

JAEA スペシャルセミナー

Speaker : Dr. Duck Young Kim

Affiliation : Geophysical laboratory, Carnegie Institution of Washington

Title : Novel hydrides under pressure

Abstract:

Hydrogen, the lightest and simplest element in the Universe, forms unprecedented hydrides with heavy elements under pressure, which is interesting in fundamental physics point of view because it can be a proxy study of metallic solid hydrogen and also in application point of view, hydrogen-dense materials also can provide alternative route of energy storage materials. Furthermore, pressure induces dramatic change of hydrides properties such as metal-insulator transition and superconductivity. In this talk, I present recent studies on various hydrides; La-Hydrides and noble metal-hydrides, and suggest predicted stoichiometry change of them under pressure, compared with present experimental evidences. Many of metal hydride forms fcc type  $MH_n$  ( $n=1,2,3$ ) under pressure. I will present especially the role of octahedrally positioned hydrogen in fcc metal lattice in  $MH_n$  for superconductivity.