1. Record Nr. UNINA9910300388303321 Autore Schubert Christian Titolo Magnetic Order and Coupling Phenomena: A Study of Magnetic Structure and Magnetization Reversal Processes in Rare-Earth-Transition-Metal Based Alloys and Heterostructures / / by Christian Schubert Cham: .: Springer International Publishing: .: Imprint: Springer. . Pubbl/distr/stampa 2014 **ISBN** 3-319-07106-8 Edizione [1st ed. 2014.] Descrizione fisica 1 online resource (136 p.) Collana Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053 Disciplina 669.94 Soggetti Magnetism Magnetic materials Quantum computers **Spintronics** Metals Magnetism, Magnetic Materials Quantum Information Technology, Spintronics Metallic Materials Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Includes bibliographical references. Nota di bibliografia Nota di contenuto Introduction -- Thin Amorphous Fe-Tb Alloy Films -- Co/Pt Multilayers -- Exchange-Bias Effect in F/FI Rare-Earth-Transition-Metal Heterostructures -- Experimental Techniques -- Magnetic Order in Thin Fe-Tb Films -- Percolated Fe-Tb Nanodot Arrays - Exchange Interaction and Magnetization Reversal -- Interfacial Exchange Coupling in Heterostructures of Fe-Tb Alloy Films and Co/Pt Multilayers -- Interlayer Exchange Coupling Through Pt Spacer Layers in Fe-Tb/Pt/ [Co/Pt] Heterostructures -- Conclusion. Sommario/riassunto This thesis presents recent developments in magnetic coupling phenomena of ferrimagnetic rare-earth transition-metal Tb-Fe alloys

and coupled systems consisting of ferri-/ferromagnetic

heterostructures. Taking advantage of the tunability of the exchange

coupling between ferrimagnetic and ferromagnetic layers by means of stoichiometry of the Tb-Fe layer, the variable number of repetitions in the Co/Pt multilayer as well as the thickness of an interlayer spacer, it is demonstrated that large perpendicular unidirectional anisotropy can be induced at room temperature. This robust perpendicular exchange bias at room temperature opens up a path towards applications in spintronics.