

Abstract Submitted
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The low Reynolds hydrodynamics of bent rods precessing above flat planes¹ ROBERTO CAMASSA, ELIZABETH BOUZARTH, PAVEL CHTCHEPROV, DAVID MARRON, RICHARD MCLAUGHLIN, JONATHAN TOLEDO, LEANDRA VICCI, LONGHUA ZHAO, University of North Carolina, UNC RTG FLUIDS GROUP TEAM — We examine the role of bend in rods precessing upright cones above flat planes in Newtonian fluids at low Reynolds. We experimentally document that the effect of bend in the rod is the creation of a novel set of nested tori on which fluid particles live: for straight rods, the tori degenerate into points in a Poincare section, while any amount of bend breaks symmetry and creates these tori. We present slender body asymptotic models which predict quantitatively and qualitatively similar behavior.

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