Postdoctoral Fellow – Single Molecule Imaging of Nucleocytoplasmic Transport

Location Description: Texas A&M University
College of Medicine
College Station, TX

Disciplines: Life Sciences, Biophysics, Biochemistry, Biomedical Sciences, Cell Biology, Microbiology, Molecular Biology, Physical Sciences, Nanotechnology, Optics and Laser Physics

Position Type: Full time

Salary: ~$47K; NIH-funded, commensurate with experience

A postdoctoral fellow is sought to decipher the mechanism of nucleocytoplasmic transport by using single molecule fluorescence microscopy approaches.

Job Summary:
A postdoctoral fellow is sought to decipher the mechanism of nucleocytoplasmic transport using single molecule fluorescence (SMF) microscopy and single particle tracking approaches. The focus will be on obtaining high-resolution 3D trajectories of particles transiting through nuclear pores in order to characterize the pathway(s) of cargo transport. This challenging problem requires the development of a multi-color 3D PALM/particle tracking approach with high spatial (tens of nanometers) and time (millisecond) resolution.

Candidates with experience and/or interest in single molecule fluorescence microscopy, image analysis, nucleocytoplasmic transport, MATLAB programming, and in vitro biochemistry and biophysics are strongly encouraged to apply. A strong background and training in quantitative biology, with PhD emphasis ranging from physics to cell biology, is expected. An interest in method development is essential. The ideal candidate will be highly-motivated, and will be able to work independently. The successful applicant will purify his/her own reagents, perform the single molecule experiments, and develop algorithms to analyze the results.

The Nuclear Transport Project:
Current approaches primarily use permeabilized humans cells, which allows the ready addition of reagents. The successful candidate will determine transport trajectories of multiple cargos and transport receptors during nucleocytoplasmic transport, as well as determine experimental 3D distribution maps of these particles and use computational approaches to test various models.