The 215th MANA Seminar

High-pressure synthesis and characterization of new multiferroic indium-based perovskites

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Multiferroic materials combine both magnetic and electric dipole ordering. Multiferroics are quite interesting because they allow control of magnetic properties by electric field and vice versa. Existing problems are (1) development of room-temperature (RT) multiferroics with (2) strong coupling between different order parameters.

We describe a new class of multiferroic materials: In-based perovskites. We show that $In_{1-y}M_yMO_3$ with y = 0.112–0.176 and M = $Fe_{0.5}Mn_{0.5}$ is isostructural with $BiFeO_3$ and has a high ferroelectric Curie temperature; $In_{1-y}M_yMO_3$ is a canted antiferromagnet with the Néel temperature close to RT. Our results give a significant contribution to the development of RT multiferroics and open wide possibilities for thin-film research and future improvement of In-based perovskites.

Venue: Seminar Room #431, MANA Bldg.

Date: July 22nd (Friday) **Time:** 15:30-16:15

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