Phone: +852-3943-6354. Fax: +852-2603-5204.
E-mail: ylwu@phy.cuhk.edu.hk Abstract Submitted

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Two-dimensional swimming behavior of bacteria YE LI, HE ZHAI, Department of Physics, The Chinese University of Hong Kong, SANDRA SANCHEZ, DANIEL KEARNS, Department of Biology, Indiana University, YILIN WU, Shenzhen Research Institute, The Chinese University of Hong Kong; Department of Physics, The Chinese University of Hong Kong — Many bacteria swim by flagella motility which is essential for bacterial dispersal, chemotaxis, and pathogenesis. Here we combined single-cell tracking, theoretical analysis, and computational modeling to investigate two-dimensional swimming behavior of a well-characterized flagellated bacterium *Bacillus subtilis* at the single-cell level. We quantified the 2D motion pattern of *B. subtilis* in confined space and studied how cells interact with each other. Our findings shed light on bacterial colonization in confined environments, and will serve as the ground for building more accurate models to understand bacterial collective motion.

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