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Tilt and buckling modes, and acoustic anisotropy in layers with post-perovskite connectivity

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Abstract

The effect of the anisotropic connectivity within the layers of the post-perovskite, $CaIrO_3$, structure are examined using a Rigid Unit Mode and group theory approach, and possible commensurate tilt structures are given. It is shown that the anisotropic bonding of the sheet may give rise to preferred directions of buckling for such structures and anisotropy in the speed of sound.

Keywords: Post-perovskite, $CaIrO_3$, tilt modes, layer structures, buckling modes, acoustic anisotropy