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Screened Coulomb interactions between localized electrons in solids[1] BI-CHING SHIH, PEIHONG ZHANG, Department of Physcis, University at Buffalo the State University of New York, Buffalo, New York 14260, USA — An accurate description of the Coulomb interaction between localized electrons in solids remains a fundamental and challenging problem. In this talk, we present first-principles results for the screened Coulomb and exchange interaction between localized d electrons in transition metals and transition metal oxides. The localized d states are represented by maximally localized Wannier functions whereas the dielectric screening is calculated within the constrained random phase approximation.

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Bi-Ching Shih
Department of Physcis, University at Buffalo the State University
of New York, Buffalo, New York 14260, USA

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