**Study of Pressure Induced Structural, Elastic and Thermodynamic properties of Sr*x*Cd1-*x*O Semiconducting Compounds**

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**Abstract:** An effective interionic interaction potential (EIOP) approach has been introduced to examine the pressure dependent phase transitions in Sr*x*Cd1-*x*O (x= 0, 0.50 and 1) ternary semiconducting compound with different compositions of *x* up to maximum of 100 GPa. The particular compound transform from rocksalt (*B*1) to Ceasium Chloride (*B*2) structures. The effect of pressure on structural and elastic changes in Sr*x*Cd1-*x*O semiconducting compounds and the mechanism of transformations are studied by using an effective interionic potential method. The effective interionic potential contains the long-range Coulomb and van der Waals (vdW) interactions and the short-range repulsive interaction of up to second-neighbor ions within the Hafemeister and Flygare approach. It appears that the present calculations are logically consistent with the available data. The determined phase transition pressures are around 90.02 GPa, 63.07 GPa and 38.5 GPa for CdO, Sr0.50Cd0.50O and SrO, respectively. Furthermore, we have examined the elastic and thermodynamic properties of Sr*x*Cd1-*x*O compounds in terms of effective inter-ionic potential in both phases.

**Keywords:** Phase transitions, Semiconducting compound, Mechanical Properties.