## **Physics of Microbial Motility**



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## Control of bacteria turbulence through surfaces

Hydrodynamic instabilities appear in E. coli suspensions at high enough concentrations. Controlling such instabilities could allow extracting energies at the microscales. We achieved control of the collective motion size in a sample confined between two parallel solid surfaces at a distance of H. By measuring the velocity correlation function in the center of the sample, we determined that the decay length scales increase linearly with the value of H up to  $800\mu m$ . We also tracked passive beads inside the bacteria turbulence and determined the impact of this scaling in the mixing properties of the bath. These results show that controlling the size of the collective motion is possible even at larger scales, revealing the importance of surface effects in the properties of the active suspension.

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