초청강연 I-2

Manganite-Titanate Heterojunctions: A Magnetic Field Tunable Mott Insulator/Band Insulator Interface

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A conceptual dilemma arises in the study of oxide thin film heterostructures. The question is: how should one consider the correlated equivalent of band bending? This semiconductor concept is based on the validity of rigid single particle band diagrams, which are known to be an inadequate description for strongly correlated electrons. In addition to presenting an interesting scientific challenge, this underlies attempts to develop new applications for doped Mott insulators in device geometries. Here we present our recent study of rectifying manganite-titanate heterojunctions, in which the charge distribution can be modified by a magnetic field, reflecting the strong charge-spin coupling arising from the double-exchange mechanism.

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