

TCSUH BI-WEEKLY PI WEBINAR

Thursday, April 1, 2021 – 12:00 p.m. to 1:00 p.m.

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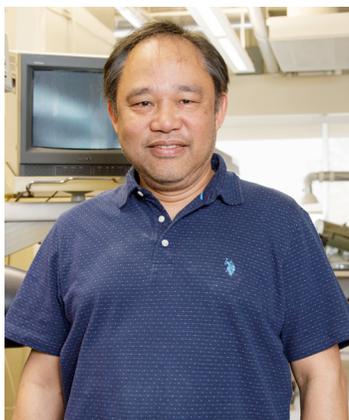
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Unusual Chemistry and Physics of Rare-Earth Metal-Rich Oxygen Interstitial Phases

Prof. Arnold M. Guloy

Moore's Professor of Chemistry and PI, Texas Center for Superconductivity, University of Houston

ABSTRACT: This talk provides an overview and update of our current work on complex rare-earth-metal-based intermetallic phases. Our studies are motivated by the desire to explore the structural, chemical and physical property relationships in complex intermetallics that lie in the region between metals and non-metals. A general goal of this work is to discover unusual crystal structures and novel properties arising from the introduction of interstitial oxygen resulting in tuning their electronic structure or stabilizing new sub-oxide phases. The structural and chemical behavior of this class of oxygen interstitial phases will be discussed and related to their novel electronic/magnetic properties (superconductivity and Kondo behavior). New insights into understanding the chemical behavior and electronic structures of these materials and related compounds will be presented.



BRIEF BIO: Arnold M. Guloy earned a BS in Chemistry from the University of the Philippines in Diliman, and a Ph.D. from Iowa State University. After a postdoctoral stint at the IBM TJ Watson Research Center in Yorktown Heights, Dr. Guloy joined the UH Department of Chemistry where he is currently a Moore's Professor of Chemistry. Professor Guloy is recognized world-wide for his pioneering and creative research in the field of inorganic solid state chemistry. He is well known for his breakthrough work into organic-based metal-halide perovskites, unique synthetic forms of the element germanium, and chemical bonding description of Zintl phases, complex polar intermetallic compounds and superconductors.