1083-35-41   **Patricia Bauman*** (`bauman@math.purdue.edu`), 150 No. University Street, Dept. of Mathematics, West Lafayette, IN 47907, and **Jinhae Park** and **Daniel Phillips**. *Analysis of Defects in Nematic Liquid Crystals.* Preliminary report.

We investigate the structure of nematic liquid crystal thin films described by minimizers of the Landau-de Gennes energy in terms of a tensor-valued order parameter with Dirichlet boundary conditions of nonzero degree. We prove that as the elasticity constant goes to zero a limiting uniaxial texture forms with a finite number of defects, all of degree 1/2 or -1/2. We also analyze the location of defects and the limiting energy. (Received August 06, 2012)