**High-Pressure Phase Transitions and Thermodynamic Behaviors of SrX [X= S, Se, Te]**

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**ABSTRACT**Pressure-induced structural aspects of NaCl-type (*B1*) to CsCl-type (*B2*) structure in *SrX*[*X* = S, Se, Te] semiconductors are presented. An effective interionic interaction potential (EIOP)
with long range Coulomb, van der Waals (vdW) interaction and the short-range repulsive
interaction upto second-neighbor ions within the Hafemeister and Flygare approach is developed.
Particular attention is devoted to evaluate the vdW coefficients following the variational method,
as both the cation and the anion are polarizable. Our result on vast volume discontinuity in
pressure volume phase diagram identifies the structural phase transition from *B*1 to *B*2 structure.
The estimated value of the phase transition pressure (*Pt*) is consistent with results previously
published. The variations of elastic constants with pressure follow a systematic trend identical to
that observed in others compounds of NaCl type structure family.

PACS: 61.50Ah; 61.50Ks; 64.30.+t; 62.20Dc; 62.20.x
Keywords: Phase transition; Equation of state; Elastic constants

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