

TcSUH Bi-Weekly Seminar

Texas Center for Superconductivity at the University of Houston



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New Results on the Exploratory Synthesis of Complex Polar Intermetallic Phases and a Search for new (High- T_c) Superconductors

Friday, February 17, 2012

Room 102, University of Houston Science Center
12:00noon - 1:00 p.m.

Abstract

A significant motivation in our investigation of intermetallics near the Zintl border is interest on novel physical phenomena and high- T_c superconductivity. The transition of electronic properties from semiconducting Zintl phases to normal intermetallics along the Zintl border provides a fertile area to search for novel electronic properties. Discoveries of superconductivity in quaternary superconducting borocarbides, MgB_2 , and most recently in the iron-based pnictides attest to the richness of this field. Furthermore, the analogy of the novel fullerene clusters to the Zintl polyanionic main group naked clusters is too revealing to ignore. The discovery and characterization of these and new polar intermetallic phases add new and crucial insights to the understanding their structural and chemical bonding peculiarities, as well as guiding the study of this largely unexploited chemical system.

Bio

Prof. Arnold M. Guloy is a faculty of the Department of Chemistry at UH and TCSUH. He is recognized worldwide for his pioneering research and creativity in the field of inorganic solid-state chemistry. Dr. Guloy received an Inorganic Chemistry Ph.D. degree from Iowa State University in 1992, and joined the faculty at UH in 1994. Dr. Guloy's research emphasizes the synthesis and characterization of complex and multifunctional materials. He is well known for his breakthrough research into a first-time, low-density synthetic form of the chemical element germanium.

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