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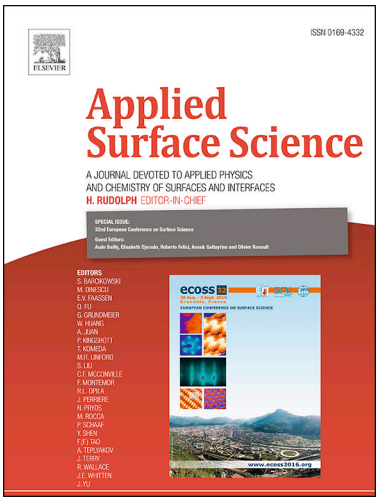

Full Length Article

First-principles studies on the superconductivity of aluminene

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First-principles studies on the superconductivity of aluminene

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Abstract

Group III mono-elemental two-dimensional (2D) materials have been an active area of research since the experimental demonstration of monolayer boron. Using first-principles calculations, we predict a new type of buckled monolayer aluminum (aluminene) which exhibits metallic characteristics. From the phonon dispersion and cohesive energy calculations, the free-standing aluminene is structurally stable. The stability of the aluminene is maintained under tensile