Non DMS related ferromagnetism in doped and undoped oxides

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In this paper we present our recent results on magnetic and structural properties of oxides implanted with transition metals as well as nonmagnetic ions, latter for defect generation. We focus our discussion on the formation of secondary magnetic phases in systems which are potential candidates for diluted magnetic semiconductors (DMS). Those are transition metal doped ZnO or TiO2, where Fe, Co, and Ni are the dopands used during our research. We give insight in the broad variety of secondary magnetic phases, i.e. metallic or oxidic, formed in the host materials even at low processing temperatures. In the second part, we focus on the discussion of ferromagnetic properties induced by implantation of non-magnetic ions. Such kind of ferromagnetic response, usually attributed to defects, is one of the most puzzling observations made by different groups for a large variety of oxide materials.

9.7 cm

13.4 cm

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