

Pressure effected phase transition of perovskite like La₂Ti₂O₇

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The crystal structure of lanthanum titanate La₂Ti₂O₇ was investigated by X-ray diffraction and Raman spectroscopy at high pressures up to 32 GPa and for structural determination neutron diffraction done at ambient condition. The La₂Ti₂O₇ structure is monoclinic with the space group P21 at ambient condition. We observed a structural phase transition into the orthorhombic phase with a space group Pna21 at P=17.3 GPa. It was found that the phase transition highly depend on titanium oxide source. Dependences of parameters and volume of the unit cell on the pressure was found, and the bulk modulus has been calculated.

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