

Physics of Quantum and Materials Discussion Group
Wednesday 4 June 2025

Gavin Mountjoy, "Advancing glass science with the disordered materials instrument suite – the example of phosphate glasses for lithium battery electrolytes"

Ingram 234 (location TBC)

This presentation will review current frontiers in applications of phosphate glasses, and make use of the example of $\text{Li}_2\text{O}-\text{Al}_2\text{O}_3-\text{TiO}_2-\text{P}_2\text{O}_5$ glasses for lithium battery electrolytes. This will serve to illustrate the general scheme for advancing glass science via the disordered materials instrument suite, with particular regard to the expected benefits of the SANDALS-II upgrade. The presentation will recap on the broad challenges in determining glass structures, being neither molecular nor crystalline, and the excellent capability of neutron diffraction to measure pair distribution functions. Then attention will be directed to the initial structural studies of the $\text{Li}_2\text{O}-\text{Al}_2\text{O}_3-\text{TiO}_2-\text{P}_2\text{O}_5$ glass system, which was inspired by the archetype of high ionic conductivity NASICON materials. This discussion concerns work in progress, and consideration will be given to the balance between instrument performance and choosing goals in structure determination.

Program at <https://research.kent.ac.uk/pqm/events/dg/>