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Faculty Grants for International Connections Committee
c/o Cindy Hart
Office for International Affairs
Coxe Hall – 3rd Floor

Dear FGIC Committee:

I am pleased to submit my application for support of a planned visit to the University of Leipzig in the summer of 2011. I will work in the laboratory of Dr. Rudolf Rübsamen, in the departments of Biosciences, Pharmacy and Psychology. Dr. Rübsamen is a prominent member of the auditory neuroscience community, and a collaborator of mine. Currently, I am planning a month's stay in the host lab. I am also seeking funding from other sources including the Alexander von Humboldt foundation, of which I am a fellow. As a former AvH postdoctoral fellow, my scientific and personal ties to Germany are strong, and I would like to use this opportunity to bolster those connections. Support from Lehigh would greatly benefit my career and scientific research program. Dr. Rübsamen's lab has pioneered physiological techniques that are at the forefront of my field, and I would like to use this opportunity to bring this technology into my own laboratory. Below I address each of the criteria outlined in the funding guidelines.

Professional and personal goals:

I have an existing working history with Dr. Rübsamen and would like to use this visit to reestablish this work. We worked together briefly while Dr. Rübsamen visited my postdocotoral lab in 2004 while on sabbatical. Dr. Rübsamen is designated as a "significant contributing personnel" on my NIH funded project for consultation on a technique that was developed in his lab. The technique involves recording simultaneous pre- and postsynaptic activity in particular large synapses in the vertebrate brain that allows one to investigate both the input and output components of neural computation in the living system. His work with this technique over the last several years has had major impact on the field. This technique has both physiological and computational elements and Rübsamen's lab remains one of very few that is fully equipped to take advantage of it. My primary goal is to learn this technique and the computational tools necessary to execute it in my own laboratory. A second goal is related to my teaching/advising. As a member of the Biological Sciences department, the majority of the undergraduates that I teach and advise pursue a premedical curriculum. This curriculum includes a very full schedule of natural science courses throughout the typical 4 years of study from within and outside our department. These courses occur in sequence, therefore, missing one semester has consequences that propagate through several subsequent semesters. Most of these students are unable to accommodate international experiences (ie. semester abroad) because few of the international programs include coursework that is well suited to our specialized and large core curriculum at home. Dr. Rübsamen is well connected to the International Office at the University of Leipzig as the director of the Erasmus Mundus (European Union academic exchange) program at his institution. He has expressed interest in developing some type of student exchange program that could be of tremendous benefit to our students at Lehigh. To be frank, I have not organized such a program before and I am not sure what this truly entails. However, I am very interested in developing international study options for our students in the medium to long-term as similar experiences have been very beneficial in my career.

Expected outcomes:

Short term:

I expect to reestablish research projects with the Rübsamen group with the goal of producing publishable results that will benefit researchers at both institutions.

I expect to bring the pre- and postsynaptic dual recording technique back to my laboratory and use it as a component of my senior graduate student's thesis work.

Long term:

Establish connections and working relationships with University of Leipzig graduate and undergraduate students as potential recruits for postdoctoral and graduate positions in my laboratory or department.

Open discussions and plan for possible establishment of a formal student exchange program for natural sciences undergraduates

Follow-up at Lehigh: I expect this to include training of my graduate students on technical aspects of my visit. I would be delighted to meet with incoming/interested faculty to discuss the funding program. I also expect this experience to lead to publication representing the joint effort of Leipzig and Lehigh investigators.

Pre trip planning:

We are currently negotiating our plans for a July 2011 visit. Dr. Rübsamen and I will be meeting together at a conference in Baltimore Feb 19-23 to discuss specific goals and travel/accommodation arrangements.

Trip details and Estimated Travel Budget:

Trip dates: 7/5/11-8/2/11 (approx.)

Flight: to Berlin or Leipzig from Newark or Philadelphia in July: ~\$1400

Housing: Likely to be free or minimal, except that I will require a rental car, because both of the free options are not convenient to public transportation and are in the outskirts of Leipzig.

Car: \$32/day

Food: \$600

Thank you for your consideration,



R. Michael Burger
Assistant Professor
Dept. of Biological Sciences

Enc: Letter of invitation, Rübsamen

Professor Dr. Rudolf Rübsamen

Director of the Graduate Center
for Life Science at the
Research Academy Leipzig

UNIVERSITÄT LEIPZIG

**Faculty of Biosciences, Pharmacy and
Psychology
Institute of Biology**

Faculty of Biosciences, Pharmacy and Psychology
Institute of Biology, Talstrasse 33, 04103 Leipzig, Germany

Letter of Invitation for R. Michael Burger, PhD, Assistant Professor, Lehigh University

Dear Mike,

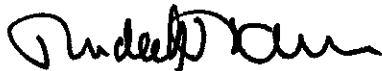
I would like to invite you to come to Leipzig during the forthcoming summer to work on a joint experimental project in the Neurobiology Labs at the Faculty of Biosciences, Pharmacy and Psychology of the University of Leipzig. During your stay in Leipzig we can deepen our collaboration on the functional significance of interaction of neuronal excitation and inhibition in the processing of afferent auditory information in the brainstem. By combining your expertise in the respective signal processing in the avian system with our endeavour in the mammalian system, we will get a deeper understanding of the boundary conditions for signal processing in these two distinctly organized neuronal circuitries.

Since our lab for in vivo electrophysiology is fully installed, we can right away start with the experiments as soon as you have arrived. We will use our recently improved spike-sorting mechanisms to differentiate between pre- and postsynaptic neuronal discharge activity and thus we will be able to differentiate between presynaptic and postsynaptic inhibitory effects. I'm sure that we will get high quality data and it should be our goal to put these data with other data from our labs together in a publication in an international neuroscience journal.

In my lab there are four doctoral students, Mandy Sonntag, Beatrice Dietz, Sasa Jovanovic, and Jana Nerlich who are very much looking forward to your stay in Leipzig. They are very interested in interacting with an experienced scientist, who has experience in combining in vivo and in vitro electrophysiological methods.

I hope you will find the time to come to Leipzig, which will give us a chance to boost the exchange between our labs

Leipzig, 02-14-2011



Rudolf Rübsamen
Professor of General Zoology and Neurobiology