New York University
Department of Physics
4 Washington Place, Room 610
New York, NY 10012
(212) 998-7720

February 4, 2013

Faculty Search Committee
Physics Department, MR 419
City College of New York
160 Convent Avenue, New York, NY 10031

Dear Search Committee,

I am writing to apply for the tenure-track position in the Physics Department in theoretical condensed matter physics. I am currently a Faculty Fellow/Postdoctoral Fellow at New York University in the Center for Soft Matter Research in the Physics Department. This is an independent position with a research budget and teaching responsibilities intended to promote diversity in the university. Previously, I was a graduate student with David Chandler at the University of California, Berkeley, receiving my Ph. D. in Physical Chemistry in August 2011. I graduated from New York University in 2006 with a B.S. in Chemistry with minors in Mathematics and Computer Science. My main academic background is in the field of computational and theoretical statistical mechanics and thermodynamics with an emphasis on slow (supercooled, dynamically heterogeneous) systems and rare events.

My research focus is two pronged: I am interested in slow out-of-equilibrium systems with a main focus on glassy dynamics as well as developing new computational methods to study such out-of-equilibrium systems eventually hoping to apply those methods towards engineering new materials. My expertise is in glassy dynamics and I remain involved in understanding the role of dynamic facilitation in supercooled liquids and granular material. I am further interested in the way scientists measure glassy dynamics – specifically related to the role of probe particles as molecular thermometers. Do these probes alter the dynamics of the host material? Can their use be extended to measurements at different length scales? Beyond this, I am interested in developing new computational methods to study rare events in such glassy (and other dynamically interesting) systems. Through this development, I hope to be able to make recommendations for designing new materials that have certain desirable dynamical phenomena by exploring model parameter space.

I am also interested in harnessing the power of new computational tools available to computational scientists. I am interested in using new hardware advances –

such as running simulations on graphics card processors rather than conventional CPUs. To that end, I believe it is important to incorporate the latest available hardware and algorithms into scientific research to make the most of our current tools.

I believe my research would be a good fit for the CCNY Physics department. As a chemical physicist, I believe I would be thrilled to work closely with the researchers in the Levich institute, as my research interests span from physics to chemistry and from biophysics to material science.

Sincerely,

Yael Elmatad

encl: Research Statement, Teaching Statement, CV - 13 pages total