

HELIOS International Graduate School promotes young talent in the photon and nanosciences

Hamburg and Lund deepen scientific cooperation in the Baltic Sea region

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The new Helmholtz-Lund International Graduate School (HELIOS) aims to teach PhD students in the photon and nanosciences intelligent procedures for carrying out experiments on photon sources and particle accelerators. This takes into account the enormous amounts of data and increasingly complex instruments in this research area. The Helmholtz Research Center DESY and the Universities of Hamburg and Lund are involved in the project, which hereby deepen their scientific cooperation. The international graduate school for 22 PhD positions is run by the Helmholtz Association of German Research Centers e. V. (HGF), the participating institutions and the Authority for Science, Research and Equal Opportunities (BWFG) with a total of eight million euros.



Bild: © DESY 2017

Hamburg and Lund intensify scientific cooperation with HELIOS in the Baltic Sea region.

Science Senator **Katharina Fegebank**: "With the free-electron lasers FLASH and European XFEL and the synchrotron radiation source PETRA III, the world's three best systems of their kind are in Hamburg. The Science City Hamburg Bahrenfeld - a separate district for science - will be created around this infrastructure in the future. The HELIOS project is now expanding the collaboration between Hamburg and Lund in the photon and nanosciences. DESY, the universities in Hamburg and Lund and the Helmholtz Association jointly offer training for the scientific leaders of tomorrow - based on the modern demands of a highly technical research field. The new graduate school will provide important impulses for new research expertise and innovation in the Baltic Sea region. The project is another success of the Baltic Science Network, which makes a decisive contribution to the stronger networking of European research institutions in the Baltic Sea region."

Prof. Dr. Dr. h.c. Helmut Dosch, Chairman of the DESY Board of Directors: "With HELIOS, we are taking the first step towards greater structural cooperation with Lund, which, like Hamburg, has strong university and non-university research facilities with large facilities. Together we want to prepare our young scientists well to master the increasing complexity of our highly technical experiments and the rapid increase in the amount of data and to develop innovative methods of data acquisition and analysis - also using artificial intelligence."

Prof. Dr. Dr. h.c. Dieter Lenzen, President of the Universität Hamburg: "HELIOS embodies in an exemplary manner the heart of a future-oriented research strategy: cooperative top research and promotion of young scientists. I am very happy that with this graduate school, the Universität Hamburg is also deepening its cooperation with DESY, the University of Lund and the Helmholtz Association, three valued partners. The photon and nanosciences are also one of the most rewarding fields of research at the moment, and the potential of young, highly qualified researchers will make an important contribution to further developing this field."

HELIOS: Cross-border systems and methodology in highly complex research fields

With HELIOS, doctoral students at both locations are to receive the appropriate system and methodological skills for the planning, implementation and evaluation of complex research experiments. The basis is an interdisciplinary approach that brings together various scientific sub-areas such as molecular physics, particle physics, nanosciences and photon research. The cooperation project is also intended to further advance scientific cooperation between Hamburg and Lund. HELIOS could thus serve as a model for new research curricula, networked scientific training and international mobility programs in the Baltic Sea region - at the same time it is possible to integrate further scientific fields in the field of natural and life sciences into the funding program. The doctoral students at HELIOS are supervised by a three-member German-Swedish team from the participating institutions. In addition to funding her research projects, she also expects an extensive qualification program and a stay of at least three months in the respective partner country.

Promotion of scientific cooperation in the Baltic Sea region - for political visibility and innovation

The Baltic Sea Region is one of the most competitive and innovative scientific regions in the world with a first-class university and research infrastructure of great importance for Northern Germany. For the establishment of a science-political network structure in the Baltic Sea region, the Baltic Science Network (BSN) was initiated under the leadership

of the BWFG in 2016, which has been continued as the BSN_Powerhouse since 2019. It offers the science and research ministries in the Baltic Sea region a network structure to develop and implement science policy in a macro-regional dimension and to achieve better representation of the associated science policy interests at EU level.

In this context, the Hanseatic League of Science (HALOS), an EU project funded with 3.6 million euros, was approved at the end of 2018. HALOS aims to use the transnational research cooperation between universities and research institutions from Hamburg and the regions of Copenhagen, southern Sweden and Norway to realize a leading global center for innovations and research in the field of life sciences - and thus the scientific progress in the areas of tumor treatment To advance antibiotic resistance and diagnostics. In addition, a new mobility program for young people in the Baltic Sea region is starting this month: The Baltic Science Network Mobility Program for Research Internships (BARI) offers doctoral students the opportunity to hire international master or bachelor students for a research internship.

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