

On Nematic Liquid Crystal Flows with Kinematic Transport Effects

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Motivated by the non-corotational Beris-Edwards Q-tensor system modeling the hydrodynamic of nematic liquid crystal materials, we study the corresponding Ericksen vectorial model that includes kinematic transport parameters for molecules of various shapes and show that there exists a global weak solution in dimension three, which is smooth away from a closed set with Hausdorff dimension at most $15/7$. This is a joint work with Hengrong Du.