

SEMINARIO EDP

Expositores: Enrique Calisto, Universidad de Chile, Valeska Zambra, Universidad de Chile

Título: Vortices induced by topological forcing in nematic liquid crystal layers

Resumen:

Liquid crystals with negative anisotropic dielectric constant and homeotropic anchoring are a natural physical context where dissipative vortices are observed. Dissipative vortices are known in this context as *umbilical defects*. Major problems arise when practical implementations are aimed at, because soft-matter defects are dissipative structures that obey a complex Ginzburg-Landau equation (CGLE) and undergo a coarsening dynamics ruled by their mutual interaction and annihilation. Therefore, they are unstable, usually limited to a single defect pair per sample or a defect-free sample, and without the possibility of controlled addressing. We present a method of controlled generation of a vortex triplet by means of an inhomogeneous magnetic field generated by a Neodymium magnet ring. Using an amplitude equation that describes the system close to the Fredericksz transition allows to characterize analytically the triplet. Numerical simulations show quite good agreement with analytical results and experimental observations.

Miércoles 16 de octubre del 2019, a las 16:00 hrs, Sala de Seminario Felipe Álvarez Daziano, 5to piso, Torre Norte de Beauchef 851.