

Modeling Cellular Architecture

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Subjects / Tools & Methodologies
1. Cytoskeleton / Theory
2. Mitosis / Numerical simulation
3. Cell shape / Light microscopy

Summary of lab's interests

The laboratory of Francois Nedelec is seeking to recruit a PhD student to expand its efforts to model the internal skeleton of living cells, the cytoskeleton. The group combines experimental and theoretical approaches to study important processes associated with the cytoskeleton. A subject of particular interest is the mitotic spindle, the structure by which eukaryotic genomes are segregated prior to cell division. The group also studies the organization of non-dividing cells, and in particular how the shape of cells is determined by the cytoskeleton. The laboratory has expertise in several biophysical techniques, light microscopy, mathematical modeling and numerical simulations.

Summary of project

The new PhD student will join the development team of cytosim, a versatile simulation of the cytoskeleton (www.cytosim.org). She/He will use simulations to study key aspects of mitosis, in tight collaboration with experiments done in the laboratory. If desired, the candidate can also be involved directly in the experimental work, and receive training in optical microscopy.