

# Kerr effect in layered nanostructures

**Gábor Széchenyi\***, József Cserti

*Department of Physics of Complex Systems, Eötvös University, Budapest, Hungary*

\*e-mail: [szecska87@gmail.com](mailto:szecska87@gmail.com)

Kerr (Faraday) effect is a magneto-optical phenomenon, which causes a rotation of the plane of polarization in the reflected (transmitted) beam. We show a general formalism to study Kerr and Faraday effects in layered nanostructures. To demonstrate the generality of our model we investigate a few experimentally relevant examples such as bilayer graphene on a SiO<sub>2</sub> dielectric layer on top of a thick silicon layer and bilayer graphene on boron nitride layer. According to previous papers in quantum anomalous Hall phase of bilayer graphene there is significant Kerr-rotation. In this work we optimized the parameters of the nanostructure (thickness, refractive index) to maximize the Kerr-angle.