Contribution ID: **103** Type: **Student Poster Competition**

Charge density wave formation near band degeneracies

Tuesday, 24 July 2012 20:00 (2 hours)

H.-M. Eiter (1), M. Lavagnini(1), A. Baum (1), R. Hackl (1), E.A. Nowadnick (2)(3), A.F. Kemper (2)(4), T.P. Devereaux (2)(4), J.-H. Chu (2)(4), J. G. Analytis (2)(4), I.R. Fisher (2)(4), and L. Degiorgi (5)

(1) Walther-Meissner-Institut, Bayerische Akademie der Wissenschaften, D-85748 Garching, Germany

(2) Stanford Institute for Materials and Energy Sciences,
SLAC National Accelerator Laboratory, 2575 Sand Hill Road, Menlo Park, CA 94025, USA

(3) Geballe Laboratory for Advanced Materials & Physics Department, Stanford University, CA 94305, USA

(4) Geballe Laboratory for Advanced Materials & Dept. of Applied Physics, Stanford University, CA 94305, USA

(5) Laboratorium f\"ur Festk\"orperphysik, ETH - Z\"urich, CH-8093 Z\"urich, Switzerland

We present Raman scattering experiments on rare-earth tri-telluride single crystals to study low dimensional interacting electron gases and the transition into a charge density wave (CDW) phase. In the case of ErTe3 there are two CDW phase transitions at 265K and 155K with orthogonal ordering vectors. We analyze the data and the Raman selection rules and find a strong enhancement of the light scattering intensity near band degeneracies. For symmetry reasons the electron-phonon coupling is also enhanced at these points. This is an additional contribution to the phonon renormalization and therefore influences CDW formation in multiband systems.

Primary author: EITER, Hans-Martin (Walther-Meissner-Institut, Bayerische Akademie der Wissenschaften, D-85748 Garching, Germany)

Presenter: EITER, Hans-Martin (Walther-Meissner-Institut, Bayerische Akademie der Wissenschaften, D-85748 Garching, Germany)

Session Classification: Poster Session 2

Track Classification: Correlated Physics