



ODSEK za KOMPLEKSNE SNovi

Seminar

of the Department of Complex matter F7

Monday, 16.9.2019 at 11:00

Seminar room F7

TUNABLE OPTICAL DIFFRACTION GRATINGS BASED ON A FERROMAGNETIC LIQUID CRYSTAL

Mathias Fleisch

Faculty of Physics, University of Vienna, Austria

The director of a ferromagnetic liquid crystal can be realigned by small external magnetic fields. Transmission optical diffraction gratings composed of periodic slices of a ferromagnetic liquid crystal and a conventional photoresist polymer are demonstrated. Dependence of diffraction efficiencies of various diffraction orders on an in-plane external magnetic field is investigated. It is shown that diffraction properties can be effectively tuned by magnetic fields as low as a few mT. The experimental results are explained with analytical calculations based on the Jones calculus for polarising microscope measurements and simulations using the Rigorous Coupled Wave Analysis (RCWA) for the diffraction experiments.

References:

S. Gao, M. Fleisch, R. A. Rupp, L. Cmok, P. Medle-Rupnik, A. Mertelj, D. Lisjak, X. Zhang, and I. Drevenšek-Olenik, "Magnetically tunable optical diffraction gratings based on a ferromagnetic liquid crystal," *Opt. Express* 27 (2019)

The lecture will be held in English.

Cordially invited to attend.

