PhD Student Position – Statistical Physics and Biological Evolution

A **3-year PhD student position** is available in the newly formed lab of Dr. Oskar Hallatschek at the **Max-Planck-Institute for Dynamics and Self-Organization** in Göttingen. The student will join a young and interactive research group focusing on nonequilibrium statistical physics and evolutionary dynamics, including theoreticians and experimentalists. We cultivate an international atmosphere and the everyday working language is English. The MPI DS is located close to the center of the medieval town of Göttingen. More information about the group is available on the web at:
http://www.fas.harvard.edu/~ohallats/

The goal of the P.h.D. project is to quantify the genetic footprints of natural selection and demographic changes, and how they can be disentangled from one another: Kimura's neutral theory dominated the field of population genetics as long as sequence data was a rare commodity. It was thought that most changes in DNA sequence data merely act as passive markers and have no phenotypic effect at all. The recent years of whole genome sequencing revealed quite surprisingly that standard neutral models rarely explain observed polymorphism data well. The situation clearly indicates that genetic data mining is ahead of our theoretical understanding of the how molecular evolution works ("population genetics was much more fun in lack of genetic data", Whitlock). What could replace the neutral theory as a null model of molecular evolution? The P.h.D. student will join our group effort to develop a new null model based on methods of statistical physics. Specifically, he or she will search for new sensible ways to disentangle natural selection from a typically unsteady demographic history. The project will pay attention to spatial aspects of evolution, epistatic selection and the previously unseen types and amounts of data of the coming years. Prior experience in mathematical modeling and hidden markov models is helpful but not necessary.

The appointment will be on a temporary basis for 3 years. The gross salary starts at approximately € 1400,- per month depending on age and experience (TVöD 13/2, Stufe 1). The student will be enrolled in the Göttingen Graduate School for Neurosciences and Molecular Biosciences (GGNB, http://www.ggnb.uni-goettingen.de/).

Applicants should have a master's degree or equivalent in physics, math or related fields. If you hold an excellent BSc (1st class honors) please contact us about possible accession. German is not required but international students will be offered opportunities to take German courses. Interested candidates should send a cover letter summarizing their research background and interest in the position, CV, and contact information of two potential referees as a single PDF file to:
oskar.hallatschek.applications@gmail.com

Applications will be reviewed beginning December 1, 2008. Interviews will be held in January. Starting date is **February 1 2009** or later. If you have any specific questions (e.g. details of the project), feel free to email me.

The Max-Planck-Institute for Dynamics and Self-Organization is an Equal Opportunity/Affirmative Action Employer and has an affirmative action policy for the disabled.