T_CSUH Bi-Weekly Seminar

Texas Center for Superconductivity at the University of Houston

Dr. Alexander Litvinchuk

Research Associate Professor,
TcSUH and Department of Physics
at the University of Houston

"Optical and Electronic Properties of Zn_4Sb_3 Thermoelectrics"

Friday, July 20, 2007
Room 102, University of Houston Science Center
12:00 noon – 1:00 p.m.

Abstract

We will report on an experimental study of optical and electronic properties of Zn_4Sb_3, an excellent thermoelectric material, across the structural β-α transition using optical techniques. The phase transition from highly disordered high temperature β phase into low symmetry ordered α phase is shown to be accompanied by an increase of thermoelectric power and electrical conductivity, and also significant rise in the free charge carrier density. Concomitant with these electronic changes is an unexpected increase in the carrier scattering rate, which exhibits features of localization.

Bio

Dr. A. P. Litvinchuk graduated from the National University of Ukraine (Kiev, 1980) and received his PhD (1983) and DSc (1989) degrees from the Institute of Semiconductor Physics of the Ukrainian Academy of Sciences. In 1990-1997 he has been affiliated with the Technical University of Berlin (Germany), Chalmers University of Technology (Gothenburg, Sweden), and Max-Planck-Institute for Solid State Research (Stuttgart, Germany). He was awarded the European Community Fellowship (Brussels, Belgium, 1995), Fellowship of the Max-Planck Society (Munich, Germany, 1992), Alexander von Humboldt Fellowships (Bonn, Germany, 1991, 1990), and the Honor Medal of the National Academy of Sciences (Kiev, Ukraine, 1988). Since 1997 he is a Research Associate Professor at TcSUH. Dr. Litvinchuk's research interests include optical properties of solids (superconductors, semiconductors, insulators, ionic conductors), lattice dynamics, Raman and Infrared spectroscopies. He co-authored over 170 peer reviewed publications and a number of reviews and book chapters, including "Infrared-Active Vibrations of High-Temperature Superconductors: Experiment and Theory. - in "Physical Properties of High Temperature Superconductors IV", ed. by D.M. Ginsberg, (World Scientific, Singapore, 1994), pp.375-469 (with C. Thomsen, and M. Cardona).

Persons with disabilities who require special accommodations in attending this lecture should call (713) 743-8210 as soon as possible.

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