

# Magnetic Property of One Dimensional FePt Atomic Chain on NiAl(110) surface

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Through the full potential linearized augmented plane wave (FLAPW) method, the magnetic property of one dimensional (1D) FePt diatomic chain has been explored. We find ferromagnetic (FM) ground state for both free standing and supported system on NiAl(110) surface. In free standing state, both Fe and Pt atoms have magnetic moments of 3.47 and 0.74  $\mu_B$ , respectively. On NiAl(110) surface, the magnetic moment of Fe becomes 2.97  $\mu_B$  and there is no spin polarization in Pt atom. In contrast, the surface Ni has an induced magnetic moment of 0.2  $\mu_B$ . It is found that the direction of magnetization is substantially affected by the NiAl(110) surface. For instance, the magnetization aligns perpendicular to the chain axis for free standing state, whereas the magnetic anisotropy parallel to the chain axis is observed. Besides, the magnitude of anisotropy energy is strongly influenced by the presence of NiAl(110) substrate