Contribution ID: **248** Contribution code: **P-TUE-34** Type: **Poster**

The new muSR instrument FLAME at PSI

Tuesday, 30 August 2022 18:40 (20 minutes)

Here, we report on the status of the setup, commissioning and first performance tests of the newest muSR instrument FLAME (FLexible and Advanced MuSR Environment) at PSI. Commissioning started in spring 2022 after the delivery of the superconducting experimental magnet.

FLAME is designed to allow ZF, LF and TF muSR measurements over a broad temperature range from 25mK to 300K with magnetic fields from true zero field up to 3.5T with high spatial homogeneity and temporal stability.

Due to its forward and backward veto system, it should be possible to study small samples with practically no background.

We anticipate a time resolution of approximately 150ps due to a compact detector design allowing for high TF measurements with good spectroscopic accuracy and large observable signal amplitude.

FLAME will have the possibility to mount up to 2 samples (later up to 3 samples) on a ladder holder on the dilution fridge which can successively be brought into the beam at low temperatures. This feature is thought to reduce the ratio between “down”and “up”periods of the instrument, which is a key factor on a heavily oversubscribed facility as SmuS.

The magnet and muSR spectrometer are designed to be compatible with other cryogenic environments already used at the µSR facility making FLAME a very versatile instrument and ready for future upgrades.

In addition, it is foreseen to use FLAME for in-situ modification of samples by external stimuli like uniaxial pressure, electric fields or electric currents.

By the time of the muSR conference, we will hopefully be able to present the user community positive results of the commissioning of the instrument and of the first performance tests.

Primary authors: Dr LUETKENS, Hubertus (Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland); Dr BAINES, Chris (Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland); ELENDER, Matthias (Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland); Dr BARTKOWIAK, Marek (Laboratory for Neutron and Muon Instrumentation, Paul Scherrer Institut, CH-5232 Villigen PSI, Switzerland); Dr RASELLI, Andrea (Paul Scherrer Institut PSI, 5232 Villigen, Switzerland); Dr STOYKOV, Alexey (Paul Scherrer Institut PSI, 5232 Villigen, Switzerland); Dr SHIROKA, Toni (Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland); Dr SCHEUERMANN, Robert (Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institut, CH-5232 Villigen PSI, Switzerland); Dr AMATO, Alex (Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland)

Presenter: Dr LUETKENS, Hubertus (Laboratory for Muon Spin Spectroscopy, Paul Scherrer Institute, CH-5232 Villigen PSI, Switzerland)

Session Classification: Posters

Track Classification: New techniques