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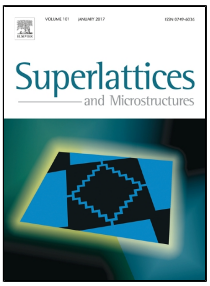

Tunable electronic and magnetic properties in stanene by 3d transition metal atoms absorption

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Highlights

1. the TM adatoms on stanene prefer to be relaxed on a hollow site except V atom
2. For V, Cr, Mn, Fe, and Co adatoms on stanene, the structures present the character of magnetic properties, the Ni, Cu, and Zn adatoms do not induce magnetic moments.
3. The adsorption of V, Cr, Mn, Fe, and Cu turn the stanene into metal, while Ni and Zn adatoms can open up a narrow band gap. The Co atom adsorption on stanene displays the character of half-metallic properties.