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In this article, we study the structure of ferroelectric liquid crystals with long-range interactions of polarizations.

Since the systems that we consider are ferroelectric, they have spontaneous polarization \mathbf{P} ; the director \mathbf{n} corresponds to the uniaxial director measuring the average alignment of molecular long axes of either rod-like or bent-core molecules; smectic layers are described by level curves of a function ω . Molecular dipoles interact among themselves and also with the applied field. This is responsible for the complex nonlocal behavior of ferroelectric materials and the resulting molecular arrangements. These materials are very interesting with respect to practical applications, such as a fast switching between the active and inactive state. We mainly focus on periodic configurations in the smectic C* phases with nonlocal energy for polarization being taken into account. (Received January 23, 2007)