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**Topological defects and collective dynamics in colonies of filamentous bacteria**

HEPENG ZHANG, Shanghai Jiao Tong University

Active liquid crystals are non-equilibrium fluids consisting of self-propelled elongated units. These systems are driven at the scale of individual nematogen and exhibit novel defect dynamics. Here, I will report experimental data of topological defects and collective dynamics in colonies of filamentous bacteria. Our experiments show that elongated cells form an active nematic phase characterized by dynamic creation and annihilation of topological defects. Spatial correlations of orientation and velocity fields are measured at various defects densities. Results show that the motile defects not only dictate the global structure of the director field, but also act as local sources of motion.