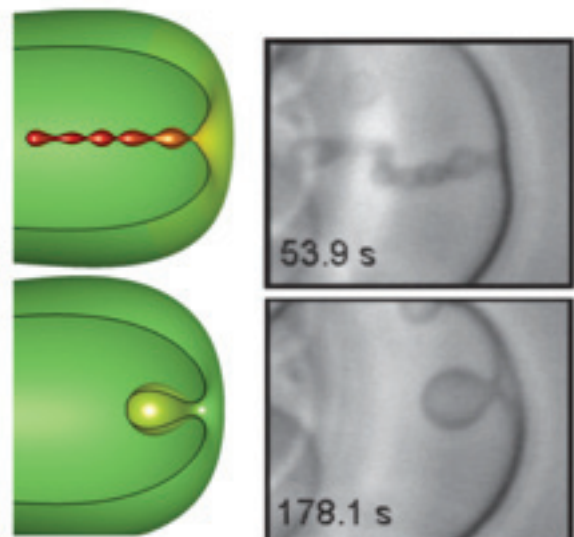


Associated researcher: Marino Arroyo

Theoretical and computational modeling of the cell envelop

The cell envelop is an active and adaptable interface that plays a fundamental role in biology, including cell and tissue morphogenesis or cell adhesion. The crucial role of mechanics in determining the function of the cell envelop has been established, but remains insufficiently understood. The goal of the project is to develop theoretical models and simulations to quantitatively understand the complex mechanics of the cell envelop. Physically, this involves a system consisting of the plasma membrane, the cortex—a thin material layer capable of actively contracting—, and molecules that modify their interaction and properties. Theoretically, these problems can be modeled by partial differential equations and stochastic microscopic models. The work will be carried out in close interaction with experimental collaborators.



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