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Complex magnetic properties in multilayer rare earth oxypnictides[1] JIAKUI WANG, ANDREA MARCINKOVA, CHIH-WEI CHEN, EMILIA MOROSAN, Department of Physics and Astronomy, Rice University, MOROSAN GROUP TEAM — Intensive research interest on layered transition metal pnictide materials was stimulated by the discovery of high temperature superconductivity in Fe-pnictides a few years ago. To study the relationship between superconductivity, crystal structure and magnetism, and to search for novel superconductors of better application potential, more transition metal pnictides are worth investigating. In this talk, I will discuss physical properties of members of a particular class of layered oxypnictides, with four transition metal pnictogen layers per unit cell. While varying the rare earth ion, we find that one compound is a low temperature superconductor (Tc 1.7 K), and others show diverse magnetic properties, including ferromagnetic or antiferromagnetic order, or spin glass behavior. I will show our observation from measurements of DC and AC magnetization, specific heat and resistivity. The understanding of the physical properties of these isostructual compounds may serve as a guide in the search for superconductivity in these systems.

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Jiakui Wang
Department of Physics and Astronomy, Rice University

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