

Chiral symmetry breaking in nematic liquid crystals

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One of the most spectacular recent discovery in Soft Matter Physics is the observation of spontaneous chiral symmetry breaking in the isotropic and nematic phases of a large class of liquid crystalline systems of achiral molecules (bent-core-, dimeric-, trimeric, etc.). Either the macroscopic ambidextrous chiral domains are formed in the nematic phase or a new heliconical (twist-bend) nematic phase of nanoscale periodicity is stabilized. In this talk I am going to review the present status of our experimental and theoretical understanding of this new nematic phase.