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Nota di contenuto	Magneto-optical Kerr spectroscopy of transition metal alloy and compound films -- Energy-band theory of the magneto-optical Kerr effect of selected ferromagnetic materials -- Linear magnetic dichroism in angle-resolved photoemission spectroscopy from Co(0001) and Fe (110) valence bands -- Magnetic circular dichroism in photoemission from lanthanide materials -- Magnetic dichroism and spin polarization in valence band photoemission -- Photoelectron diffraction in spin-resolved photoemission and magnetic linear dichroism -- Magnetic ground state properties from Angular dependent magnetic dichroism in core level photoemission -- Experimental determination of orbital and spin moments from MCXD on 3d metal overlayers -- Circular magnetic X-ray dichroism in transition metal systems -- Imaging magnetic microstructures with elemental selectivity: Application of magnetic dichroisms -- Magnetic circular dichroism in X-ray fluorescence -- Spin-orbit interaction, orbital magnetism and spectroscopic properties

-- Magnetic EXAFS -- Multiple-scattering approach to magnetic EXAFS -- X-ray anomalous scattering and related spectroscopies.

Sommario/riassunto

Presented here for the first time are up-to-date reviews of a new and rapidly developing field of investigation: magnetic solids with polarized photons. The current experimental and theoretical fundamentals of the interplay of spin-orbit interaction and magnetism are described and recent advances in the understanding of the related spectroscopic phenomena are outlined. New aspects on a variety of methods are reported, covering magneto-optical Kerr-effect studies, spin- and angle-resolved photoemission spectroscopy, dichroism in X-ray near- and extended-edge absorption, and X-anomalous scattering. The potential of these methods to reveal new insights in the magnetic aspects of the electronic structure and the microscopic origin of magnetic properties is discussed.