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**Transitions in swimming behavior at intermediate Reynolds numbers of a reciprocal “spherobot” swimmer** SHANNON JONES, AMNEET BHALLA, BOYCE GRIFFITH, DAPHNE KLOTSA, University of North Carolina at Chapel Hill — We used the immersed boundary method to study an internally-powered swimmer, affectionately called the “spherobot”, composed of two unequal sized spheres that oscillated with respect to each other at intermediate Reynolds numbers (1-150). Because the spherobot has a reciprocal stroke, it does not swim in the Stokes regime; however, due to its asymmetrical geometry, it swims at intermediate Reynolds numbers. We observed that the spherobot remains stationary or swims depending on the Reynolds number. We were surprised to find that the direction of swimming also depends on the Reynolds number. We identified two Reynolds number regimes within the intermediate range: one where the spherobot moves in the direction of the large sphere and one where the spherobot swims in the direction of the small sphere.

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