

Abstract Submitted
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Pressure Induced Phase Transitions of Yb: NaBi(WO₄)₂ up to 51 GPa¹ HANG CUI, CHUNLI MA, XIAOXIN WU, HONGYANG ZHU, HONGDONG LI, QLIANG CUI, Jilin University, PR China — High-pressure Raman scattering and luminescence spectra studies have been performed on Yb: NaBi(WO₄)₂ up to 51 GPa at room temperature by using diamond anvil cell techniques. The Yb-doped single crystals of scheelite double tungstates NaBi(WO₄)₂ have been grown by Czochralski method. High-pressure Raman scattering results indicate that Yb: NaBi(WO₄)₂ undergoes phase transition from tetragonal (I4₁/a) to monoclinic (I2/a) symmetry at around 6.5 GPa. When the pressure reaches to 23.3 GPa, the color of sample changes from yellow to red observed by optical microscope, and the luminescence spectra is dramatically different from the previous phase, it is indicated that the energy level transition maybe occurs around this pressure. With pressure is higher than 32.1 GPa, Raman and luminescence spectra suddenly disappear and the Yb:NaBi(WO₄)₂ ultimately transforms into amorphous state. The mechanism of various phase transitions caused by the effect of Yb-doping is still in the going work.

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Qiliang Cui
Corresponding author

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