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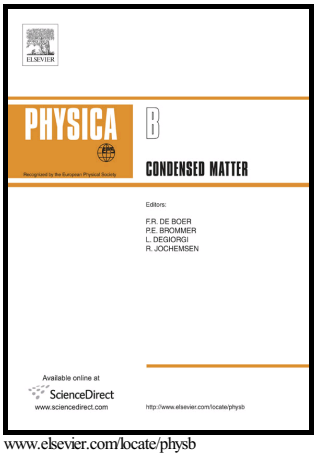

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Phase stability and incompressibility of tungsten boride (WB) researched by *in-situ* high pressure x-ray diffraction

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Abstract: The binary tungsten boride, WB, has potential industrial applications as it not only has a high melting point but is generally harder and less compressible than the pure metals. Here, the physical and mechanical properties (phase stability, bulk modulus and compressibility) of WB were investigated by *in situ* high-pressure x-ray diffraction and theoretical calculations. Its crystal structure still remains stable even at the highest pressure of 63.7 GPa and room temperature for the diamond-anvil cell experiments. The pressure-volume (*P*-*V*) data were fitted using the Birch-Murnaghan EOS and the Vinet EOS to obtain the isothermal bulk modulus, K_0=452 (4) GPa and