

Atomic and Molecular Physics Laboratories



Professor Brenton Lewis

The Atomic and Molecular Physics Laboratories are engaged in a broad range of experimental, theoretical and computational studies of the interaction of electrons, positrons, and photons with atoms, molecules and solids, in order both to further our knowledge of fundamental physical and chemical processes, and to provide essential information that is critical to applications in other scientific disciplines, technology, and the environment.

The Laboratories research activities include:

- Photons - VUV/XUV laser spectroscopy, laser photodetachment and photofragment spectroscopy, computational molecular physics, computational planetary atmospheres, computational multiple photo ionization;
- Electrons/Positrons - low-energy electron and positron physics (experimental and theoretical), materials studies with positrons, e-2e studies of gases, EMS studies of gases and solids; and
- Quantum-Atom Optics - He BEC studies, atom manipulation, experimental tests of led theory.

The Laboratories also host two Australian Research Council Centres of Excellence: the Australian Research Council Centre of Excellence for Quantum-Atom Optics (ACQAO), which plays a leading role in the study of the quantum properties of Bose-Einstein condensates and atom lasers via insights gained from quantum optics; and the Australian Research Council Centre of Excellence for Antimatter-Matter Studies (CAMS), whose experimental and theoretical program is based around the study of the interaction of electrons and positrons with matter.

Academic Staff

Professor and Head of Laboratories

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 Stan Newman BSc PhD Manchester

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 Casten Makochekanwa BSc Zimbabwe, MSc PhD Yamaguchi
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 Eskender Mume BSc PhD (located at ANSTO)
 Daniel Slaughter BSc PhD Flinders
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 Ross Tranter (from May)

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Visiting Fellows

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