



Contribution ID: 27

Type: **Talk**

## **Cross-correlation based 2D structure determination from multi-particle X-ray diffraction images**

*Friday, 16 September 2011 15:30 (20 minutes)*

In 1977, Kam proposed the cross-correlation method for 3D structure determination from X-ray diffraction images of multiple, identical, randomly oriented particles. The main obstacle to the practical application at the nanoscale, namely the requirement of short but intense incoming X-ray pulses, may be overcome with Free Electron Laser sources.

We present the results of pilot experiments performed at a synchrotron X-ray source. The simplifications with respect to the original idea consist in the reduction of the dimensionality of the experiment from 3D to 2D, and in the “freezing” of the rotational motion of the particles to, allow sufficiently long acquisition time. We demonstrate the potential of the cross-correlation method by reconstructing the 2D structure of gold nanoparticles with size of the order of 360 nm and less.

### **Please specify the session**

XFEL Experiments in Condensed Matter

### **Please specify poster or talk**

talk

**Primary author:** Dr PEDRINI, Bill (Paul Scherrer Institut)

**Presenter:** Dr PEDRINI, Bill (Paul Scherrer Institut)

**Session Classification:** XFEL Experiments in Condensed Matter

**Track Classification:** XFEL Experiments in Condensed Matter