



Different applications of high pressure as a tool to induce phase transformations in solid state materials

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The presentation will provide some selected examples for the application of high pressure in different aspects of materials' studies. Using examples from three different stages of my career, I will present the results of (1) an in situ high-pressure synchrotron study of negative thermal expansion (NTE) material $\text{Sc}_2\text{W}_3\text{O}_{12}$ revealing structural details on its orthorhombic-to-monoclinic phase transition; (2) a calorimetric study of the pressure-induced amorphization in NTE material ZrW_2O_8 , and (3) our recent successes in using high-pressure synthesis to make novel solid state materials such as the semiconducting $\text{Sc}_{0.67}\text{WO}_4$, the first wolframite with a trivalent cation, as well as multiferroic FeTiO_3 .