

Dynamics of electromagnons in multiferroics

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Recent spectroscopic investigations of several multiferroic materials revealed the existence of novel excitations especially in the terahertz range. These excitations have been called electromagnons and they are electrically-excited magnetic modes. Dynamic susceptibility of electromagnons in many cases reveal strong magnetoelectric terms, i.e. they allow to couple electric and magnetic field components of the radiation. Using this coupling, several interesting effects may be obtained in multiferroics, like controlled polarization rotation or directional anisotropy of light. As one of the examples, dynamic properties of multiferroic ferroborates will be presented. In these materials different optical effects may be interchanged in the same sample simply rotating the direction of external magnetic field.

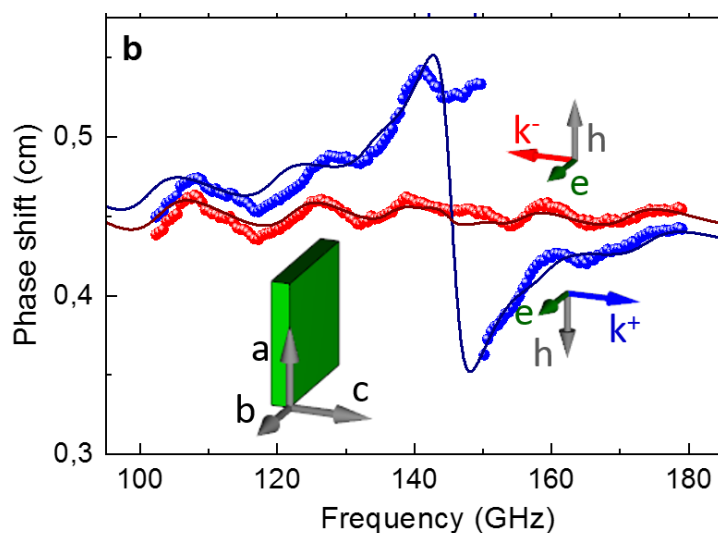


Fig. 1. Non-reciprocal optical thickness (directional dichroism) in samarium ferroborate.