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Research Area: Spallation Neutron Source Data Analysis

The Spallation Neutron Source (SNS) is a state-of-the-art accelerator-based neutron source at Oak Ridge National Laboratory (ORNL). Neutron scattering research enables scientists to study the arrangement, motion, and interaction of atoms in materials. Research in neutron scattering has led to improvements in medicine, food, electronics, cars, airplanes, and improvements in materials used in high temperature superconductors, powerful, light-weight magnets, aluminum bridge decks, and stronger, lighter plastic products. These improvements would not be possible without a means of analyzing the neutron scattering data obtained. The purpose of this project is to write XML files to put into the SNS portal software which will create graphical user interfaces (GUI) for the NL2SOL fitting program and improve existing GUIs for McStas and reduction programs in the portal. These useful and attractive GUIs will provide input for jobs on the TeraGrid, a nationwide network of supercomputers. This project is useful for developers and users alike in that the developers can easily modify the XML files in the portal and the users can analyze their data at the push of a button without having to know anything about the TeraGrid, XML, or parallel computing.

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