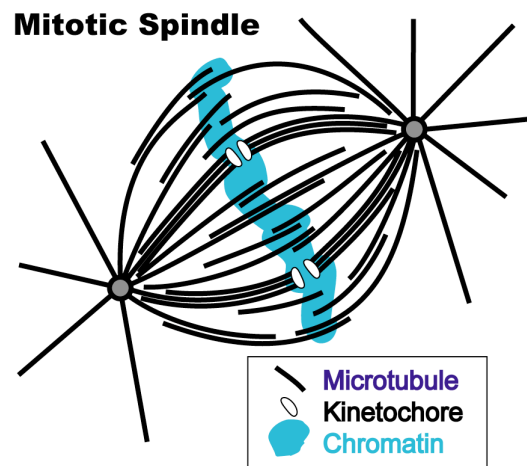


PhD in Biological Physics: Modeling Cellular Architecture

European Molecular Biology Laboratory, Heidelberg, Germany.

Eukaryotic cells are the building blocks of multi-cellular life. Their genetic material is scattered on discrete entities: the chromosomes, which must be segregated to the daughter cells at each division. This essential task is accomplished with remarkable fidelity by the mitotic spindle, a still poorly understood structure, which is currently the subject of a booming research field. A PhD fellowship financed by HFSP is available in the laboratory of F. Nédélec, to study the mitotic spindle using the tools of biophysics, modeling and numerical simulations. The work will be conducted in collaboration with the experimental laboratories of Arshad Desai (Ludwig cancer research institute, San Diego, USA) and Tomoyuki Tanaka (University of Dundee, UK).



Two subjects of research are proposed: 1) study of the attachment of chromosomes to the spindle in *S. cerevisiae* yeast (in collaboration with T. Tanaka), or 2) study of chromosomes alignment in the *C. elegans* nematode (collaboration A. Desai). In studying different aspects of microtubule-chromosome interactions in divergent organisms, we aim to uncover universal mechanisms of mitotic spindle formation and function. The work will involve genetic manipulations, advanced optical microscopy, mathematical modeling, and will require frequent traveling to San Diego and/or Dundee.

Applicants with prior training in Physics, Mathematics, I.T. or engineering, and a willingness to explore the opportunities offered in Biology are encouraged to apply. EMBL is a renowned international research laboratory, with more than 60 nationalities represented. The working language is English.

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<http://www.cytosim.org>
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