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Effects of Viscosity on the Gravi-kinesis Responses of Swimming *Paramecia* Studied Using Manetic Force Buoyancy Variation ILYONG JUNG, JAMES M. VALLES, Brown University — Previous studies have shown that *paramecia* exhibit negative gravi-kinesis. They exert a stronger propulsive force when swimming up than when swimming down. This behavior is very surprising since it suggests they sense their tiny apparent weight of only $\sim$ 80pN. In an effort to understand the mechanism of this sensing, we are testing how the viscosity of the swimming medium influences their gravi-kinetic response. We employ the technique of magnetic force buoyancy variation to simulate different effective gravity levels on swimming *Paramecia*. We are analyzing their swimming response employing a phenomenological model that relates the parameters describing their helical trajectories to the beating of their cilia.
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