Contribution ID: **266** Type: **Oral Presentation**

First time resolved diffraction experiments with the Stellenbosch Ultrafast Electron Gun

Thursday, 14 July 2011 14:00 (15 minutes)

<p>We observe ultrafast structural dynamics in crystals. For that, we use the 'Pump Probe Technique': The 'Pump' triggers a fast process, the 'Probe' takes a snapshot of it at a specific time. We are interested in observing processes, which happen on a picosecond timescale. That means, the duration of our 'Probe' must be in the order of 100 fs. The only source of a 100 fs short signal, produced and controlled by humans, is a short pulsed Laser. We therefore convert short laser pulses to electron pulses of about the same duration (200 fs). The electrons get diffracted on the atomic structure of the sample and form a pattern on the detector, which is recorded by a 16 bit camera. From the diffraction pattern we can work out the structure of the sample material at that specific time step. By repeating the experiment for different time delays between pump and probe, we gather information about the whole process we want to observe. We will show and discuss our latest measurements on charged density waves in TaSe2.

Level (Hons, MSc,
   PhD, other)?

PhD

Consider for a student
   award (Yes / No)?

No

Would you like to <br> submit a short paper <br> for the Conference
 Proceedings (Yes / No)?

No

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