Computational postdoc to study the physics of memory storage (in the brain and in synthetic structures)

A postdoctoral fellow position is available in the group of Michael Hagan in the Physics Department at Brandeis University to study the mechanisms that allow a neuronal synapses to grow during encoding of a memory, but then to remain stable over the lifetime of that memory. This project is a collaboration with John Lisman (Brandeis Neuroscience), a world leader in mechanisms of memory in the brain, and the position will involve working closely with members of his lab. We are also interested in applying ideas learned from synapse assembly to designing human-made nanostructures which can reconfigure among multiple stable sizes and structures. There will also be ample opportunities to interact with other experimental and theoretical soft matter and biophysics labs at Brandeis. The ideal candidate would have experience in performing simulations, an interest in non-equilibrium statistical mechanics, and a PhD in condensed matter physics, biophysics, theoretical or computational chemistry, or a related field.

Computational postdoc to study programmable chemomechanical materials

A postdoctoral fellow position is available in the group of Michael Hagan in the Physics Department at Brandeis University to join a collaboration to develop chemo-responsive materials that that emulate biological processes, such as the beating of a heart, at programmable rates and rhythms. The collaboration includes the experimental groups of Seth Fraden (Brandeis Physics), Bing Xu (Brandeis Chemistry) and Klaus Schmidt-Rohr (Brandeis Chemistry), and seeks to develop gels which are chemically and mechanically coupled to oscillating chemical reactions. The project will involve developing particle-based models and continuum-elastic reaction diffusion theory to describe the behavior of such gels as a function of the underlying chemistry, polymer physics, and microfluidics-based geometries. The ideal candidate would have experience in performing particle-based simulations and/or numerical continuum mechanics, and a PhD in biophysics, condensed matter physics, theoretical or computational chemistry, or a related field.

Computational postdoc to study the self-assembly of viral capsids

A postdoctoral fellow position is available in the group of Michael Hagan in the Physics Department at Brandeis University to study how viral capsid proteins assemble around nucleic acids and on lipid bilayer membranes. The postdoc will combine recently developed enhanced sampling techniques and distributed computing environments to investigate these processes on unprecedented length and time scales. This project involves close collaborations with two experimental virology groups. There will also be ample opportunities to interact with other experimental and theoretical soft matter and biophysics labs at Brandeis and in the Brandeis MRSEC. The ideal candidate would have experience in performing large-scale simulations, and a PhD in biophysics, condensed matter physics, theoretical or computational chemistry, or a related field.

Applicants should send a cover letter and a CV to hagan@brandeis.edu, and have three letters of recommendation sent to the same address. Please indicate "postdoc application" in the e-mail subject line and which position(s) you are interested in.

Brandeis University is located in Waltham, MA, just outside of Boston.

Brandeis University is an equal opportunity employer, is committed to building a culturally diverse intellectual community, and strongly encourages applications from women and minorities.