

## **Summer Scholar Projects in the Disordered Materials Group.**

### **1) Polymorphism in pharmaceuticals**

The role of molecular flexibility and disorder in influencing the formation of different polymorphs is being investigated using X-ray diffuse scattering and computer simulation methods. In this project Monte Carlo computer models will be built to interpret and analyse the complex diffuse X-ray scattering that is observed in a polymorph of a sulfonamide drug compound.

### **2) Investigation of the effect of local ordering in metallic glasses.**

In this project we will investigate the effect of incorporating short-range chemical order into an amorphous solid. Computer models will be constructed using hard spheres of different radii to represent different atom types. The Ideally Amorphous Solid (IAS) construction of Zbigniew Stachurski (Dept. of Engineering) will be used and the effect on the diffraction pattern of different ordering schemes will be investigated.

### **3) Structure and magnetic ordering in two-dimensional magnetic materials.**

In this project we will investigate the synthesis, structures and magnetic properties of materials with two-dimensional magnetic structures. This will require a range of experimental techniques including crystal growth, magnetic measurements and X-ray diffraction.

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