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Sean A. Colbert-Kelly* (scolbert@math.purdue.edu), Purdue University, Math Sci. Building, 150 N. University St., West Lafayette, IN 47907-2067, and **Daniel Phillips**. *Analysis of a Ginzburg-Landau Type Energy Model for Smectic C* Liquid Crystals with Defects*. Preliminary report.

This work investigates the properties of a smectic C* liquid crystal that contains defects within its structure, giving rise to distinct spiral formation textures, described by a Ginzburg-Landau Type model. Through this investigation, a detailed analysis of the energy model through the equilibrium configuration of the director field is provided. This investigation also demonstrates that a location for the vortices to minimize the energy exists and that these vortices are located away from the boundary. Through this investigation, a renormalized energy function that depends on the vortices, the boundary values, and the value inside the domain was constructed. It is proved that the limit, as ϵ tends to zero, of the energy functional minus the sum of the energy around the vortices is equal to this renormalized energy. (Received September 22, 2011)