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MIRACLES, the TOF-backscattering instrument at the European Spallation Source

MIRACLES will be the neutron time-of-flight backscattering spectrometer at the European Spallation Source in Lund, Sweden.[1] This high-resolution spectrometer will display a best energy resolution of $\delta \sim 2.5 \mu\text{eV}$ can be easily tuned to match the observation time of the system under study. Moreover, a unique dynamic range covering an energy transfer for quasielastic neutron scattering (QENS) measurements of $E \sim \pm 500 \mu\text{eV}$ is anticipated. Finally, the flexibility to select the incident energy within a wide range will allow to carry out inelastic neutron scattering (INS) spectra of about 20 meV.

The instrument design has been subjected to significant modifications in the conceptual design of its neutron

[1] N. Tsapatsaris et al, Rev. Sci. Instrum. 87 (8), 085118 (2016).

[2] P. Luna, et al. Physica B 564 64–68 (2019); P. Luna et al. (in preparation).

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