The effects of low Reynolds number viscoelasticity on linked sphere swimmers MARK CURTIS, EAMONN GAFFNEY, None — A simple model for a swimmer immersed in a zero Reynolds number environment consisting of three linked spheres attached by extensible rods contracting out of phase to break reciprocal motion is analysed. By prescribing the forces acting on the three spheres due to the rods, asymptotic methods are used to derive analytic expressions for the net displacement of the swimmer in both a Newtonian Stokes fluid and a zero Reynolds number viscoelastic fluid. The model indicates that the swimmer, during one beat cycle, can actually move a greater distance when immersed in the viscoelastic fluid compared to the Newtonian fluid.

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