

CRC1451 - Key Mechanisms of Motor Control in Health and Disease

Newsletter March 2022 "Interactions – Get startet in 2022"

Welcome to the 2nd CRC1451 newsletter.

Dear readers,

The new year has started with our General Assembly on January 21st, and meanwhile, we are in full preparations for our Motor CRC1451 Annual Retreat. We are very confident that we will be able to have our first full in-person meeting since the start of the CRC. This is very exciting. However, we never know how the pandemic situation is evolving and, therefore, we will again have many fallback options at hand to make our retreat a safe event for everybody! We are looking forward to meeting you all again soon. This year's retreat will focus on INTERACTIONS in all dimensions. In the following weeks, we will ask you for your input to create the best possible event for best possible future collaborations and interactions.

In addition, we have the first Early Career Researcher retreat connected to Motor CRC1451 Annual Retreat. This allows our ECRs to discuss their scientific progress in an informal atmosphere in the absence of their supervisors. Make the best out of it!

In the first quarter of 2021 we had excellent international lectures from Thomas Yeo from the National University of Singapore with his talk on "Human Brain Network Organization At Different Timescales", Robert Nitsch from the Institute for Translational Neuroscience of the University Münster with "Synaptic Lipid Signaling in the Cortex: Human Studies" and Hartwig Siebner from the Danish Research Centre for Magnetic Resonance (DRCMR), Copenhagen University Hospital – Amager and Hvidivre on "Neuro-Engineering Brain Circuits With Transcranial Stimulation: Are We Closing Knowledge Gaps Or Running Circles?". Please find more exciting events at the end.

We are very happy to have been able to interview all four of our cross-linking interdisciplinary PhD project candidates and Natalia Kononenko gives insights into her career path. We hope that you enjoy reading through our newsletter. The next issue is planned to be released end of June. Whenever you have any topics, scientific progress, scientific pictures, etc. for the next issue, please contact sfb1451-sekretariat@uni-koeln.de until the first week of June.



Gereon Fink Spokesperson



Silvia Daun Vice-Spokesperson



Christian Grefkes Vice-Spokesperson

We support the statement of the Alliance of Science Organisations in Germany: solidarity with partners in Ukraine - consequences for science and the humanities dated February 2nd, 2022. (https://www.dfg.de/download/pdf/dfg_im_profil/allianz/220225_statement_allianz_ukraine_en.pdf).

Information from the DFG on refugee integration into current funding schemes

All project leaders can submit supplementary proposals to integrate qualified refugees - prospective or doctoral scientists into DFG projects that are already funded. These applications can be justified by the fact that persons are now available for the further course of a project, through whose cooperation additional impulses for the scientific work in the project are generated. The additional applications can be directed to all funds that enable the integration of refugees into the project. These include in particular guest funds, staff positions or the Mercator module. Applications can be submitted informally at any time. For more information, please contact the scientific coordinator christina.stark@uk-koeln.de .

Refugee scientists can also be funded directly in Research Training Groups. The funds for this do not have to be applied for separately via supplementary applications, as corresponding measures can also be financed from the funds already approved. For example, refugees with a bachelor's degree or comparable degree can receive a qualification grant for a later doctorate in a Research Training Group or be accepted straight into the Research Training Group. For more information, please contact the iRTG coordinator c.wegscheid@uni-koeln.de.

More information can be found here: https://www.dfg.de/en/research_funding/proposal_review_ decision/refugee_researchers/index.html

Or here:

https://www.dfg.de/en/research_funding/announcements_ proposals/2022/info_wissenschaft_22_17/



German Research Foundation

Introduction of the four cross-linking interdisciplinary PhD candidates



Nora Rautenberg

Project X01

Rehabilitation of motor deficits and restoration of functional networks after mild Traumatic Brain Injury (mTBI) by transcranial Direct Current Stimulation (tDCS)

Supervisors

Adele Rüger, Department of Neurology, University Hospital of Cologne Rudolf Merkel, Institute for Biological Information Processing (IBI-2), Research Center Jülich Gereon R. Fink, Department of Neurology, University Hospital of Cologne and Institute of Neuroscience & Medicine INM-3, Research Centre Jülich

Who are you and where do you come from?

Hello everyone, my name is Nora. I was born in Schwelm, Germany, and spent my school years in Wuppertal until I moved on to study in Hannover.

What is your academic background?

In spring 2021, I successfully completed my studies in veterinary medicine at the University of Veterinary Medicine Hannover.

What is the title of your interdisciplinary doctorate within the CRC1451?

My project "Rehabilitation of motor deficits and restoration of functional networks after mild Traumatic Brain Injury (mTBI) by transcranial Direct Current Stimulation (tDCS)" deals with concussion, a mild traumatic brain injury most relevant to everyday life. I use - and further advance - an in vivo mouse model of concussion recently developed in the lab, and analyze how non-invasive brain stimulation can be used to prevent and/or treat this condition.

Which project areas does your project connect?

This project represents the cooperation between the Institute for Cognitive Neuroscience 3 (Gereon R. Fink) and the Institute for Biological Information Processing 2 (Rudolf Merkel) of the Research Centre Juelich in close connection with the Department of Neurology, University Hospital Cologne. In addition, the cooperation with the Concussion Centre Rhineland links all research areas of humans and animals of the CRC. I am grateful to be part of this collaboration in the Neural Stem Cell Laboratory (Department of Neurology, University Hospital Cologne) headed by Adele Rüger, in cooperation with the Motor Cognition Working Group headed by Peter Weiss-Blankenhorn (INM-3, Research Centre Juelich) in the framework of the Collaborative Research Centre Motor Control (SFB1451).

What was your motivation to apply for this project?

Driven by curiosity, I worked as a student assistant in teaching and research at various institutes throughout my studies. This gave me my first insight into scientific work. During my internship year, I developed an immense interest in exploring the complexity of the brain in more detail by working in a small animal clinic with specialists in diagnostic imaging and neurology.

What do you like to do when you're not doing science?

In my free time, I like to train my poodle, go into nature and enjoy expanding my horizon through travelling.



Vincent Küppers

Project XO2

The interplay between sleep, depressivity and motor performance

Supervisors

Simon Eickhoff, Heinrich Heine University Düsseldorf and Institute of Neuroscience & Medicine INM-7, Research Centre Jülich

Alexander Drzezga, Department of Nuclear Medicine, University Hospital Cologne Masoud Tahmasian, Institute of Neuroscience & Medicine INM-7, Research Centre Jülich

Who are you and where do you come from?

Hi, my name is Vincent, I grew up in Cologne and spent most of my life here.

What is your academic background?

I did my bachelor's degree in biology at the University of Cologne and then a master's degree in translational neuroscience at the Heinrich Heine University Düsseldorf.

Which project areas does your project connect?

Individual expression of the behavioral dimensions of sleep, depressivity, and motor performance will be linked to the most promising pipelines of project B05 (Christian Grefkes and Simon Eickhoff). In a final step the project aims to translate insights to smaller population datasets from projects C03 (Merle Hönig and Thilo van Eimeren), C04 (Alexander Drzezga and Peter Weiss-Blankenhorn), C05 (Gereon R. Fink and Christian Grefkes) and CO6 (Frank Jessen and Marc Tittgemeyer). All codes and pipelines are made available to all Motor CRC1451 members and implementation will be supported.

What was your motivation to apply for this project?

I was very attracted by the interdisciplinarity of the project, the SFB1451, and neuroscience as a whole. I think it is a very promising and interesting direction to combine the methodology of data science with the challenges of clinical neurobiology. I believe that motor performance is of particular importance in numerous neurological and psychiatric disorders, and I hope that this project will shed light on the behavioral and neural underpinnings.

What do you like to do when you're not doing science?

Outside of work, I am fascinated by foreign places and other cultures



Carolin Semmler

Project X03

Predicting the effects of deep brain stimulation of the subthalamic nucleus (STN-DBS) on gait, falls and Freezing of Gait (FOG) in patients with Parkinson's disease

Supervisors

Peter Weiss-Blankenhorn, Institute of Neuroscience & Medicine INM-3, Research Centre Jülich and Cognitive Neurology, Department of Neurology, University Hospital Cologne **Michael Barbe**, Department of Neurology, University Hospital Cologne

Who are you and where do you come from?

My name is Carolin Semmler. I am 27 years old and from Osnabrück.

What is your academic background?

I have studied psychology at the University of Twente in the Netherlands. For my master's studies, I majored in Human Factors and Engineering Psychology as it focused on cognitive neuroscience, electrophysiology as well as programming neuropsychological tests.

What is the title of your interdisciplinary Doctorate within the CRC1451?

The topic of my project is "Predicting the effects of deep brain

stimulation of the subthalamic nucleus (STN-DBS) on gait, falls and Freezing of Gait (FOG) in patients with Parkinson's disease". I investigate the relationship between gait-related cognitive as well as affective functions and gait impairments in Parkinson's disease patients before and after STN-DBS. We aim to delineate the factors contributing to a beneficial effect of STN-DBS on Parkinsonian gait impairments, especially FOG and falls in advanced stages of the disease.

Which project areas does your project connect?

This project relates to two CRC1451 projects that investigate the interaction of cognitive (CO4, Alexander Drzezga and Peter Weiss-Blankenhorn) and affective (CO6, Frank Jessen and Marc Tittgemeyer) functions with the motor system and, certainly, to

the SFB1451 project CO3 (Merle Hönig and Thilo van Eimeren) that also examines motor disturbances in patients with Parkinson's disease. Moreover, my PhD project holds the potential to build a bridge between the human and animal projects within the CRC1451: By investigating gait disturbances of Parkinson's disease patients, our project can link to the projects examining locomotion in animals with motor deficits. Excitingly, the CRC1451 has recently acquired an analysis system for human gait which will most certainly also become of interest to my project and will benefit the linkage between the project areas C and A.

What was your motivation to apply for this project?

During my studies, I became curious to not only understand the

neurophysiological processes that underlie our behavior, but also to learn about neuropsychological consequences in case of occurring dysfunctions in those processes. My CRC1451 project will answer many of my questions and, hopefully, raise several new ones to explore in the future. At the same time, my project enables me to acquire valuable working experience in an interdisciplinary team.

What do you like to do when you're not doing science?

In my leisure time, I like to do archery and to hike in the (preferably Norwegian) mountains.



Annika Sauter

Project XO4

The modulation of cortical networks for predictive motor control by the subthalamic nucleus: from functional imaging to deep brain stimulation and recording

Supervisors

Simone Vossel, Department of Psychology, University of Cologne and Institute of Neuroscience & Medicine (INM-3), Research Centre Jülich

Paola Mengotti, Institute of Neuroscience & Medicine (INM-3), Research Centre Jülich Juan Carlos Baldermann, Department of Neurology, University Hospital Cologne Thomas Schüller, Department of Psychiatry, University Hospital Cologne

Who are you and where do you come from?

My name is Annika and I am an interdisciplinary doctoral student from Zurich, Switzerland.

What is your academic background?

I have an interdisciplinary academic background: I hold a bachelor's degree in Pharmaceutical Sciences from the ETH Zurich in Switzerland and a master's degree in Behavioral and Cognitive Neurosciences from the University of Groningen in the Netherlands.

Which project areas does your project connect?

This CRC1451 project is a joint project of the INM-3 of the Research Centre Jülich as well as the Faculty of Human Sciences and the Faculty of Medicine of the University of Cologne. The concept behind the experimental paradigm is linked to project BO4 (Simone Vossel and Paola Mengotti), investigating predictive coding of motor responses. In a first step, the cortical networks associated with specific predictive motor control processes will be characterized in healthy volunteers by using a functional MRI. The second part of the project will employ EEG and local field potential recordings in patients with Parkinson's Disease receiving deep brain stimulation. Thereby, it taps into project CO7 (Juan Carlos Baldermann and Veerle Visser-Vandewalle), which uses a similar approach to study causal contributions of cortical-subcortical networks to motor behaviour. The different methodological approaches and disciplines of this project bring together scientists from distinct fields to allow for a comprehensive multi-level delineation of networks in prediction-dependent motor control.

What was your motivation to apply for this project?

During my master studies, I wrote an extensive essay on the relationship between impulsivity and deep brain stimulation of the subthalamic nucleus. I became so intrigued by the topic that after my studies were finished, I reached out to the working group to ask if they would have any open positions related to this research field. And as luck would have it, they did in this project.

What do you like to do when you're not doing science?

Apart from science, I like to fill my time with literature, painting, and jazz dance.

Publications of the Year 2021

Since the first year has passed and we have some great publications already related to the CRC1451, the CRC1451 members have selected the three most relevant publications of the year 2021 to Motor Control. Congratulations!

Project A06 (Yifat Prut and Martin Nawrot) Sensory-motor pathways controlling voluntary movements in health and disease

Area-specific thalamocortical synchronization underlies the transition from motor planning to execution

Abdulraheem Nashef^{a,b,c}, Rea Mitelman^{a,b,c}, Ran Harel^d, Mati Joshua^c, and Yifat Prut^{a,b,c,1}

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Edited by Peter L. Strick, University of Pittsburgh, Pittsburgh, PA, and approved January 5, 2021 (received for review June 21, 2020)

Proceedings of the National Academy of Sciences

ABSTRACT: We studied correlated firing between motor thalamic and cortical cells in monkeys performing a delayed-response reaching task. Simultaneous recording of thalamocortical activity revealed that around movement onset, thalamic cells were positively correlated with cell activity in the primary motor cortex but negatively correlated with the activity of the premotor cortex. The differences in the correlation contrasted with the average neural responses, which were similar in all three areas. Neuronal correlations reveal functional cooperation and opposition between the motor thalamus and distinct motor cortical areas with specific roles in planning vs. performing movements. Thus, by enhancing and suppressing motor and premotor firing, the motor thalamus can facilitate the transition from a motor plan to execution. **SIGNIFICANCE:** Thalamocortical interactions are a key component of normal brain functions both in sensory and motor areas. The fact that TC connectivity is excitatory has led to the suggestion that ist main role is positively driving motor cortical activity. Here we show that the motor thalamus has contrasting, area-dependent interactions with cortical sites, such that it can either enhance or suppress motor cortical variability. The TC interactions with the primary motor vs. the premotor cortex put the motor thalamus in an ideal position to promote the transition from a motor plan to motor action and serve as an important driver of movement initiation.



Cutout figure 1: Task schematic and SCP stimulation.

(A) Illustration of the thalamocortical system and the experimental setup. Fibers from the deep cerebellar nuclei ascend via the superior cerebellar peduncle to contact neurons in the motor thalamus, which in turn send ascending fibers to the motor cortex. Recordings were made simultaneously in the motor thalamus and the motor cortex which includes the primary motor and premotor areas. Stimulations were applied through chronic stimulating electrodes implanted in the SCP.

Cutout figure 4: Schematic summary of the directional pairwise interaction results.

Connecting lines between sites (circles) correspond to the net correlation between the two areas. Arrowheads indicate positive correlation and circles indicate negative correlation. The width of the arrow corresponds to the magnitude of the correlation. Intraareal autocorrelations are shown as well. (E, Left) Computed for a time window before movement onset (-0.5 s to 0). (E, Right) Interactions computed after movement onset (0 to +0.5 s). The dashed vertical line depicts movement onset time.





Project CO1 (Adele Rüger, Markus Aswendt, Michael Schroeter) Identification and selective stimulation of motor recovery-related functional networks after experimental stroke

<u>Stroke</u>

BASIC AND TRANSLATIONAL SCIENCES

Translating Functional Connectivity After Stroke

Functional Magnetic Resonance Imaging Detects Comparable Network Changes in Mice and Humans

Stefan J. Blaschke[®], MD^{*}; Lukas Hensel[®], MD^{*}; Anuka Minassian, PhD; Susan Vlachakis[®], MVD; Caroline Tscherpel, MD; Sabine U. Vay[®], MD; Monika Rabenstein[®], MD; Michael Schroeter, MD; Gereon R. Fink[®], MD; Mathias Hoehn, PhD; Christian Grefkes[®], MD, PhD[†]; Maria A. Rueger[®], MD, PhD[†]

Stroke. 2021;52:2948-2960. DOI: 10.1161/STROKEAHA.120.032511

BACKGROUND AND PURPOSE: The translational roadblock has long impeded the implementation of experimental therapeutic approaches for stroke into clinical routine. Considerable interspecies differences, for example, in brain anatomy and function, render comparisons between rodents and humans tricky, especially concer ning brain reorganization and recovery of function. We tested whether stroke-evoked changes in neural networks follow similar patterns in mice and patients using a systems-level perspective.

METHODS: We acquired resting-state functional magnetic resonance imaging data during the early poststroke phase in a sample of human patients and compared the observed network changes with data from 2 mouse stroke models, that is photo-thrombosis and distal middle cerebral artery occlusion. Importantly, data were subjected to the same processing steps, allowing a direct comparison of global network changes using graph theory.

RESULTS: We found that network parameters computed for both mouse models of stroke and humans follow a similar pattern in the postacute stroke phase. Parameters indicating the global communication structure's facilitation, such as small worldness and characteristic path length, were similarly changed in humans and mice in the first days after stroke. Additionally, small worldness correlated with concurrent motor impairment in humans. Longitudinal observation in the subacute phase revealed a negative correlation between initial small worldness and motor recovery in mice.

CONCLUSIONS: We show that network measures based on resting-state functional magnetic resonance imaging data after stroke obtained in mice and humans share notable features. The observed network alterations could serve as therapeutic readout parameters for future translational studies in stroke research.



Cutout figure 1: Comparable ischemic lesions in human stroke patients and experimental mouse models.

A, Experimental model of distal occlusion of the middle cerebral artery (dMCAo; n=17), heat maps of individual lesions 2 wk after stroke show a core overlap of 100%. B, Experimental model of photothrombosis (PT; n=13); likewise, fused heat maps after 2 wk demonstrate a core overlap of 100%. C, Human stroke patients (n=13) with mild-to-moderate motor deficits predominantly showed a temporoparietal lesion distribution on fused heat maps. Human lesion location was adjusted by mirroring, if necessary.



Project C07 (Juan Carlos Baldermann and Veerle Visser-Vandewalle) Neural networks underlying motor tic formation and supression





Brain Stimulation

Contents lists available at ScienceDirect

journal homepage: http://www.journals.elsevier.com/brain-stimulation

Thalamic deep brain stimulation for Tourette Syndrome: A naturalistic trial with brief randomized, double-blinded sham-controlled periods



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BRAIN

Juan Carlos Baldermann ^{a, b, 1, *}, Jens Kuhn ^{b, c, 1}, Thomas Schüller ^b, Sina Kohl ^b, Pablo Andrade ^d, Sophia Schleyken ^{a, b}, Reinhild Prinz-Langenohl ^e, Martin Hellmich ^f, Michael T. Barbe ^a, Lars Timmermann ^{g, h}, Veerle Visser-Vandewalle ^{d, 1}, Daniel Huys ^{b, 1}

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BACKGROUND: There is still a lack of controlled studies to prove efficacy of thalamic deep brain stimulation for Tourette's Syndrome. Objectives: In this controlled trial, we investigated the course of tic severity, comorbidities and quality of life during thalamic stimulation and whether changes in tic severity can be assigned to ongoing compared to sham stimulation. **METHODS:** We included eight adult patients with medically refractory Tourette's syndrome. Bilateral electrodes were implanted in the centromedian-parafascicular-complex and the nucleus ventro-oralis internus. Tic severity, guality of life and comorbidities were assessed before surgery as well as six and twelve months after. Short randomized, double-blinded sham-controlled crossover sequences with either active or sham stimulation were implemented at both six- and twelve-months' assessments. The primary outcome measurement was the difference in the Yale Global Tic Severity Scale tic score between ac-

tive and sham stimulation. Adverse events were systematically surveyed for all patients to evaluate safety.

RESULTS: Active stimulation resulted in significantly higher tic reductions than sham stimulation (F ¼ 79.5; p ¼ 0.001). Overall quality of life and comorbidities improved significantly in the open-labelphase. Over the course of the trial two severe adverse events occurred that were resolved without sequelae.

CONCLUSIONS: Our results provide evidence that thalamic stimulation is effective in improving tic severity and overall quality of life. Crucially, the reduction of tic severity was primarily driven by active stimulation. Further research may focus on improving stimulation protocols and refining patient selection to improve efficacy and safety of deep brain stimulation for Tourette's Syndrome.



Fig. 4. Mapping clinical effects on volumes of activated tissue (VTA). Shown are the target regions of the study, the centromedian-parafascicular complex in green and the nucleus ventro-oralis internus (Voi) of the motor thalamus in yellow together with the overlapping statistical map showing voxels with above-average tic reduction in red and voxels with below-average tic reductions in blue. A is based on the ON- and OFF-assessments during the double-blinded discontinuation periods with N ¼ 13 VTAs, B is based on the longitudinal assessments during the open-label study with N ¼ 16 VTAS. Color bars indicate elog 10 transformed p-values. (For interpretation of the references to colour in this figure legend, the reader is referred to the Web version of this article.)

Career path interview Prof. Dr. Natalia Kononenko



Since Natalia Kononenko was announced the Ombudsperson on the last General Assembly, we wanted to take the opportunity and introduce her in this newsletter within the career path interview. Thank you very much for the interview!

What did you study and where?

I studied Biology at Kaliningrad state university in Russia.

Why?

The question of how the brain works always fascinated me, and because Kaliningrad did not have a medical school, studying biology was the only option to follow my passion. My family did not have financial opportunity to support me studying in any other city or abroad. I started to study in 1996. At that time, in a provincial city in Russia, we did not have computers and/or internet to learn about the possibility of applying for fellowships and stipends.

What were the decisive steps in your career?

After starting the PhD in Kaliningrad, I participated in the organization of a conference on Neuroethology, which gave me an opportunity to meet some colleagues from Germany. This was my first contact with science abroad. Foreign colleagues introduced me to the DAAD. I applied and went for a 3 months DAAD-funded position in Berlin in 2003. This was the beginning of a long journey, since the way how university and science function in Germany were very different to what I was used in Russia. I knew, I would not pursue a career in Russia anymore.

What would you do differently?

I would start a PhD abroad instead of doing this in Russia.

What would you do exactly the same again?

I worked on many different topics in my scientific career, starting on working on the mechanism of withdrawal reflex in snails in Kaliningrad and Tihany, Hungary (funded by IBRO fellowship), since this was the only type of animal, which my university could afford. Then, I worked on mechanisms of neuromodulation of locomotion in grasshopper in Berlin (funded by an Alexander von Humboldt fellowship). Afterwards, I studied functional neuroanatomy of the entorhinal cortex of rats in Trondheim, Norway, and, finally, back in Berlin, I ended up investigating the mechanisms of synaptic membrane trafficking in mice. Although it was a long journey, I would go the same way again. It definitely helped to broaden my neurobiological horizon to build the network of collaborators and friends across multiple neuroscience fields and, last but not least, gave me the opportunity to live in 4 different countries.

What allows you to relax from work?

Cooking, playing piano and playing with daughter (when she is in a good mood :-)).

CRC1451 Ombudsperson



Prof. Dr. Natalia Kononenko Ombudsperson (PI A02) natalia.kononenko@uni-koeln.de



Dr. Christina Stark Deputy (Scientific Coordinator) christina.stark@uk-koeln.de

The Ombudsperson is the contact person for the Early Career Researcher in the CRC1451 with respect to Good Scientific Practice, professional issues, and harassment.

The Inclusivity, Diversity, and Gender Committee is responsible for the issues related to Equal Opportunities.

sfb1451-equality@uni-koeln.de

Gender Tip "Get started in 2022"

Inclusivity, Diversity, and Gender Committee



Adele Rüger PI CO1



Markus Aswendt PI C01



Kei Ito PI A05



Paola Mengotti PI B04

Three selected Tips from the Inclusivity, Diversity and Gender Committee for you:



1) Couples

There is a tailored workshop for scientists at the University of Cologne who would like to plan their career in coordination with their partner (and, if applicable, with their family).

Content: Intra-family decision-making processes play an important role in one's own career planning. In individual coaching, scientists can take a close look at their careers together with their partners. Different career constellations are discussed. The aim is to plan a career together with the partner, taking into account the interests, needs, and goals of all parties - including family/children, if applicable.

Registration: For the coaching "Zwei mit Karriere - Coaching für Paare aus Wissenschaft & Wissenschaftsmanagement", a short preliminary talk is required. If you are interested, please contact Ms. Johanna Lissek (j.lissek@verw.uni-koeln.de, 0221 - 470-2169).

2) Dads

As dads, we want to be emotionally present for our children and be authentic role models. But how do we manage to do that (better and better)? In contrast to our own fathers and grandfathers, the modern lifestyle suggests the opportunity to allocate time between work and family. And yet for many, it is a great challenge to be available for their children, to build an emotional relationship with them, and to be there for them even when they are unwell. But how can we become more mindful here? To resort less to punishment and scolding? On this evening, the speaker Carsten Vonnoh will give numerous impulses that support us in taking steps towards more conscious and loving fatherhood and in taking full responsibility in parenting.



Cooperation offer of the German Sport University. There are only limited places available. If you are interested in participating, please send an email to **cfs@verw.uni-koeln.de.**



3) Career strategies for women

What career opportunities do I have? Which application strategy is the right one for me? How can equality be lived and promoted in companies? The lecture series "Career Strategies for Women" with varying (internal and external) speakers are organized by the Career Services of the Faculty of Humanities and Philosophy and the Female Career Program of the University of Cologne. Expect a mixture of professional input and personality reports, coupled with individual experiences and tips. Pitfalls and problems, but also possibilities and opportunities in career choices will be discussed.

Topics such as diversity competence and equality, networking, self-presentation, appli-

cation and negotiation strategies, dealing with hierarchies, and the challenge of reconciling gainful employment and family will be discussed as well as current challenges in the working world.

The main target group for this event is women from all disciplines who would like to prepare for their professional careers; all others interested in the topic are also very welcome to attend.

Registration: For enrolled students: To earn credit points/for an entry on the Transcript of Records, please register via KLIPS (No.: 14358.0100). For other interested parties: Alumnae/alumni, guest student*, staff* and/or PhD students can register below.

https://verwaltung.uni-koeln.de/abteilung43/content/early_career_researchers/female_career_center/berufsstrategien_fuer_ frauen/index_ger.html

News & Events

Retreat 2022 - Focus on INTERACTIONS

- > May 31st, 5 pm to June 1st: Early Career Researcher Retreat (PhD and Postdoc)
- > June 1st (arrival time 5 pm) to June 3rd (end 6 pm): Annual Motor CRC1451 Retreat (all) Registration and invitation will be sent out soon by the central office.



Keynote speaker on June 3rd: Mark Hallett, M.D. NIH distinguished Investigator Human Motor Control Section https://irp.nih.gov/pi/mark-hallett

Gender and Diversity

- > April 27th: Maurin Feldhaus from the Dual Career & Family Support of the University of Cologne will offer an online information session at 9:30 am on topics around compatibility of family and career. For more information, please contact Claudia Wegscheid c.wegscheid@uni-koeln.de
- > May 30th: Isabel Fraas, Office of the University Women's Representative of the Julius-Maximilians-University of Würzburg (JMU), Division Gender Consulting for research associations and measures in the Female Professors Program and Anne Freese member in the personnel development department at the German Electron Synchrotron (DESY), where she is responsible for the Dual Career Office and the coordination of the Diversity & Inclusion Strategy will give an online Intro-Lecture on "Why still care about equal opportunities in the 21st century? Status quo, challenges, and new perspectives" as a joint GADIS Lecture (Gender and Diversity in Science) with CECAD and MPI within the Diversity Week of the University of Cologne https://vielfalt.uni-koeln.de/aktuelles/diversity-woche-du-machst-den-unterschied at 4 pm (90 Minutes). This online intro-leture is mandatory for the entire CRC1451 team as preparation for the Retreat 2022. Isabel Fraas and Anne Freese will be the trainer for the unconscious gender bias workshops at the Retreat on Friday June 3rd and will offer an open consultation hour at the same day.

Scientific Lectures

Cologne Theoretical Neuroscience Forum (CTNF) - 11 am CET

> May 12th: Giovanni Pezzulo, Institute of Cognitive Sciences and Technologies, National Research Council, Rome, Italy, "Forming latent codes for decision-making and spatial navigation: a generative modelling perspective" More information and registration can be found here: https://computational-systems-neuroscience.de/ctnf/

CRC1451 Scientific Lecture Series - 11 am CET

- > April 1st: Abdel El Manira, Department of Neuroscience, Karolinska Institute, Stockholm, Sweden, "Circuits generating locomotion in vertebrates"
- > May 6th: Sacha van Albada, Institute of Neuroscience and Medicine (INM6), Research Centre Juelich & Institute for Zoology, University of Cologne, "Large-scale simulations of monkey and human cortices at cellular resolution: from anatomy to resting state activity"

More information will be sent out by the CRC1451 central office regularly. If you haven't done so, click here to subscribe to our mailing list https://lists.uni-koeln.de/mailman/listinfo/sfb1451-info. The CRC1451 Scientific Lecture Series will be replaced by the Motor-Control-Science-Club series after summer (announcement see below).

Save the Date: On September 9th the ECRs will organise a live Motor-Control-Science-Club inviting international speakers with "Meet the Speaker" lunch open to all interested students and scientists. All Covid-19 situation permitting. The lecture series is planned from 8 am to 1 pm more information and invitation coming soon.

iRTG Workshops

> April 27th – 28th: Michael Hanke and Michał Szczepanik (INF project): Research data management with DataLad (2nd run). This workshop is an online 2-day workshop from 1 pm to 5 pm. For more information: https://rdm.sfb1451.de/workshops/ and https://www.datalad.org/. This workshop is mandatory for all ECRs and accredited by the IPHS and IPMM. For registration, please contact the CRC1451 iRTG coordinator Claudia Wegscheid c.wegscheid@uni-koeln.de.

> June 21st – 22nd: Michael Gommel: Good Scientific Practice – Protecting Research Integrity. This workshop is a live 2-full-day workshop at CIO Building, University Hospital of Cologne. For more information: http://www. scientificintegrity.de/en-index.html. There are only limited places available. If you are interested in participating, please contact the CRC1451 iRTG coordinator Claudia Wegscheid c.wegscheid@uni-koeln.de.

iRTG Journal Club - 9 am CET

- > April 11th: Julia Schmidgen (B02) and Massimo Thiel (A05)
- > May 16th: Eleonora Zilio (A01) and Vincent Küppers (X02)
- > June 20th: TBD

iRTG Lecture - 11 am CET

- > April 4th: Alexander Drzezga, "Imaging of molecular neuropathology and neural dysfunction in the human brain"
- > April 25th: Kei Ito, "Integrated light-microscopy and electron-microscopy connectome analysis of the fruit fly Drosophila brain"
- > May 9th: Frank Jessen, "Interaction of neurodegeneration and depression in late life"
- > May 23rd: Peter Kloppenburg, "Metabolic modulation of the substantia nigra striatum pathway"
- > June 13th: Kerstin Konrad, Title TBD
- > June 27th: Paola Mengotti, "Deficits in predictive processes during motor control in neurological disorders"



More information on the iRTG events will be send out by the CRC1451 iRTG coordinator Claudia Wegscheid regularly. In case you don't receive the info, please contact c.wegscheid@uni-koeln.de.

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