Temperature dependent Stacking Fault Energy of FeCrCoNiMn High Entropy Alloy

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The stacking fault energy (SFE) of paramagnetic FeCrCoNiMn High Entropy Alloy (HEA) is investigated as a function of temperature by using *ab initio* calculations based on the exact muffin-tin orbitals method and the coherent potential approximation. We divide the SFE into three major contributions: chemical, magnetic and strain parts. Structural energies, local magnetic moments and elastic moduli are used to estimate the effect of temperature on each term. Calculations show that the SFE of FeCrCoNiMn HEA is particularly low and has a large positive temperature gradient.

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