

## SESANS Standards Working Group Meeting (16 June 2023)

### Attendees

Rob Dalgliesh (RMD), Henrich Frielinghaus (HF), Fankang Li (FL), Andrew Parnell (AJP), Steven Parnell (SRP), Roger Pynn (RP), Gregory Smith (GNS)

### Apologies

Wim Bouwman (WGB)

### Facility updates

#### TU Delft (SRP)

There was a slit in the wrong place on the instrument, so the echo was way out. Now that it is repaired, the performance is better than ever. The reactor will be shut down for the summer holiday. There is a problem with the cold source, which means that the reactor will either come up in the autumn without the cold source or there will be a six-month shut down to install it. The Wollaston prism is going to be added to McStas as an official component.

#### ORNL (FL)

This cycle had been busy running two setups on different beamlines (SEMSANS and SESANS). SEMSANS was in the cold guide hall, using high spatial and temporal resolution scintillator detector, and two prisms. SESANS experiment was using two arms so was not optimised. Samples included Fe in polymer matrix (from PSI), polystyrene particles (from NIST), and FlexiPor membranes. There was a systematic shift in the data, which could be scattering or could be upstream divergence.

#### ISIS (RMD)

The 3 MHz system is now running and can measure out to 40 micron. RP had come to ISIS to look at coherence length of a neutron using 3 MHz system. Samples in recent cycles included gratings and deposited silica. Silica now had sufficient layers to give detectable signal; gratings show a regular repeating pattern that agrees with simulated scattering from Mathematica code.

### Reproducibility measurements

The group discussed the possibility of round-robin measurements. RMD felt the group was not yet ready to perform these with a calibration sample.

FL showed data from FlexiPor membranes that he had obtained. These have also been measured at TU Delft. ISIS should obtain a sample to see if measurements match up.

AJP and GNS discussed polystyrene-*b*-polyisoprene (Kraton-like) polymers that AJP had made previously. These were very high molar mass and had periodicity in the 100s of nm.

The main issue between data at different facilities appears to come from solid angle coverage of the detectors at different instruments, which are at different positions relative to the sample and also measure neutrons with different wavelengths. For instance, the ORNL setup is a more compact instrument than Larmor at ISIS, but RMD calculated that the solid angle was still larger. This is something that will need to be addressed in the future.

### Events

RMD informed the group that he was now SANS Group Leader at ISIS. As part of this role, he is proposing annual workshops on specific topics relevant to SANS; he would like one of these topics to be SESANS. He is proposing a whole community, not ISIS specific, event, which would be hybrid to increase the numbers who can attend. This should not be limited to SESANS, and it should also include other related instrument communities (like dark-field interferometry and USANS).

ISIS has also recently signed a memorandum of understanding with TU Delft, and as part of that there will be annual meetings with Delft, so an event could be incorporated into that as well.

### **Nomenclature for SESANS**

There was not time for this discussion, so it will be delayed until the next meeting.

### **Actions**

- **GNS** to purchase FlexiPor membranes for measuring at ISIS.