

Prof Richard Walton

Solution Crystallisation of Complex Oxides: Discovery of New Materials with Magnetic and Catalytic Properties

We are developing solution mediated crystallisation routes for a wide variety of inorganic materials, making use of hydrothermal and solvothermal conditions to allow new routes to functional solids and the discovery of novel phases. I will describe how we have been able to crystallise a range of new oxides of iridium and of ruthenium with interesting magnetic properties and whose uses in electrocatalysis are of relevance to energy applications.

Alongside our laboratory work, the use of high energy X-rays at the Diamond Light Source allows us to follow crystallisation of oxides from solution to gain the first insights into the kinetics and mechanisms of their formation and I will show recent work from these experiments.