

Title: Structure -Property Relationships from Diffraction Data: the importance of weak interactions.

Abstract:

The talk will explore the inter relations between 3D molecular structure and the bulk properties of the material as determined by X-ray and neutron variable temperature diffraction experiments. The introduction will include a description of the instrumentation we have designed and built in Durham and further developed over recent years, specifically to explore these structural relationships fully. The lecture will include the importance and relevance of various intermolecular interactions that influence the material properties displayed by selected examples of molecular complexes. The lecture will endeavour to cover diverse topics such as non linear optical materials, spin cross over complexes, spin and magnetic transition materials, super conducting and insulating materials, proton transfer compounds and photo-cycloaddition complexes.

We will mention briefly, the topic of photo-crystallography which extends beyond this particular lecture, but which is related and timely in the field.