

Press release from
ESS Scandinavia

ESS invites physicists to shape future science programmes

Workshop in Neutron, Neutrino, Nuclear, Muon and Medical Physics at ESS, 2–4 December

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On 2–4 December, the European Spallation Source invites the physics communities to identify the unique research opportunities that the ESS will provide within fundamental and medical physics, in order to shape an important science programme at ESS.

The European Spallation Source will be the world's most powerful research facility for materials research with neutrons. The scientific planning has started in order to maximise the scientific opportunities at ESS.

Besides materials science, ESS will be able to provide new research opportunities for fundamental and medical physics research. ESS welcomes the physics communities to incorporate the research opportunities within neutron, neutrino, nuclear, muon and medical physics at ESS in their long-term research programmes.

- Europe, including Sweden and Denmark, has many strong physics communities, and the ESS will give physicists unique research opportunities. We hope that the physics communities will take the chance to participate in the building-up of the science programmes at ESS, says Associate Professor Mats Lindroos, responsible for Accelerator Design and formerly project leader for several CERN facilities.
- The more today's scientists engage in the future ESS research, the better science programmes we will be able to shape, in connection with the finalisation of the ESS design.

Through the study of particles such as neutrons and muons, scientists can gain knowledge of fundamental phenomena within quantum mechanics and particle physics. ESS can also give astro and nuclear physicists tools for the understanding of some of the secrets of the universe. Within medical physics, ESS can open up possibilities within medical isotopes or cancer treatment.

- We also want to learn more about neutrinos, a particle that maybe holds the answers to some of the largest cosmological mysteries, such as how the anti-matter disappeared, says Mats Lindroos.

The Workshop on Neutron, Neutrino, Nuclear, Muon and Medical Physics at ESS will be held on 2–4 December in Lund, Sweden.

ESS IN SHORT

The European Spallation Source – the next generation facility for materials research and life science

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The European Spallation Source (ESS) will be a multi-disciplinary research laboratory based upon the world's most powerful neutron source. ESS can be likened to a large microscope, where neutrons are used instead of light to study materials – ranging from polymers and pharmaceuticals to membranes and molecules – to gain knowledge about their structure and function. ESS will be up to 100 times better than existing facilities, opening up new possibilities for researchers in for example health, environment, climate, energy and transport sciences and cultural heritage.

ESS is an intergovernmental project resembling CERN in Geneva, and it will be built in Lund in southern Scandinavia. At least thirteen European countries will take part in the construction, financing and operation of the ESS.

The Swedish Government has offered to host the ESS and to cover 50 percent of the 1,4 B€ investment costs and 20 percent of the operating costs together with the Nordic and Baltic states. The ESS Secretariat and its Director, Professor Colin Carlile, works on a mandate from the Government for the planning of the future international ESS organisation. Building is expected to start around 2012, the first neutrons to be produced in 2019 and the facility to be fully operational around 2025.

ESS will support a user community of 5000 researchers and will have great strategic importance for the development of the European Research Area. Lund and the Malmö-Copenhagen region have excellent preconditions to attract leading scientists: several large universities, a broad research-based industry, high-quality infrastructure, an English-speaking population and world-class research capabilities in, among other areas, biotech and nano technology. Near by there will be complementary laboratories, such as the synchrotron MAX IV in Lund and XFEL and PETRAIII in Hamburg.

ESS has adopted the goal that the facility will be carbon dioxide neutral, by means of an energy conservation strategy, the use of renewable sources of electricity, and the reuse of excess heat through the Lund district heating and cooling system. ESS built in Lund will be the first large-scale scientific facility operating under this principle, and it will be a demonstration project for other future facilities.