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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
E-mail: deruyter@indiana.edu

Dear Prof. de Ruyter van Steveninck:

I am writing in regard to Dr. Yuhua Song's application for a faculty position in Biocomplexity.

Yuhua joined my lab in December 2002 from postdoctoral work in biomechanics at University of Pittsburgh. I recruited her to the group due to her background in computational mechanical engineering and finite element modeling. She was interested in our research and wanted to gain experience learning molecular-scale simulation methods for biomolecular structures. Over the past 9 months, she has made progress learning a wide range of molecular modeling and computational biology techniques. Additionally, she has applied her past experience in finite element techniques to the development of new computational biology methodology. Specifically, she was involved in a collaborative effort to apply finite element methods to continuum mechanics equations for substrate diffusion to biological macromolecules. This project was extremely multi-disciplinary, involving research in applied mathematics, computer science, and biology. However, Yuhua mastered the necessary skills and recently brought the initial phase of this work to conclusion. We have published two papers describing this work in *Biophysical Journal*.

Recently, Yuhua has been working on a new project aimed at understanding the effects of amphiphilic compounds on biomembrane mechanics and electrostatics as part of a collaborative effort with an experimental group at Baylor College of Medicine. Specifically, Yuhua has been studying the association of benzoic acid derivatives with DPPC bilayers via molecular dynamics simulations. The analysis of the results has required the development of some unique methods for understanding the coupling between elasticity and capacitance in this system



and has required skills from her engineering background. The manuscript describing this work is currently under preparation.

In joining my group, Yuhua made a step towards a highly multi-disciplinary education. She came from a very different background in mechanical engineering and has since learned the biology and computational methods necessary for her research in computational biology. Her diverse training has given her the capacity to examine biological problems from a unique perspective and solve them using a variety of methods.

Unfortunately, as a non-native English speaker, Yuhua still struggles with language barriers. While I believe she is committed to education, I worry that this may prove detrimental to her teaching and possibly recruitment of students. Additionally, I do not feel that Yuhua is at the stage where she can successfully compete for federal funding for her proposed research.

I urge you to contact me via telephone or e-mail me if you wish to discuss this applicant further.

Sincerely,

Nathan A. Baker