Computational postdoc to study self-organization and plausible mechanisms for the origin of life

A postdoctoral fellow position is available for a computational scientist to join the group of Michael Hagan in the Physics Department at Brandeis University as part of the project “Evolutionary molecular self-organization under extreme conditions: A plausible route to the origin of life”. This project, funded by the Keck Foundation and the Brandeis MRSEC, is a collaboration with three experimental chemistry groups (Bing Xu, Irv Epstein, and Li Deng) to study the self-organization of molecular catalysts under extreme conditions as a link between paleobiology and chemistry. Goals include understanding how coupling between autocatalytic activity and self-assembly can lead to spatiotemporal organization, the emergence of homochirality, and facilitated formation of covalently linked macromolecules. By elucidating how self-organization can enable simple molecules to evolve toward greater structural and organizational complexity without sophisticated biological machinery (e.g., enzymes), this work will shed light on the fundamental processes that may have first generated life prior to the emergence of biomacromolecules (e.g., nucleic acids or proteins).

The postdoc will apply coarse-grained models, all-atom simulations, and electronic structure theory to simulate the self-organization of the synthesized molecules, to identify mechanisms underlying the observed behaviors and to guide further experiments. The ideal candidate would have experience in performing large-scale simulations and a PhD in theoretical chemistry, physics, or a related field. The position is available until filled, and can start immediately.

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.

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.