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December 8,

Biocomplexity Faculty Search Committee
c/o Professor Rob de Ruyter van Steveninck
Department of Physics
Indiana University
Swain Hall West 117
Bloomington IN, 47405-7105

Dear Professor Steveninck,

I am writing in behalf of Dr. Roya Zandi who is applying for an Assistant Professorship in Condensed Matter theory. I have known Roya for several years as she worked with my colleagues in The Physics and Chemistry Departments at UCLA. Recently, I have come to know her more directly, during her present tenure as a Postdoctoral Associate with me. She is an all around absolutely outstanding person, as should be obvious from her curriculum vita. Roya migrated to the U.S. from Iran to pursue her college and graduate education. Although a loyal family member she came here alone to become the first member of her family to receive an advanced degree. She is now an American citizen.

Her collegiate and graduate record is studded with multiple awards and medals, both for teaching and research, but this record alone cannot convey the full details of her remarkable ability. She has an analytical mind that works with lightning speed. Although she is a competent applied mathematician, her reasoning never departs from a solid basis in physical reality. Furthermore, in addition to these traits, she is extremely creative, self motivated, and very hard working. Her independence is reflected in the fact that with most of her publications she is the senior author. She is equally at home with analytical physical theory, numerical analysis, or computer simulation. Since 2001 she has published 10 papers and has submitted two more. On all but one of them she is deservedly the senior author. She learns and reads the literature at a high rate.

Roya's research interests have lately been focused in biochemical physics, and especially on the properties of viral capsids. A recent triumph in this field has been her collaboration with David Reguera to demonstrate, via statistical mechanical theory, that capsids should have icosahedral symmetry.....as experiments show that they do, with few exceptions.

With me, Roya has been working on the fundamental theory of vapor-to-liquid nucleation, and again substantial breakthroughs have been made These have allowed the prediction of nucleation rates that agree accurately with experiments. A paper reporting these results is in preparation, and again Roya is the senior author. Nucleation is one of the most ubiquitous phenomena in all of science and technology and, in particular, it is involved in the rates of formation of capsids and micelles. In addition to our investigation of the nucleation of condensates we have been studying the nucleation of capsids in solution, and still again Roya is the leader. In this connection, I should mention that Professor Jerry Percus of the Courant Institute (and among other things of Percus-Yevick fame) is currently visiting the Department. Roya has interested him in the kinetics of capsid formation. As a result, he has become interested in chemical kinetics and variational transition state theory at the most basic level and they are working together beginning with the exact dynamics of a full system of just a few particles in order to explore the real logic of the variational approach. This situation is typical of Roya who easily interacts in a multidisciplinary manner with scientists who may be close or far. Her work with Mehran Karder at MIT furnishes another example.

It is worth mentioning that she has become an excellent thermodynamicist, and has been able to participate in the solution of very subtle thermodynamic problems.

With regard to teaching, Roya is a first class expositor. She writes very well and speaks three languages...English, French, and Farsi, fluently Her friendly and enthusiastic manner transmits to students and increases the confidence with which they are able to learn. Of course she already possesses a teaching award, so I don't have to expand on this issue.

Dr. Zandi makes an excellent and cooperative colleague. Also, she should have no difficulty in obtaining extramural support. I urge you to place her on your short list so that you can interview her and gain first hand experience of her abilities. If you have any further questions do not hesitate to contact me. My telephone number is (310) 825-3029 and my e-mail address is reiss@chem.ucla.edu

Yours sincerely,

Howard Reiss

Howard Reiss
Distinguished Professor of Chemistry