

Magnetic Quantum Wells

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Abstract : Spin polarized photoemission allows the study of spin dependent electronic structures in magnetic materials. Here we use it to study the properties of noble metal thin films deposited on ferromagnetic substrates. These systems, which may be viewed as simple quantum wells, offer important insights into the properties of related magnetic multilayer which have been shown to display technologically important giant magnetoresistance and oscillatory exchange coupling characteristics. In particular, the quantum well states, which are highly spin polarized even in non-magnetic materials such as copper, are shown to be the key states influencing the properties of the magnetic multilayers.