

# Heavy Rare Earth Metals Subjected to Ultra High Pressures

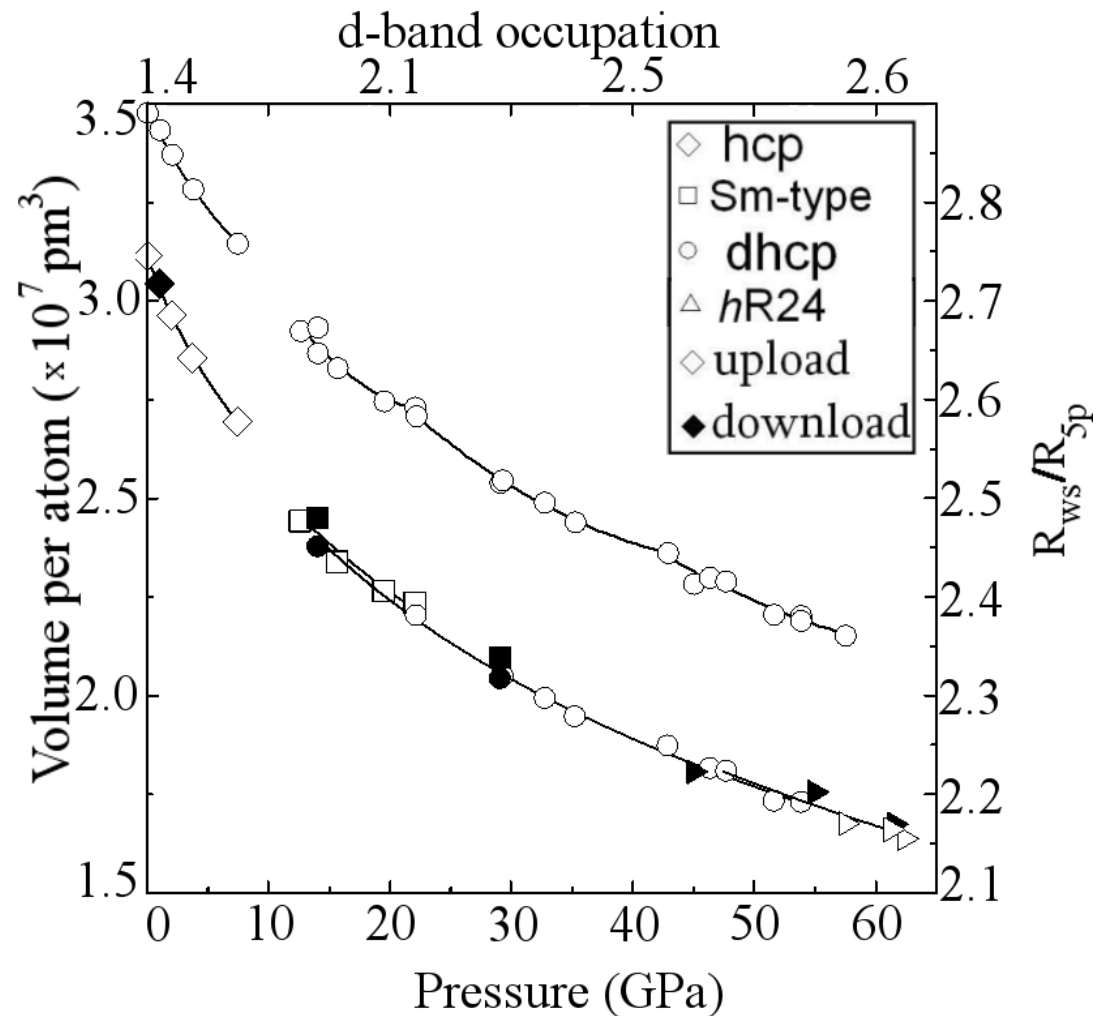
Yogesh Vohra, University of Alabama at Birmingham, DMR-0203779

Intellectual Merit: Phase transformations in metals and alloys induced by reduced volume or high pressure has led to a fundamental understanding and synthesis of novel phases.

This research is notable because the entire rare earth crystal structure sequence can be simulated by application of high pressure in a single element and phase stability is correlated to the d-band occupation.

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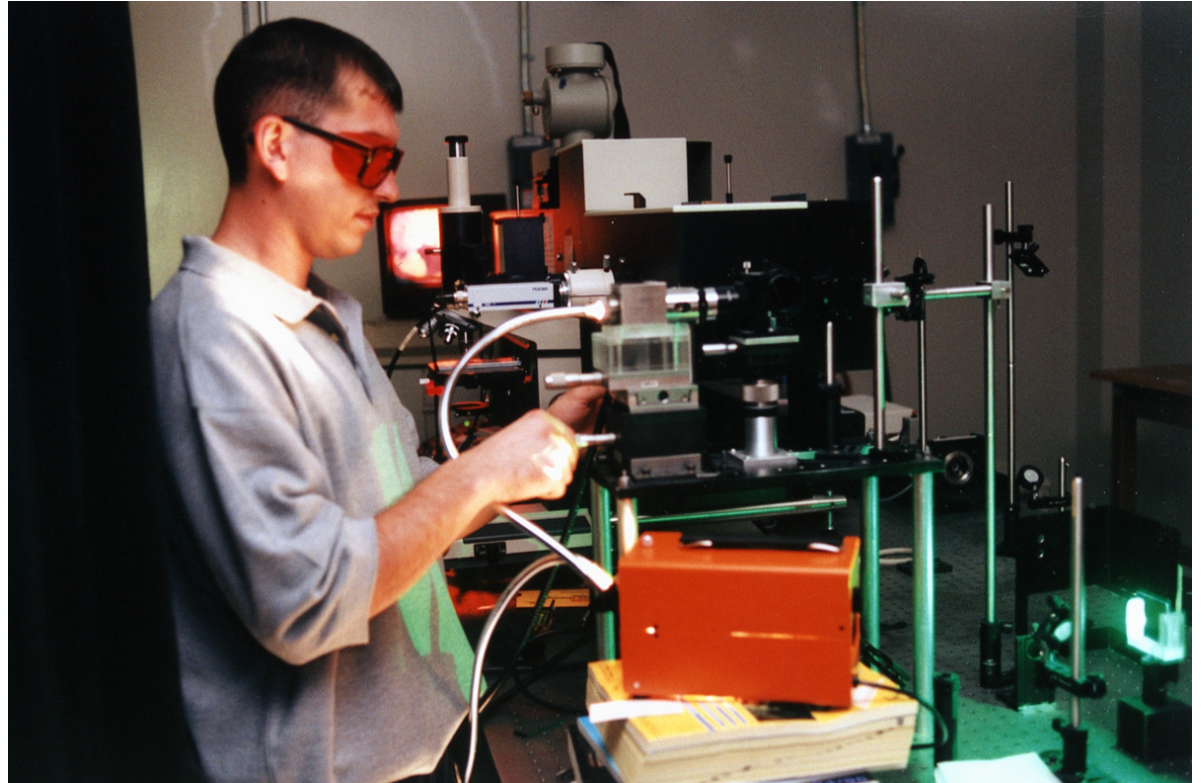


Different crystallographic phases in heavy rare earth metal Holmium as a function of pressure.

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Broader Impacts: PI Yogesh Vohra's lab at UAB provides training to graduate and undergraduate students in high pressure metals research. Several of the recent graduate students have joined national labs and are currently active in static and dynamic pressure research.



Graduate student Ned Velisavljevic is working with a laser heated diamond anvil cell to study phase transformations in metals under simultaneous high pressure high temperature conditions. Dr. Velisavljevic is now at Los Alamos National Lab after completing his PhD at UAB.