

**Speaker:** [Dr Lester Barnsley](#)  
Beamline Scientist  
Australian Synchrotron, ANSTO

**Date:** Tuesday 2 February 2021

**Time:** 2.00 pm

**Venue:** Room 1.08 QMF building (N74)  
Griffith University, Nathan Campus  
Videoconference: [Teams Link](#)



---

**Title:** **Experiments on the high-flux BioSAXS beamline: opportunities for dynamic studies of nanoscale systems**

### Abstract

The BioSAXS beamline is one of the new beamlines to be constructed at the Australian Synchrotron within the BRIGHT program. BioSAXS will be dedicated to perform solution small angle X-ray scattering (SAXS) experiments, offering access to a variety of researchers from Australia and New Zealand to study nanoscale systems under a variety of conditions. Solution SAXS experiments continue to be a growing area of the current Australian Synchrotron operations, particularly in regard to nanoparticles, liquid crystal phases, structural biology and polymer solutions. BioSAXS will be commissioned with a highly-automated end-station combined with a versatile detector system to accommodate most solution SAXS experiments, probing structures from 0.2 – 600 nm ( $Q \sim 0.001 - 3 \text{ \AA}^{-1}$ ), with low instrument background. The optical design is optimized for high flux ( $>5 \times 10^{14} \text{ ph/s}$ ) X-rays and a focused beam size smaller than 0.3 mm.

A wide range of automated, in-situ sample environments are planned for users studying nanoparticulate and soft matter systems, with a focus on high throughput measurements and real-time dynamics. These sample environments will include microfluidic stages, a stopped-flow and rheometer for dispersed polymer solutions, along with a novel, versatile magnetic-array system, optimised for experiments on magnetic nanoparticles used in biomedical applications. The BioSAXS beamline will be developed as a highly-automated and versatile beamline that can accommodate a wide-range of solution scattering experiments, complementing the existing SAXS/WAXS beamline to ensure the world-leading capabilities of the SAXS offering at the Australian Synchrotron.

### Brief Bio

Dr Lester Barnsley is a beamline scientist for the BioSAXS beamline to be built as part of the BRIGHT project at the Australian Synchrotron. He currently assists with the design of the beamline and will help with the commissioning of the beamline and supporting user experiments once the beamline is active. His research interests are in studying the self-assembly of magnetic nanoparticles for drug delivery applications. Previously, he was instrument scientist on the KWS-1 small-angle neutron scattering instrument, operated by the Jülich Centre for Neutron Science (JCNS) at Heinz Maier-Liebnitz Zentrum (MLZ) in Garching, Germany.

For enquiries, please contact Mrs Lacey Shaw: [l.shaw@griffith.edu.au](mailto:l.shaw@griffith.edu.au)

**ALL WELCOME**