

Building the European Spallation Source Accelerator

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Abstract: The European Spallation Source (ESS), currently under construction in Lund, Sweden, is the world's most powerful linear accelerator (linac) driving a neutron spallation source, with an ultimate beam average power of 5 MW at 2 GeV. The linac accelerates a proton beam of 62.5 mA peak current at 4 % duty cycle (2.86 ms at 14 Hz). The accelerator uses a normal conducting front-end bringing the beam energy to 90 MeV, beyond that the acceleration up to 2 GeV is performed using superconducting structures. The accelerator is built by a European collaboration consisting of 23 European institutes delivering in-kind contributions of most hardware but also of services for installation and testing. More than half of the original 510 M€ for the accelerator budget being in form of in-kind contributions. In this talk, I will give a short introduction to the science planned for ESS, give an overview of the status of the ESS accelerator and comment on the challenges the accelerator collaboration has encountered and how we are together addressing these challenges.

Presenter: Dr LINDROOS, Mats (ESS - European Spallation Source (SE))