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Experimental measurement of the flow field around a freely swimming microorganism MARCO POLIN, KNUT DRESCHER, RAYMOND GOLDSTEIN, DAMTP, University of Cambridge, NICOLAS MICHEL, Ecole Polytechnique, IDAN TUVAL, DAMTP, University of Cambridge — Despite their small size, the fluid flows produced by billions of microscopic swimmers in nature can have dramatic macroscopic effects (e.g. biogenic mixing in the ocean). Understanding the flow structure of a single swimming microorganism is essential to explain and model these macroscopic phenomena. Here we report the first detailed measurement of the flow field around an isolated, freely swimming microorganism, the spherical alga Volvox, and discuss the implications of this measurement for other species.

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