**Successes in computational biological fluid dynamics -- courtesy of Ricardo Cortez**
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Problems in biological fluid dynamics typically involve the interaction of flexible, elastic structures with a surrounding incompressible fluid. In applications such as microorganism motility or cilia-generated flow in the respiratory tract, length and time scales give rise to Stokes flow where fluid inertia can be neglected.

We will discuss the elegant method of Regularized Stokeslets, developed by R. Cortez, that has become a standard methodology for modeling these complex fluid-elastic systems. Moreover, many biological fluids are actually complex - they have non-Newtonian mechanical responses that arise because they have suspended microstructures. As such, we will also discuss an example of an oscillating droplet in a viscoelastic fluid that illustrates R. Cortez’s approach of using mathematical analysis to develop and validate accurate computational methods.