



Andrew Leong

667-802-0605

andrewleong12345@gmail.com

Current Position

- **Director's Postdoctoral Fellow**, Los Alamos National Laboratory 2020
- **Visiting Scientist**, Johns Hopkins University (Homewood) 2020

Education & Employment History

- **Postdoctoral Fellow**, Johns Hopkins University (East Baltimore) 2019
- **Postdoctoral Fellow**, Johns Hopkins University (Homewood) 2015
- **PhD, Physics**, Monash University, Clayton, Australia 2015
- **Honors, Physics**, Monash University, Clayton, Australia 2010
- **BS, Science**, Monash University, Clayton, Australia 2009
- **BS, Biomedical science**, Monash University, Clayton, Australia 2009

Honors & Activities

- >1000 hours of beamtime at APS, LCLS, Australian Synchrotron, and SPring-8.
- Session chair, SSRL/LCLS Users' Meeting 2022, Stanford, CA
- Co-organizer, Enabling 3D mesoscale imaging under dynamic conditions 2021, Los Alamos, NM
- Peer-reviewer for: Review Scientific Instruments, Journal of Applied Physics, Journal Visualized Experiments, Powder Technology, Nuclear Instruments and Methods in Physics Research Section A, Scientific reports, Optics Express, Optics Letters, Journal of the Optical, Society of America A, Applied Optics, and Photonics research
- Postdoctoral oral competition, Johns Hopkins University 2016
- Vice-Chancellor's Commendation for Thesis Excellence, Monash University 2012
- Australian Postgraduate Award, Australian Federal Government 2012
- Certificate of Excellence, Monash University 2011
- Summer Research Award, Monash University 2009
- Golden Key award, Golden Key International Honor Society 2007

Interests

- Cutting edge science continues to demand better quality images and reconstructions under increasingly challenging imaging conditions. I have been interested in pushing the boundaries of instrumenting novel x-ray imaging systems and image analysis methods to study materials under challenging conditions.
- Advancements in the field of imaging are seen as discipline-specific, but they share many commonalities that can be leveraged to strengthen each other's research. I am interested in raising awareness and transferring knowledge about imaging methods across research communities (including in medicine, plasma physics and engineering).
- Synchrotrons provide unprecedented bright and coherent light sources. I am interested in developing smaller scale light source instruments which, although they cannot match the capabilities of synchrotrons, form an important cog in fast tracking new imaging methods and analysis tools to support synchrotrons.

Ideas for Advocacy for the User Community

Facilitate in lowering the intellectual barrier in data analysis among the APS users community.

Each year numerous APS users partake in one of the 35 APS beamlines to answer a variety of cutting-edge science questions. Despite this, the same challenges in data analysis are repeatedly encountered. There are ongoing efforts to address these challenges such as the development of the TomoPy Benchmarking Repository and Autonomous Experimentation involving multiple national laboratories. Ultimately, success in these efforts relies on input from users at APS and other light source facilities. Advocating users to be open about and sharing their data analysis methodologies while protecting intellectual ownership would be an important step towards streamlining data analysis and getting to the answer of science problems faster and accurately. Giving an avenue for users to express their data analysis needs and strengths to each other and to the APS board can create an environment conducive for addressing major challenges in data interpretation. Furthermore, creating an award for excellence in information sharing including data, data analysis tools, and training/mentoring students and other scientists can help promote a united front for disentangling and interpreting large amounts of complex data.