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CAMEA —A novel multiplexing analyzer for neutron spectroscopy

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CAMEA (Continuous Angle Multiple Energy Analysis) is a novel crystal analyzer concept optimized for detection efficiency in the horizontal scattering plane [1]. This is compatible with the geometrical restrictions imposed by extreme sample environments and enables rapid mapping of excitations. The design comprises consecutive, upward scattering analyzer arcs set to analyze different neutron energies and an array of position sensitive detectors. A focusing arrangement of the analyzer crystals together with distance collimation facilitate prismatic analysis of the scattered neutrons [2] and results in a quasi-continuous energy coverage with improved energy resolution.

We completed the construction of a CAMEA backend as a replacement of the cold triple axis spectrometer Rita-II at the Swiss Spallation Neutron Source SINQ. I will present an overview of the spectrometer design, engineering solutions for the analyzer detector system and first data taken during the commissioning of the instrument. The results demonstrate the large performance gain for overview studies of low-energy dynamics.

I will also introduce the indirect geometry time-of-flight spectrometer BIFROST, which is currently under construction at the European Spallation Source ESS [3,4]. BIFROST utilizes a variant of the CAMEA concept and promises to make best use of the unique brightness and long-pulse structure of ESS.

[1] F. Groitl, *et al.*, Review of Scientific Instruments **87**, 035109 (2016).

[2] J. O. Birk, *et al.*, Review of Scientific Instruments **85**, 113908 (2014)

[3] P.G. Freeman *et al.*, EPJ Web of Conferences **83**, 03005 (2015)

[4] H. Rønnow *et al.*, BIFROST Instrument proposal (2014)

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