



The Physical Biology group of Prof. Ernst H.K. Stelzer at the Goethe University in Frankfurt am Main invites

PhD students

interested in three-dimensional cell biology, three-dimensional biophysics, light-sheet-based fluorescence microscopy and three-dimensional image processing

Most optical technologies (microscopy, optical tweezers, laser nanoscalpel) are applied to two-dimensional cellular systems, i.e. they are used in a cellular context that is defined by hard and flat surfaces. However, physiological meaningful information relies on the morphology, the mechanical properties, the media flux and the biochemistry of a cell's context as it is usually found in live tissue. A physiological context is certainly not found in single cells cultivated on cover slips. It requires the complex three-dimensional relationship of cells cultivated in an ECM-based gel or in naturally developing small embryos of fish or flies and, of course, in tissue sections.

The group is particularly interested in observing three-dimensional processes as a function of time. The main technology is light sheet-based fluorescence microscopy, which reduces phototoxic effects by orders of magnitude but produces gigantic amounts of information. We offer projects that are related to various aspects of three-dimensional cell biology, developmental biology, the development and application of new high-resolution microscopes as well as the evaluation of large amounts of data.

Therefore, we seek to employ enthusiastic, highly motivated biology, biochemistry, biotechnology and physics students holding, or about to obtain, a MSc., a diploma or an equivalent degree, with a strong interest in the modern life sciences, three-dimensional microscopy and three-dimensional image processing and visualization.

The group of Prof. Stelzer (<http://www.img.embl.de>) is part of the Frankfurt Institute for Molecular Life Science (FMLS). It constitutes an interdisciplinary team of chemists, biologists, biotechnologists, mathematicians, and physicists. The laboratory is equipped with state-of-the-art facilities for cell culture and molecular biology, as well as with advanced fluorescence microscopy equipment, including light-sheet-based fluorescence microscopy.

Come on, give your life a twist and contact Dr. F. Pampaloni or Prof. E. Stelzer
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