

Physics & Astronomy Colloquium

Presents

Gary Collins

Professor Physics & Astronomy,
Washington State University

Thursday, September 27, 2018

4:10 pm, Webster Room 17

“Partition of solute atoms among sublattices in a compound”

An important question in the theory of solutions is how solute atoms partition among different sites in a compound. Consider for definiteness an ordered binary compound AB_2 that has unique sublattices for elements A and B. Do solute atoms distribute on one or both sublattices? How does the partition of a solute depend upon deviation from the stoichiometric A:B composition? How does the partition change as the mole fraction of solute increases? And finally, what role does temperature play?

Old experiments with Matt Zacate and recent experiments at WSU with Ryan Murray motivate these questions. A system studied in detail has been the intermetallic compound $GdAl_2$ doped with indium solutes. In my talk I will review the observations to date and present a working hypothesis that we* are currently examining to explain the observations.

* Windy Olsen, Kyle Elsasser and myself, with support from the National Science Foundation.

*Please meet our guest speaker and share in refreshments,
3:45-4:10 p.m. in the foyer on floor G above the lecture.*