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Colossal Magnetoresistance and Multiferroic Manganites, Topological Insulators, High-Tc Superconductors

We are “Strongly Correlated Electronic Systems Research Lab” of the Electrophysics Department, NCTU. Our primary research interests include the following strongly correlated electronic systems:

(a) Colossal Magnetoresistance Manganites: We have developed a comprehensive pulsed deposition system to prepare various manganite thin films to study the effects of phase separation, including the (anti)ferromagnetic and charge/orbital ordering phases, on the colossal magnetoresistance phenomena.

(b) Multiferroic rare-earth manganites: In the past ten years, our lab has conducted comprehensive studies on the effects of epitaxial strain and ordering of rare-earth *f*-electrons on the magnetism-induced polarizations exhibited in multiferroic manganites.

(c) Topological Insulators: In collaborations with the ultrafast femto-second laser laboratory in the Electrphysics Department and several international teams of crystal growers, we have obtained some intriguing results on various topological insulators.

(d) High-Tc superconductors: Our laboratory has been involved in the researches of High-Tc superconductors for more than two decades.

Key Facilities: Pulsed laser deposition, transport measurement systems, LCR-meter for dielectric measurements, Quantum Design SQUID magnetometer.