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ESS –Instrumentation at the European neutron source of the future

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The ESS is currently planning a next generation spallation neutron source to be built in Lund, Sweden. The 5MW source with a repetition rate of 14Hz is with a pulse duration of 2.86ms designed to be a long pulse source. The unique source parameters also trigger unique instrumentation solutions in order to take maximum advantage of the powerful source for all kinds of instruments. A straw-man suite of 22 instruments to be built at the ESS is currently under intense investigation and concepts enter the selction phase. Among those are several that are key to the science topic of this science symposium.
The combination of the high source brilliance and unique instrument solutions is foreseen to push the boundaries of science that is currently feasible through the utilization of the unique probe, which neutrons represent for large number of applications. Envisaged efficiency gains up to more than an order of magnitude will allow for smaller samples, more irregular or sophisticated and hierarchical structures as well as faster kinetics or slower dynamics in systems to move into the focus of neutron scattering.

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