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## Scientific software developments at the European Spallation Source.

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The European Spallation Source (ESS) is the largest investment in European Neutron scattering since the construction of the Institute Laue Langevin. The Data Management and Software Centre (DMSC) is responsible for the delivery of the scientific computing and data management for the ESS. In this presentation the current status of the ESS project will be discussed in relation to the development of scientific software for the ESS instrument suite.

The performance of a next generation neutron spallation source, the first one with long pulse characteristics, creates specific requirements for the data acquisition system, data processing and data analysis software. These requirements will be presented along with the design choices, prototype performance and test results for the core DMSC systems which are geared towards a paradigm where the core neutron detection technology has shifted from  $^3\text{He}$  to  $^{10}\text{B}$ . The contribution will also detail what is being done to be prepare ESS for the broader European desire for open access to research data and sustainable software projects.

The ESS is a pan-European project with 15 European nations as members and Sweden and Denmark as host nations. The role and benefits of collaborative open source software development will be examined in relation to the advantages and challenges for scientific software development at a green field research infrastructure.

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