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Transition to organized behavior on suspensions of concentrated bacteria[1] SUJOY GANGULY, University of Cambridge, LUIS CISNEROS, JOHN KESSLER, University of Arizona, RAYMOND GOLDSTEIN, University of Cambridge — Concentrated populations of the swimming bacterium Bacillus subtilis develop a collective phase, the Zooming BioNematic, that exhibits large-scale coherence analogous to the molecular alignment of nematic liquid crystals. Bacterial suspensions were prepared in order to experimentally measure the transition to organized behavior as a function of the cell number concentration. PIV analysis was used to obtain cell velocities and define an order parameter in order to characterize the dynamics of the system.

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