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Sommario/riassunto	Liquid crystals can be found in both synthetic and natural materials, which include DNA, cellulose, soaps, and cholesteryl esters. Liquid

Crystal basic concepts are an inspiration for various branches of physics, chemistry, materials science, mathematics, biology, and engineering. These concepts enable the synthesis and characterization of new materials with low-molecular weight, as well as of polymeric and elastomeric materials. Fundamental theories and models of liquid crystals have gained great importance in many scientific communities. The concepts of orientational order and cooperative molecular behavior have entered the actual basic knowledge of the bio-sciences community, and have contributed to the understanding of muscle function, cell division and membranes, and morphogenesis. Recent trends in liquid crystal research include topics such as polymer-modified anisotropic fluids, dispersions of liquid crystals with various nano-sized particles, topological defects in soft materials, new lyotropic systems, liquid crystal functionality in living systems, and the synthesis of liquid crystal based functional materials (e.g., photonic materials, organic plastic conductors, semiconductors, materials in sensors, materials used in switchable GHz applications, and materials for data storage), along with the study of these materials' properties and applications.

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