



Contribution ID: 132

Type: **Poster Presentation**

Analysis of electron diffraction patterns in DCNQI salts

Tuesday, 9 July 2013 17:40 (1 hour)

Abstract content
 (Max 300 words)

We investigate a donor-acceptor quasi 1D organic molecular crystal, Cu [R1, R2 – DCNQI]₂ (R1 and R2 are radicals), using ultrafast electron diffraction technique. These crystals are radical anion salts and are famous for their high anisotropic electric conductivities and their low temperature Peierl's transition from metal to insulator, with up to eight orders of magnitude conductivity change, depending on the radical used. The signature of the intensity distribution of the {h0l} Bragg reflections along the [010] Laue zone is analysed and compared with the theoretical simulation. The formation and dynamics of 3-fold periodicity charge density wave (CDW) in these crystals, which are mediated by d-p- π hybridization and the coordination angle α (N-Cu-N angle), forms an on-going research in our laboratory. The ultimate aim of the project is to study the photo-induced Peierl's transition with sub-picosecond temporal resolution by means of ultrafast electron diffraction. The poster will present the theoretical background of the project, and highlight the subtle and difficult analysis of our transient diffraction patterns.

Apply to be
 considered for a student
 award (Yes / No)?

YES

Level for award
 (Hons, MSc,
 PhD)?

PhD

Main supervisor (name and email)
and his / her institution

HEINRICH SCHWOERER,
heso@sun.ac.za,
Stellenbosch University

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

NO

Primary author: Mr OLAOYE, Olufemi Opeyemi (SU)

Co-authors: Ms VON FLOTOW, Andrea (SU); Mr SMIT, Bart (SU); Prof. SCHWOERER, Heinrich (SU); Dr ERASMUS, Nicolas (SU)

Presenter: Mr OLAOYE, Olufemi Opeyemi (SU)

Session Classification: Poster1

Track Classification: Track C - Photonics