

**ÉTUDE DES PROPRIÉTÉS STRUCTURALES ET ÉLASTIQUES
SOUS HAUTE PRESSION DE SrTiO₃
DANS LES PHASES CUBIQUE ET TÉTRAGONALE**

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ABSTRACT. We investigated the athermal high -pressure behavior of the elastic properties of SrTiO₃ (STO) up to 26GPa in cubic and tetragonal phases using the ab initio pseudo-potential method. Our results for the cubic phase are in good agreement with experiment and previous pseudo-potential calculations. There are no studies for the tetragonal phase under high pressure available for comparison. Our calculations show that the cubic-tetragonal phase occurs at 6 GPa. The elastic proprieties of STO are strongly pressure dependent with instabilities near the phase transition pressure. STO is more resistant to plastic deformation and the fracture in the cubic phase than in the tetragonal phase.