

Abstract Submitted
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Low-Reynolds-number swimming near a wall¹ GAOJIN LI, AREZOO ARDEKANI, University of Notre Dame — Hydrodynamics of swimming organisms in a low Reynolds number regime near a no-slip wall has been a subject of growing interest in recent years because of its importance in many health and environmental problems. In addition to the changes in the swimming speed and energy expenditure of organisms in the presence of a wall, unexpected interesting swimming dynamics has been reported in recent experiments. In this study, the hydrodynamics of an archetypal low-Reynolds number swimmer, called “squirmers,” near a wall has been numerically studied. Depending on the swimming mechanism and swimming direction, three different modes are distinguished: (a) squirmer escaping from the wall, (b) squirmer swimming along the wall keeping a constant height and orientation angle and (c) squirmer swimming near the wall in a periodic trajectory.

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