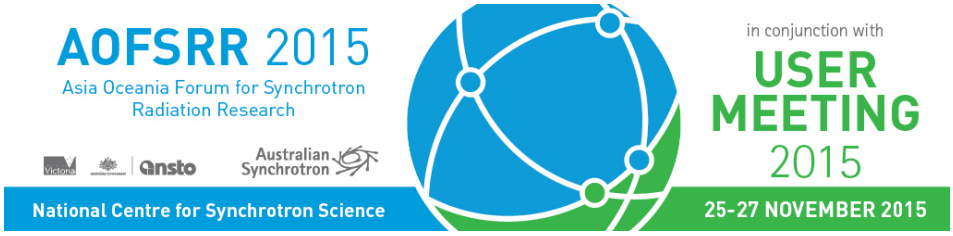

Contribution ID : **216** Type : **Poster**

Co-Flow: A sheath flow sample environment for biological solution X-ray scattering at the Australian Synchrotron.

Friday, 27 November 2015 13:30 (45)

Small angle X-ray scattering (SAXS) is an extremely useful tool for analysing protein structures that is becoming increasingly popular. SAXS displays a number of advantages over other techniques, but there are currently significant limitations, particularly in regards to the susceptibility of biomolecules to radiation damage and sample consumption that limit the utility of the technique to the wider protein community. We believe that this degree of radiation damage is in part due to the fluidics of the flow in the capillary, which causes a very slow moving boundary of material that is highly susceptible to beam damage near the edges of the capillary. We have sought to remove this factor from the measurement of the protein samples by adopting a sheath flow sample environment, termed Co-Flow. In this approach, the protein sample is introduced into the centre of a sheath fluid, which acts as a barrier between the sample and the capillary wall, abrogating the slow moving fluid boundary. In practice, this approach allows sensitive protein solutions to be exposed to at least 10 fold greater flux. Further the biomolecule samples do not come into contact with the capillary at all, and hence do not stick. These advantages enhance the use of SAXS at the australian synchrtron particularly for susceptible protein samples.

Keywords

SAXS, radition damage, coflow, sheath flow, proteins

Primary author(s) : Dr RYAN, Tim (Australian Synchrotron)

Co-author(s) : Dr HAWLEY, Adrian (Australian Synchrotron); Dr COWIESON, Nathan (Australian Synchrotron); Dr KIRBY, Nigel (Australian Synchrotron); Dr MUDIE, Stephen (Australian Synchrotron)

Presenter(s) : Dr RYAN, Tim (Australian Synchrotron)

Session Classification : Poster Session 2

Track Classification : Beamlines, Instrumentation and Techniques