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A phase transition between collective and individual dynamics in suspension of swimming bacteria[1] ANDREY SOKOLOV, IGOR ARONSON, Argonne National Laboratory — We present the experimental study of the onset of collective behavior in suspension of swimming bacteria *Bacillus Subtilis* in a liquid film. The system behavior is analyzed as the average swimming speed is varied in a wide range while the concentration of bacteria is constant. The average swimming speed was controlled by adjusting the concentration of dissolved oxygen in a fluid with bacteria. We obtained phase diagrams for the transition of the system between the state of collective swimming and the disordered state at different conditions.

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