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Magnetic properties of Fe/Ni thin films: ab initio studies of magnetic anisotropy and XMCD sum rules

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Using the full potential linearized augmented plane wave (FLAPW) method, we have explored various magnetic properties of Fe/Ni ultrathin films. It has been found that the Fe/Ni films on Cu(001) surface have perpendicular magnetization to the surface if the films pseudomorphically grow on Cu(001) surface. In contrast, the direction of magnetization of Fe/Ni films shows oscillatory behavior in the presence of strain effect. In addition, We have investigated the general validity of XMCD sum rules.