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### **Oxide Ferromagnetic Semiconductors<sup>1</sup>**

SATISHCHANDRA OGALE, University of Maryland, College Park

The field of oxide ferromagnetic semiconductors has witnessed tremendous interest and activity over the past few years, especially in the context of realization of intrinsic oxide based diluted magnetic semiconductors (O-DMS). In this talk I will review the important developments in this field, highlighting apparent successes, concerns and questions. Research results obtained by various groups on a number of systems such as transition element (especially Co, Mn, Cr) doped TiO<sub>2</sub>, ZnO, La<sub>1-x</sub>Sr<sub>x</sub>TiO<sub>3</sub>, HfO<sub>2</sub> will be discussed including some related device efforts involving spin transport and field induced modulation of magnetization. Some cases of undoped or dual doped oxide films will also be addressed. In the light of the potentially serious possibility of extrinsic effects in most systems the significance of the choice and implementation of an appropriate characterization scheme will also be highlighted. Collaborators : T. Venkatesan, Nigel Browning, Y. V. Idzerda, R. Ramesh, D. K. Kundaliya, S. X. Zhang, L. F. Fu, S. Dhar, A. Lussier, S. R. Shinde, Y. Zhao, M. S. R. Rao, T. Zhao.

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