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Metal Oxides - materials for the information age

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Information age - this is the term describing the current stage in the human history. It is also the catch phrase for the national consensus in our endeavor to enter the upper echelon of advanced countries. It is in this perspective our research on metal oxides is being carried out. As technologies for the information handling advance, the demand for better materials is proportionately mounting.

Metal oxides are materials which can meet these technological demands. They encompass materials showing a wide variety of physical properties - from insulators to conductors and to superconductors, from ferroelectrics to ferromagnetics. The recent progress in film deposition methods has opened an exciting path to new material synthesis, which would allow researchers to take advantage of the diverse nature of oxides.

Aside from the technological aspects, the physics of metal oxides is extremely interesting in its own right. Metal oxides represent a class of strongly correlated systems, where new and challenging phenomena at the frontier of solid state physics occur.

In this talk, we shall first present the general overview for the current research being conducted at Pohang University of Science and Technology. Then we shall discuss in detail the physics of perovskite manganites as an example.