

## **Lund University and Universität Hamburg seed funding**

### **Project descriptions**

#### **Environmental Protection during Armed Conflict (EPAC)**

Britta Sjöstedt (LU) and Anne Dienelt (UHH)

This topic is regulated by several fields of public international law, such as the laws of armed conflict, international environmental law and international human rights law. Several questions at this intersection will be analyzed in the course of the project. We aim at publishing a joint peer-reviewed article. First research ideas will be discussed during an in-house seminar in Lund this fall with scholars from different disciplines, such as natural science and law. In spring, a final draft of the paper will be presented and discussed during a workshop in Hamburg. International scholars working on the topic will be invited. To reach a broader audience, a webinar on the topic will be offered on the platform [environmentalpeacebuilding.org](http://environmentalpeacebuilding.org). We also plan to submit a panel proposal to the International Law Weekend in New York, where parts of our joint research will be presented.

#### **Development, evaluation and clinical application of Dynamic Fetal Cardiovascular Magnetic Resonance Imaging (DUS Gating)**

Erik Hedström (LU) and Fabian Kording, Jin Yamamura (UHH)

Fetal cardiovascular magnetic resonance (CMR) imaging provides in-utero physiology information and diagnosis of complicated fetal cardiovascular disease. Fetal CMR is however not widely used as it is hampered by technical challenges, mainly the lack of a cardiac gating signal to synchronise the image acquisition to the cardiac cycle. An MR-compatible Doppler ultrasound device was developed at Hamburg University to overcome the lack of gating signals. Together with advanced CMR image processing from Lund University it enables high-resolution cine images of fetal cardiovascular anatomy and function. The main aims of our collaboration are to further develop these solutions and to establish fetal CMR with high diagnostic accuracy for clinical application and for fetal cardiovascular physiology research.

#### **Violent Climate Imaginaries: Science - Fiction – Politics (VICTIM)**

Johannes Stripple, Emily Boyd, Tobias Linné (LU) and Ursula Schröder, Jürgen Scheffran, Christine Hentschel, Delf Rothe (UHH)

There are many techniques through which climate futures can be envisioned. These range from scientific climate models, to scenario planning exercises, to film, literature or art installations. Such practices often identify future climate change as a violent process: as a series of deadly disasters, as a flood of climate refugees, or as a climate engineering experiment gone awry. The interdisciplinary project VICTIM studies how such “violent climate imaginaries” are produced and circulated in science as well as popular culture. It asks

how stories of dangerous climate change travel between these domains and how they influence policy-makers and practitioners.

### **Connections between Shrinking Target problems and Extreme Value Theory (STEVT)**

Jörg Schmeling, Tomas Persson (LU) and Maxim Kirsebom, Philipp Kunde (UHH)

In this research project we aim to expand the mathematical framework used to answer questions related to recurrence in dynamical systems, more precisely shrinking target problems, extreme value theory, and Borel–Cantelli lemmata. We will also investigate the connection with Diophantine approximation and fractal geometry. Our intention is to combine the methods developed independently by the groups in Lund and Hamburg to achieve further results.

### **Hanseatic League of Science (HALOS)**

Kajsa M Paulsson (LU) and Arwen Pearson (UHH)

We aim to achieve an integrated Life Science research environment linking research institutes, higher education institutes and industry in the Hamburg–Copenhagen–Lund region. This will be a blueprint for further strategic cooperations in the region in all areas of science and our long term vision is to create a new Hanseatic League of Science (HALOS) that facilitates the transfer of knowledge, training, innovation and expertise across borders. A major aim of HALOS will be to educate the next generation of Life Science researchers in the region in order to enable them to make optimal use of the large scale regional facilities providing electron, synchrotron and neutron techniques. We wish to combine this with a strong focus on industry.

### **Towards a Hamburg Lund International Research School (THALIS)**

Mathieu Gisselbrecht (LU) and Francesca Calegari (UHH)

Hamburg and Lund have very similar knowledge environments, each consisting of a top-level university and world-class research infrastructures. It is natural that these two regions come closer to maximize their scientific impacts. The THALIS project consists of two workshops towards a proposal for a joint graduate research school between Hamburg and Lund. The focus of the two workshops will be to sharpen the common methodological aspects of this school, identifying educational “roadmaps” for our scientific cases and defining the required skills that the students will obtain from the proposed school through field-specific and cross-field training.