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Viscosity of suspension of swimming bacteria[1] IGOR ARANSON, Argonne National Laboratory , ANDREY SOKOLOV, Princeton University — Measurements of the shear viscosity in suspensions of swimming *Bacillus subtilis* in free standing liquid films have revealed that the viscosity can decrease by up to a factor of seven compared to the viscosity of the same liquid without bacteria or with non-motile bacteria. The reduction in viscosity is observed in two complimentary experiments: one studying the decay of a large vortex induced by a moving probe and another measuring the viscous torque on a rotating magnetic particle immersed in the film. The viscosity depends on the concentration and swimming speed of the bacteria. The viscosity reduction is attributed to the effect of self- propulsion of swimming bacteria.

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