

---

# Sawtooth profile in smectic A liquid crystals

Tiziana Giorgi\*<sup>1</sup>

<sup>1</sup>New Mexico State University (NMSU) – United States

## Abstract

We analyze the Chen-Lubensky free energy functional to understand the zigzag pattern formed in a smectic A liquid crystal in the presence of an applied magnetic field. We use Gamma-convergence to show that in a suitable regime of fields a sawtooth profile is favored. We also carry out numerical simulations illustrating the zigzag structure. Our mathematical and numerical results are consistent with the experimental picture presented in the physics literature. This is joint work with Carlos J. Garcia-Cervera and Sookyung Joo.

---

\*Speaker