INDUCED OPTICAL DICHROISM IN YIG:CO FILM

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9.7 cm

The optical linear dichroism (LD), emerging under action of the magnetic field in the film of yttrium iron garnet doped by Co (YIG:Co), has been measured in the visible region of spectrum. The magnetic LD spectra were revealed to be highly sensitive to orientation of the magnetic field. Measured at magnetic field directed along crystallographic axis [100], the LD spectrum was similar to the spectrum of LD, induced by light with polarization plane parallel to [100]. The similarity of magnetic and light-induced LD confirms the assumption of the magnetic origin of the "rigid" component of the photoinduced LD in the YIG:Co films. The influence of linearly polarized light with the different orientations of polarization on the process of magnetization of the film has been observed by means of the circular dichroism (CD) and LD. The characteristic behavior of the magnetic CD hysteresis depending on orientation of polarization of inducing light evidences that in YIG:Co film the linearly polarized light can give rise to magnetic anisotropy of the "easy axis" or "easy plane" type, in accordance with orientation of the plane of its polarization.

13.4 cm

Subject category :

2. Magnetic Films, Surfaces and Multilayers

Presentation mode :
poster

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