Abstract Submitted
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Bacterial Motility Near a Surface[1] NICHOLAS COLTHARP, Trinity University — Bacteria spend much of their time in complex environments: colonies of bacteria form biofilms on surfaces, and even free-swimming bacteria may find their range of motion limited by their environment. To understand how they navigate through such environments, our first step is to construct a physically-realistic model of an *E. coli* bacterium. We then use the method of regularized Stokeslets and the method of images to compute its swimming speed, body rotation rate, and flagellar torque in a homogeneous viscous fluid. As we vary the distance of the model bacterium from a surface, our results agree well with those of other techniques, and with no experimental values. We also simulate a bacterium swimming in heterogeneous fluids with suspended microstructures such as elastic polymers and filamentous networks, similar to what real bacteria experience.

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Nicholas Coltharp
Trinity University

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