTNR, there will be the **CTNR Young Neuroscientist Programme** to fund projects on the topic of "HealthTechMedicine – Neurosciences". The programme will include the financial support of early career scientists in theoretical, preclinical, clinical or non-medical subjects (e.g. psychology, natural, engineering, social sciences) with a neuroscientific focus.

In addition, the CTNR is currently developing a concept for a **CTNR Award** to honour young scientists in neurosciences for outstanding projects.

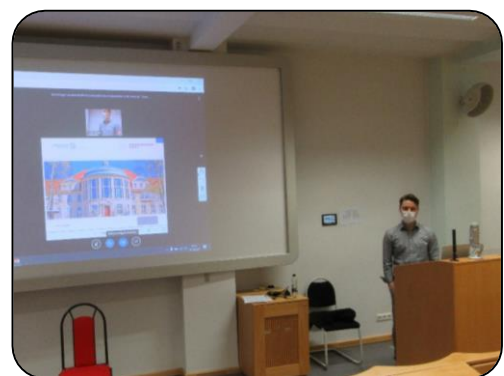
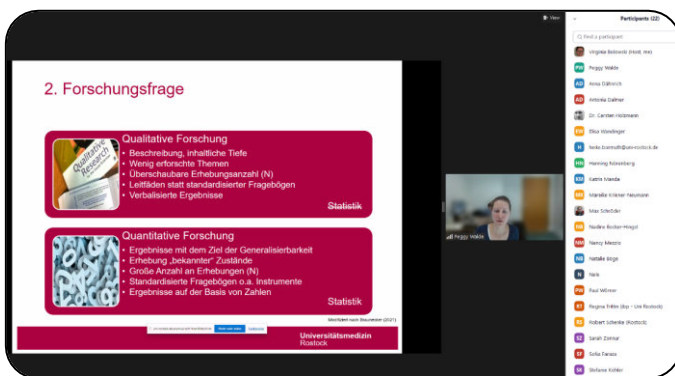
Qualification Programme

The neuroscience community in Rostock benefits from experts of different fields of science that share knowledge about principles and rules of scientific work. In cooperation with the Graduate Academy of the University of Rostock and CTNR members, the CTNR Office bundles this expertise and offers faculty-wide soft skill courses for young scientists. In 2021 and 2022, the following lectures were part of the qualification programme:

Title	Date	Lecturer
Funding opportunities and scientific grant writing	01/2021	Virginia Bolowski, CTNR office
Productivity, Project and Time Management for Scientists	02/2021	Olaf Wolkenhauer, CTNR member
Successful Writing of Grant Proposals	03/2021	Olaf Wolkenhauer, CTNR member
Animal welfare and animal ethics at the University Medicine Rostock	04/2021	Animal Welfare Section of the University Medicine Rostock
The rules of good scientific practice as a compass in everyday research life	04/2021	Helga Nolte, CoachInScience, Hamburg
Funding opportunities and scientific grant writing	05/2021	Virginia Bolowski, CTNR office
Open Access Publishing	05/2021	Rostock University Library
Neuroanatomy for PhD students in the natural sciences	09/2021	Markus Kipp, CTNR member
The doctoral thesis - procedures, expectations and opportunities	10/2021	Michael Kölch & Birgit Völlm, CTNR members
What is research? Overview of the most important research methods and preparation of a research protocol	10/2021	Birgit Völlm, CTNR member
Ethical considerations, authorisation and data protection	10/2021	Peggy Walde, CTNR member (Birgit Völlm)
Types, design and questions of clinical trials	10/2021	Michael Kölch, CTNR member
Reading of scientific literature	12/2021	Birgit Völlm (CTNR member) & Peggy Walde
Development and validation of a new instrument	01/2022	Jack Tomlin, CTNR member (Birgit Völlm)
Modelling progressions - from difference value to growth curves	01/2022	Olaf Reis (CTNR member), Jennifer Schroth
Scaling in quantitative methods	01/2022	Peter Kropp, CTNR member
Scientific lectures, posters and publications	01/2022	Birgit Völlm (CTNR member) & Anne Wettermann

Education and Career

Successful Writing of Grant Proposals	04/2022	Olaf Wolkenhauer, CTNR member
Publishing Journal Articles: Strategies for Success	04/2022	Dr. Andrea Sanchini, scientific writing trainer, Berlin
Introduction to MATLAB	04/2022	Tanja Auge, University of Rostock
Introduction to research methods and the preparation of a research protocol	04/2022	Birgit Völlm, CTNR member
Find Medical Literature Using Medline	04/2022	Henrik Rudolf, CTNR member
Open Access Publishing	05/2022	Rostock University Library
Ethical considerations, authorisation and data protection	05/2022	Peggy Walde, CTNR member (Birgit Völlm)
Fundamentals of quantitative research	06/2022	Enrico Prinz, CTNR member (Birgit Völlm)
Types, design and questions of studies in the field of psychiatric subjects	09/2022	Michael Kölch, CTNR member
Introduction to qualitative data analysis	10/2022	Peggy Walde, CTNR member (Birgit Völlm)
The rules of good scientific practice as a compass in everyday research life	10/2022	Helga Nolte, CoachInScience, Hamburg
Reading of scientific literature	10/2022	Birgit Völlm, CTNR member
Scientific publications, posters and lectures	11/2022	Birgit Völlm, CTNR member



Online and hybrid lectures of the CTNR Qualification Programme

Masters Course for Clinical and Translational Neurosciences

In 2019, a concept for a CTNR Master's programme in “Clinical and Translational Neurosciences” was developed by members of the CTNR Board and the Office. The main objectives are the early practical involvement and connection of students to neuroscientific research and research groups. After a planned initial and orientation phase, semester-long, practice-oriented project work, which is continued over the following semesters, is intended to impart the academic practice required. In this context, the essential scientific exchange between students and between students and tutors takes place in accompanying method colloquia and progress seminars. The focus of teaching is on clinical relevance, which includes a high level of bedside teaching. This enables the focus on clinical as well as translational research and unmet medical needs. Teaching content includes basic subjects in neuroanatomy and neurophysiology, neurology and psychiatry including their history and ethics, neurodegeneration, aspects of diagnostics in particular imaging and cerebrospinal fluid diagnostics, pharmacology and other neurotherapies, as well as methods of neuroscience, experimental animal science and soft skills in the natural sciences.

In 2020, an initial study programme concept was created and presented to the Office for Higher Education & Quality Development (HQE) of the University of Rostock and the Dean of Studies of the UMR. An important step was the acquisition of more than 30 lecturers, which enabled a complex spectrum of courses for the conception of the module plan and the first outline of the timetable. Furthermore, a Reform Commission was initiated from representatives of the participating institutes to create the curriculum.

Basics of Neuroscience <ul style="list-style-type: none"> ▪ Neuroanatomy ▪ Neurophysiology ▪ Neurobiology ▪ History of Neurology and Psychiatry 	Methods of Neuroscience I <ul style="list-style-type: none"> ▪ Stem Cell Biology ▪ Electrophysiology ▪ Diagnostics in Neurology - Imaging ▪ Diagnostics in Neurology - Cerebrospinal Fluid
Fundamentals of Clinical Neuroscience <ul style="list-style-type: none"> ▪ Neurology ▪ Pathophysiology of Neurological Diseases ▪ Psychiatry ▪ Neurooncology 	Methods of Neuroscience II <ul style="list-style-type: none"> ▪ Ethics in medicine ▪ Animal Ethics ▪ Animal Experimentation ▪ Medical Bioinformatics ▪ Soft Skills in Natural Sciences
Genetic & Immunological Aspects <ul style="list-style-type: none"> ▪ Neurogenetics ▪ Neuroimmunology 	Pilot Project
Intervention Strategies in Neuroscience <ul style="list-style-type: none"> ▪ Resilience ▪ Neurosurgery ▪ Pharmacology ▪ Experimental Neurotherapies 	Master Thesis

In April 2021, the aims and the concept of the Masters Course were presented at the initial meeting with the Reform Commission. First drafts of the Module Handbook and the Examination Regulations were developed.

Next step will be the long-term implementation of the course within the CTNR likely in cooperation with the University of Greifswald. The modules will also be used for the international education programme with the Lund University (United Neuroscience Campus).



Lectures & Events

The neuroscience events consist of activities organised by the members themselves or by the CTNR office. A CTNR Lecture Series overlaps both areas. The CTNR office collects all information on the **CTNR webpage** (www.neuroscience-rostock.de) to bundle the activities and to announce them. In addition, a **CTNR newsletter** (with 111 subscribers in 2022) about news, recent funding opportunities, training opportunities and events in the field of neurosciences is published monthly.

Lecture of Excellence

The 600th birthday of the oldest university in the Baltic Sea region was an important event beyond national borders in 2019. As part of this university anniversary, the CTNR founded the lecture series "Lectures of Excellence: Pioneers in Neurosciences". Under the patronage of the Rector of the University of Rostock, Wolfgang Schareck, excellent scientists who have made significant discoveries in the field of life sciences are invited annually to provide insights into their research. These include, above all, Nobel Prize winners, Leibniz Prize winners and other excellent awards. The lectures are aimed at a scientific plenum consisting of scientists, physicians and young researchers. The Else Kröner-Fresenius-Foundation sponsors the Lecture of Excellence.



On August 24, 2022, Robert-Koch prizewinner **Prof. Dr. Hans Schöler** was invited by the CTNR as part of the Lectures of Excellence "Pioneers in Neurosciences". Hans Schöler inspired the audience in the auditorium of the main university building with an insight into his research on the importance of pluripotent stem cells and organoids for biomedical research and drug development. Since 2021, he is Emeritus (Director) at the Max Planck Institute for Molecular Biomedicine, MPG White Paper Emeritus Group, Münster.

The patron and Rector, Prof. Wolfgang Schareck presented him the university's anniversary thaler (Jubiläumstaler).

Afterwards, the participants used the unique opportunity to get in close contact with the excellent expert.

A joint dinner and a personal city tour rounded off the event.

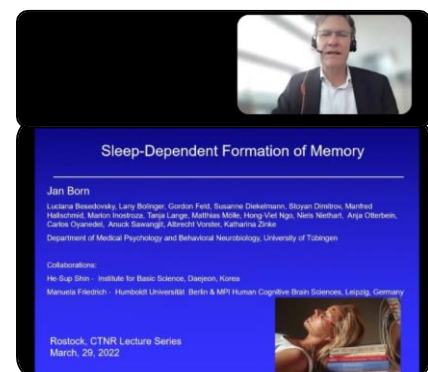
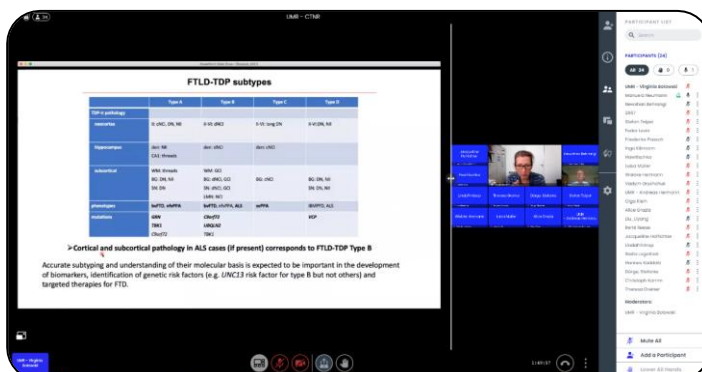


Prof. Emil Reisinger (from left), Prof. Bernd Krause, Prof. Hans Schöler, Prof. Alexander Storch, Prof. Rüdiger Köhling, Prof. Thomas Freiman and University Rector Prof. Wolfgang Schareck

CTNR Lecture Series

The CTNR implemented a monthly lectures series with financial and organisational support for members to initiate talks, workshops and symposia and to invite national and international guest speakers in the field of neurosciences.

Title	Date	Lecturer
Microglial modulation of neurodegenerative diseases – innovative therapies or devilish gambling	03/2021	Prof. Christian Haass LMU, DZNE München
Frontotemporal lobar degeneration with TDP-43 pathology (FTLD-TDP)	08/2021	Prof. Manuela Neumann University Hospital of Tuebingen, DZNE Tübingen
Role of the NLRP3 inflammasome in neurodegenerative disease	09/2021	Prof. Michael T. Heneka University of Bonn, DZNE Bonn
Interplay of striatal pathways and dopamine receptors in movement disorders: the case of L-DOPA-induced dyskinesia	11/2021	Prof. Angela Cenci Nilsson Lund University, Medical Faculty (Sweden)
Recent development in Multiple System Atrophy	01/2022	Prof. Wassilios Meissner University Hospital Bordeaux (France)
Smell better!	02/2022	Prof. Thomas Hummel TU Dresden
Sleep-dependent formation of memory	03/2022	Prof. Jan Born University of Tübingen
Pathogenic mechanisms of Niemann Pick C disease: altered neuronal and glial cell differentiation largely anticipates overt neurologic dysfunction	04/2022	Prof. Maria Teresa Fiorenza University of Rome (Italy)
Processes that result in memory loss and other major neurological deficits, with an emphasis on Alzheimer’s disease (AD) and related neurodegenerative disorders	05/2022	Prof. Lennart Mucke University of California, San Francisco (USA)
Das Mikrobiom bei neurodegenerativen Erkrankungen: Freund, Feind oder nur Betroffener?	06/2022	Dr. Kristina Endres Universitätsmedizin JGU Mainz
New insights into childhood dementia	07/2022	Prof. Robert Steinfeld Universitäts-Kinderspital Zürich (Switzerland)



Online lectures of the CTNR Lecture Series

Community Events


In 2021 and 2022, the Neuroscience Community in Rostock communicated its results and projects to the public. Below are a few examples.

Klinik für Psychiatrie, Neurologie, Psychosomatik und Psychotherapie im Kindes- und Jugendalter



5. Norddeutsches Symposium zum Kinderschlaf
24. Februar 2021

Kommission für neurologische Palliativmedizin der DGN
in Zusammenarbeit mit der Neuropalliativen Arbeitsgemeinschaft / NPA



Online-Meeting per Zoom am
Freitag, 26.02.2021

Arbeitsbereich Geschichte der Medizin
Institut für Anatomie



Aktuelle Herausforderungen bei der Provenienzforschung mit menschlichen Überresten aus kolonialen Kontexten - in Universitäts-sammlungen
Kurzpräsentation der Vorträge und der Referenten
Digitaler Workshop am 5. März 2021

Virtual event series



Dementia – participative research and co-design



Funded by **DFG** Deutsche Forschungsgemeinschaft
German Research Foundation

Dementia is one of the greatest challenges of modern industrial society. Health innovations are urgently needed to prevent dementia, delay the progression of the disease and reduce the burden for all affected. In the course of digitization, technical assistance systems are becoming more important in the care of people with dementia; however, the perspective of those affected is all too often not taken into account when developing new devices. This may lead to a lack of technical user-friendliness, which may ultimately endanger the use of the technology.

From May to December 2021, perspectives on participatory research and co-design in dementia were presented in the virtual series of events "Participatory Research and Co-Design in Dementia". In several lectures and a virtual congress (September 9th, 2021), national and international researchers came together to share experiences. The event also gave a general insight into the methodology of participatory research and its possibilities of increasing the acceptance and relevance of research in various research fields through the participation of those affected.

ESSR Sports Imaging Course & 4th Rostock Summer School

ESSR Sports Subcommittee
European Society of Musculoskeletal Radiology

HYBRID COURSE

2021 July 23rd-24th

Arbeitsbereich Geschichte der
Medizin der Universitätsmedizin Rostock



SeelenArbeit
im Sozialismus
Psychologie, Psychiatrie &
Psychotherapie in der DDR

Klinik und Poliklinik für Psychiatrie und
Psychotherapie der Universitätsmedizin Greifswald

im Forschungsverbund mit den Universitäten Jena, Erlangen-Nürnberg und der FH Dortmund



Universitätsmedizin
Rostock



Universitätsmedizin
GREIFSWALD



Fachhochschule
Dortmund
University of Applied Sciences and Arts



FRIEDRICH-ALEXANDER
UNIVERSITÄT
ERLANGEN-NÜRNBERG
MEDIZINISCHE FAKULTÄT

Psychiatrie in der DDR – Digitale Tagung am 09.09.2021

INTERNATIONAL SYMPOSIUM

The Future of Assistive Technologies in
Dementia Care.

An Interdisciplinary Dialogue

Delmenhorst, 06 – 08 September 2022

Organizers:

Prof. Dr. Silke Schicktanz and Julia Perry, University Medical Center Göttingen
Prof. Dr. Mark Schweda, University of Oldenburg
Prof. Dr. Andreas Hein, University of Oldenburg
Prof. Dr. Thomas Kirste, University of Rostock
Prof. Dr. Teipel, Rostock University Medical Center

Klinik für Forensische
Psychiatrie Rostock



Interdisziplinäre
Fachtagung

Best Practice and Innovation
im Maßregelvollzug
Anlässlich des Jubiläums zum
20-jährigen Bestehen der Klinik
für Forensische Psychiatrie,
Rostock

08.11. und 09.11.2021



Rostocker NeuroNews 2022 | 1
Chorea und andere hyperkinetische
Bewegungsstörungen

am 04.04.2022, 16:00 – 18:00 Uhr

im Hörsaal des Zentrums für Nervenheilkunde
Gehlsheimer Str. 20, 18147 Rostock



INTERNATIONAL CONFERENCE ON
PARTICIPATORY RESEARCH
IN DEMENTIA

Virtual Event

09th of September 2021

Funded by
DFG Deutsche
Forschungsgemeinschaft
German Research Foundation



GRUSSWORT

Sehr geehrte Damen und Herren,
rund 270.000 Menschen erleiden in Deutschland jährlich einen Schlaganfall. Das sofortige Erkennen und Behandeln erhöht die Chance auf vollständige Genesung. Standard ist heute die Behandlung in einem neurovaskulären Zentrum mit zertifizierter Stroke Unit.

Der „Tag gegen den Schlaganfall“ am 3. September 2022 in Rostock richtet sich an Interessierte, Betroffene und ihre Angehörigen. Wir wollen zeigen, wie Jeder einen akuten Schlaganfall erkennen kann. Es werden die Möglichkeiten der Sofortbehandlung vorgestellt, wie auch die Anlaufstellen für Betroffene mit Langzeitfolgen. Olympiasieger Alexander Leipold gibt Anregungen, wie man selbst mit einem Schlaganfall umgehen kann. Sie haben die Möglichkeit, mitzudiskutieren oder Ihre Fragen direkt mit den Expert/innen zu besprechen.

Sie sind eingeladen, dieses Angebot wahrzunehmen!

Hier finden Sie uns:
Universitätsplatz 1, Rostock



Bilder: Adobe Stock/motortion, Steffen Kugler

www.uni-rostock.de
www.med.uni-rostock.de



SCAN MICH!

Hinweise zum Hygienekonzept:

- das Tragen eines Mund-Nasenschutzes während der Veranstaltung wird empfohlen
- Personen mit Erkältungssymptomen sollten nicht an der Veranstaltung teilnehmen
- kurzfristige Änderungen der Corona - Landesverordnung in Mecklenburg-Vorpommern sind zu beachten



Landesverband für
die Rehabilitation der
Aphasiker e. V. MV



DIPROB
DEUTSCHE
SCHLAGANFALL
HILFE

Universität
Rostock



Universitätsmedizin
Rostock





ALLE ZWEI MINUTEN
PASSIERT EIN
SCHLAGANFALL!

03.
09.

Der Tag gegen
den Schlaganfall.






Post-Treatment Imaging
ESSR 2022
MUSCULOSKELETAL
RADIOLOGY
JUNE 9-11, ROSTOCK/GERMANY
www.essr.org

WELCOME TO
ROSTOCK!



4. Rostocker EEG-Tage
(2. gemeinsames EEG-Wochenende des Arbeitskreises Epileptologie Nordost)

Samstag, 29. Oktober 2022, 09.00 – 17.00 Uhr
Sonntag, 30. Oktober 2022, 09.00 – 12.00 Uhr



ALS-Tag in Rostock

Samstag, 12.11.2022
10.00 bis 14.30 Uhr

Michaelschule
Dierkower Damm 39, 18146 Rostock

Imprint

1st Edition (2023)

Publisher

Centre for Transdisciplinary Neurosciences Rostock (CTNR)

University Medical Centre Rostock

Gehlsheimer Str. 20, 18147 Rostock

Phone: +49 (0) 381 494 9521

Email: ctnr@med.uni-rostock.de

www.neuroscience-rostock.de

Concept/Editorial

Virginia Bolowski, CTNR Board

Photo evidence

All rights to CTNR, University Medical Centre Rostock