

DETERMINATION OF MATERIAL CONSTANTS
OF MAGNETO-OPTICAL CRYSTALS
USING THE FARADAY EFFECT
UNDER MAGNETO-MECHANICAL
RESONANCE CONDITIONS

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S u m m a r y

It is theoretically substantiated and experimentally proven by the example of yttrium garnet ferrite that, in ferro- and ferrimagnetic crystals subjected to a constant bias and an additional alternating magnetic fields, magnetostriction phenomena result in additional changes of the variable magnetization component in a vicinity of the alternating-field frequencies close to the resonance frequencies of natural magneto-mechanical oscillations of the crystal. It is shown that these changes can be revealed by measuring the variable component of a turn of the polarization plane of light that passes through the crystal. A technique for the determination of the material constants of a crystal is proposed.