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Ambient and High Pressure Structural Studies on TiH_2[1] PATRICIA KALITA, RAVHI KUMAR, ANDREW CORNELIUS, University of Nevada, Las Vegas — Currently metal hydrides attract intense research interest because of their potential application as hydrogen storage materials. We performed in situ high-pressure synchrotron x-ray diffraction as well as high-pressure Raman spectroscopy studies on TiH_2 at pressures up to 20 GPa. Low temperature ambient pressure x-ray diffraction studies were also carried out. A phase transition from a high symmetry cubic structure to a lower symmetry tetragonal structure was observed as temperature is lowered below room temperature. The unit cell parameters as well as the equation of state were calculated. To the best of our knowledge this is the first report of high pressure synchrotron x-ray diffraction as well as high-pressure Raman spectroscopy studies on TiH_2.

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