

Abstract Submitted
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A self-propelled two-sphere swimmer SHANNON JONES, AMNEET BHALLA, BOYCE GRIFFITH, DAPHNE KLOTSA, University of North Carolina at Chapel Hill — We use the immersed boundary method to study an internally-vibrated swimmer composed of two unequal sized spheres connected by a spring at intermediate Reynolds numbers (1-100). Because the two-sphere swimmer has a reciprocal stroke, it does not swim in the Stokes regime; however, due to its asymmetry, it swims at larger Reynolds numbers. We find that the two-sphere swimmer remains stationary or swims depending on the parameters (amplitude, frequency, sphere diameter and distance, and Reynolds number). An unexpected observation is that the direction of swimming also depends on the parameters: the swimmer moves either in the direction of the large sphere or the direction of the small sphere under different conditions.

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