



Contribution ID : 227

Type : Oral

From Niche to Mainstream: Ptychography Comes of Age.

Wednesday, 24 November 2021 11:00 (20)

In the space of a few short years, ptychography has moved from a niche method^{1,2} to emerging as a mainstream technique for user science^{3,4}. Until recently, ptychography required significant expert user experience to collect and reconstruct useable data, with a field of view often limited to a small area (such as a single cell)⁵ by data collection and reconstruction limitations⁶. Now however, ptychography data can be collected at high speed⁷ complementary to modern X-ray fluorescence fly-scanning⁸, with data-pipelines providing results within a few hours using GPU enabled reconstruction algorithms⁹. These advances allow ptychography to be applied to larger areas and sample replicates¹⁰, allowing statistically significant user science to be done in a reasonable timeframe while simultaneously collecting X-ray fluorescence data¹¹⁻¹³. In this presentation, I highlight key milestones on the ptychography journey as it makes its way into the mainstream, as well as looking towards the future.

Michael W. M. Jones¹, Grant A. van Riessen^{2,3}, Christoph E. Schrank⁴, Nicholas W. Phillips⁵, Gerard N. Hinsley², Martin D. de Jonge⁶, Cameron M. Kewish^{2,6}

¹Central Analytical Research Facility, Queensland University of Technology, Brisbane QLD 4000, Australia

²Department of Chemistry and Physics, La Trobe Institute for Molecular Science, La Trobe University, Bundoora VIC 3086, Australia

³Melbourne Centre for Nanofabrication, Clayton VIC 3168, Australia

⁴School of Earth and Atmospheric Sciences, Faculty of Science, Queensland University of Technology, Brisbane QLD 4000, Australia

⁵Paul Scherrer Institut, 5232 Villigen PSI, Switzerland

⁶Australian Nuclear Science and Technology Organisation, Australian Synchrotron, Clayton VIC 3168, Australia

Level of Expertise

Expert

Presenter Gender

Man

Pronouns

Which facility did you use for your research

Students Only - Are you interested in AINSE student funding

Do you wish to take part in the Student Poster Slam

Condition of submission

Yes

Primary author(s) : JONES, Michael (QUT)

Presenter(s) : JONES, Michael (QUT)

Session Classification : Instruments & Techniques

Track Classification : Instruments & Techniques