

## **New Phase Boundary and High-Pressure Thermoelasticity of ZnO**

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The phase transition of zinc oxide from B4 (hexagonal wurtzite structure) to B1 (cubic rocksalt structure) has been studied by energy-dispersive powder diffraction technique up to 11 Gpa and 1273K. Analysis of equation-of-state (PVT) data for the rocksalt phase yields precise values of the bulk modulus and its temperature derivative. The previously accepted *P-T* phase diagram is shown to be incorrect. It is established that the B1 phase is not recoverable. The equilibrium transition pressure of the B4-to-B1 transformation is near 6 Gpa (at ambient temperature) and the  $dP/dT$  slope close to zero. These new results are confirmed by using simultaneously three other different types of experimental (imaging, ultrasonic and X-ray diffraction studies on single-crystal specimens).

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**References:** F. Decremps, J. Zhang and R.C. Liebermann, "New Phase Boundary and High-Pressure Thermoelasticity of ZnO," *Europhysics Letters*, **51**, 268, 2000.