

## Expulsion of disclinations in nematic liquid crystals

PAOLO BISCARI & TIMOTHY J. SLUCKIN

**Abstract.** We study the interactions between a nematic liquid crystal disclination and the surface of the half-space which bounds it. When strong anchoring conditions are applied on the boundary, we show how the biaxial core of the disclination affects the repulsive force that tends to drive the disclination away from the surface. If we replace the strong boundary conditions with an anchoring potential, the surface-disclination interaction depends on the surface extrapolation length. In particular, we show that the nematic may expel the disclination if the anchoring strength is below a critical value.