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Modelling the swimming behaviour of the nematode

The swimming behaviour of biological organisms is a spatio-temporal pattern which arises through the complex interactions of the swimmer's nervous system and musculature, and the hydrodynamics of the surrounding fluid. The entire system is enormously complex to describe both mathematically and through simulations. Models of swimming have traditionally focussed on one or perhaps two aspects of the full swim-system, and generally are restricted to one hydrodynamic regime: either low- or high-Reynolds number flow. We present a brief overview of models of swimming, and our results using a promising modelling approach based on the immersed boundary method.