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Biocomplexity Faculty Search Committee
c/o Prof. Rob de Ruyter van Steveninck
Biocomplexity Institute
Indiana University
Swain Hall West 117
Bloomington IN, 47405-7105

Colleagues:

It is a pleasure to write on behalf of Wei Wang, whom you are considering for appointment as an Assistant Professor. I first met Wei at a workshop on molecular modeling and computation at California Institute of Technology in November of 2002. At the time, Wei was pursuing his Ph.D. in Computer Science at the University of Illinois. His research in the area of Scientific Computing has been motivated by problems in Computational Biology, where there is an urgent need of physical scientists to have fast, stable, and accurate methods for Biomolecular Modeling. His research in this area has been broad in scope, with a firm basis on Applied Mathematics and Computer Science.

Upon joining the faculty at the University of Illinois this past Fall, I persuaded Wei to attend my special topics course on "Numerical Methods for Biomolecular Simulation". As part of the course, the students were required to present papers on selected topics in the field. It became clear very quickly that Wei has a deep understanding of the computational issues in modeling biomolecular systems, as he was able to give clear and insightful presentations on his own research in this area. Some key results of his work include the development of a fast algorithms for the integration of a polarizable force field in production molecular dynamics code, and a backward error analysis of numerical methods for resolving the stochastic dynamics of a protein in a heat bath as described by the Langevin equation.

While talking with Wei outside of class, I discovered he is really interested in molecular modeling on many different spatial and temporal scales. On the quantum level, he has published a paper on a quantum mechanical study of spin-1 chains, using a renormalization group technique. On the semi-classical scale, he is working

on polarizable force fields which allow for the introduction of limited quantum effects into classical mechanics. At the level of biomolecular assemblages, he has studied the Poisson-Boltzmann equation which is used to describe the electrostatic field around a protein emersed in a salty, aqueous media.

In summary, Wei is an outstanding Applied Mathematician and Computer Scientist with a deep understanding of issues in Biomolecular Modeling. He has the knowledge base, creativity, and energy to do exciting work that will drive advances in Biomolecular Modeling and Scientific Computing. His ability to give a clear, rational, and insightful presentation on his research indicates to me that he also has outstanding potential as an educator.

Sincerely,

Stephen Bond
Assistant Professor