

**Memorandum of Understanding**  
**between**  
**the Government**  
**of the Kingdom of Sweden**  
**and**  
**the Federal Ministry of Education and Research**  
**of the Federal Republic of Germany**

**Cooperation in materials research and structural biology**  
**using neutron and synchrotron radiation**

In the course of the further development of the European Research Area, new research infrastructures are increasingly being realized through international cooperation as these large infrastructures require growing amounts of funding. This also applies to large facilities like the European X-ray Free Electron Laser XFEL in Hamburg and the planned European Spallation Source ESS in Lund.

Existing science institutions in Northern Germany and Sweden, like DESY, GKSS and Helmholtz-Zentrum Berlin (HZB) and e. g. Lund University and the Karolinska Institute Stockholm as well as their cooperation partners, provide an excellent basis for establishing – together with the existing and planned photon sources PETRA III, FLASH, BESSY II and MAX-lab IV and the BER II research reactor – a leading scientific environment for research using neutron and synchrotron radiation in such fields as materials and structural biology research.

The Swedish Government and the German Federal Ministry of Education and Research intend to expand bilateral cooperation in materials and structural biology research and in infection research and establish a Swedish-Northern German excellence region.

### I. Objectives

The aim of this Memorandum of Understanding is to strengthen research using neutrons and photons in materials and structural biology research and to promote the efficient use of large facilities available in the region. In addition, the two countries will support each other in the preparation and construction of the planned large facilities, the X-ray laser XFEL in Hamburg and the spallation neutron source ESS in Lund. In the interest of both sides, the Swedish-Northern German region will thereby be developed to become a scientific excellence region that is unique and internationally visible in these research fields. *"Röntgen-Angström Cluster"* could be a possible name for this region.

### II. Realization of the objectives

The following initial steps have been agreed for realizing the objectives:

- Structural biology

Structural biology research is the core of the life sciences research activities conducted at PETRA III of DESY in Hamburg. In a first step, researchers from both countries should identify possible areas of cooperation, *inter alia* in infection research, and specify the starting points for research teams and junior research groups. The planned Center for Structural Systems Biology (CSSB) can play an important role in this process. The research activities of DESY/EMBL in Hamburg and of the HZI in Braunschweig will be a crucial element of the cooperation.

- Synchrotron and neutron radiation

Together with the planned synchrotron radiation source MAX-lab IV in Lund, DESY with Petra III and FLASH, the HZB with BESSY II and BER II and the GKSS are offering researchers in the region excellent opportunities for materials and structural biology research. XFEL and ESS will complement the range of opportunities in a

second step. *Land* Hamburg is furthermore involved in CFEL, a joint laser science centre project of different research institutions in the vicinity of XFEL. Strategic coordination of the experiments between the participating partners is expected to create synergy, which will not only strengthen research but also reduce costs. Researchers working at MAX-lab IV, HZB and DESY will specify and develop this cooperation further. Major instruments for this purpose include support for planning, construction and operation of large equipment, joint planning and realization of experiments, utilization of large facilities, and exchanges of researchers and other staff. Another goal is to quickly translate the results of materials research using synchrotron and neutron radiation into innovations.

### **III. Involvement of other partners**

The cooperation is open to participation by science organizations from other countries in the region. Separate agreements must be concluded in this case.

### **IV. Structures**

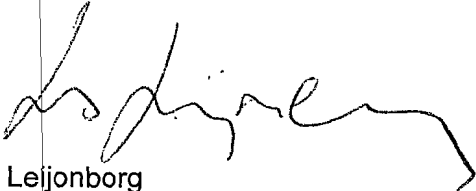
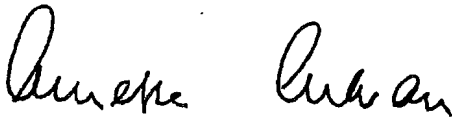
A steering committee will be set up whose membership will include one representative of each signatory as well as representatives of the research institutions and the users of the large facilities. (Representatives of the relevant industrial sector can also become involved as appropriate.) Each country will be represented by a maximum of six members.

The steering committee will be responsible for defining the scientific structure and strategic orientation of the cooperation and for initiating and preparing the joint implementation of investments and experiments and promoting staff exchanges. The steering committee will decide and report on joint activities and their funding.

**V. Entry into force and signature**

This Memorandum of Understanding will come into effect on the date of the last signature.

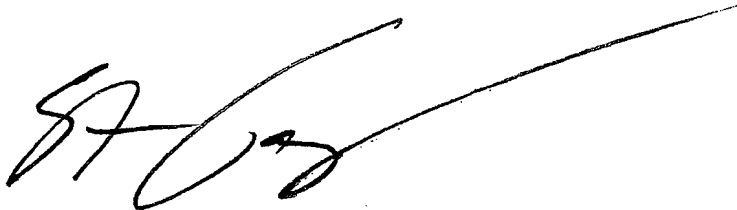
Signed in Stockholm and Berlin on 15 June 2009 and ..... in duplicate in the English language.

<p>For the Swedish Government</p>  <p>Lars Leijonborg Minister of Higher Education and Research</p>	<p>For the German Federal Ministry of Education and Research</p>  <p>Prof. Dr. Annette Schavan Federal Minister of Education and Research</p>
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*I, Sten Tolgfors, Acting Minister for Foreign Affairs, hereby authorize Mr. Lars Leijonborg, Minister for Higher Education and Research, to sign, on behalf of the Swedish Government, a Memorandum of Understanding between the Government of the Kingdom of Sweden and the Federal Ministry of Education and Research of the Federal Republic of Germany concerning Cooperation in materials research and structural biology using neutron and synchrotron radiation.*

*IN WITNESS WHEREOF I have signed these Presents and affixed hereto my Seal.*

*DONE at Stockholm on 28 May 2009*

A handwritten signature in black ink, appearing to be 'ST' followed by a stylized flourish that extends to the right.