Understanding the formation of metal injection moulded components.

Metal injection moulding (MIM) is a powerful and flexible high-precision manufacturing technique. In a recent project we used neutron diffraction at the Australian Nuclear Reactor, OPAL, to explore the heat treatment of MIM components (figure 1). However, we are left with some crucial questions regarding the details of the composition of the final product. The techniques to use to solve these problems will centre on electron diffraction and other electron microscopy-based techniques. In this project, the student will attempt to correlate the crystal structure of the steel with its composition, to add crucial detail to the picture of how the heat treatment progresses.

This project would be suitable for a third year undergraduate project or engineering honours student.