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First-principle study of the electronic, magnetic and structural characteristics of the  $\text{Mn}_2\text{CoAs}_{1-x}\text{Al}_x$  ( $x=0,0.25,0.50,0.75$ ) Heusler alloys

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- Based on DFT calculations, the  $\text{Mn}_2\text{CoAs}_{1-x}\text{Al}_x$  ( $x=0.0$  to  $1.0$ ) Heusler alloys were investigated.
- Structural and magnetic properties for  $\text{Mn}_2\text{CoAs}$  and  $\text{Ti}_2\text{CoAl}$  compare well with experiment.
- Half metallic behavior is explained via spin polarization results.
- Magnetic and electronic properties for the quaternary alloys were studied for the first time.

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