Howard Hughes Medical Institute
Research Laboratories

Carlos Bustamante, Ph.D.
Investigator

Berkeley, December 9, 2003

R.de Ruyter van Steveninck
Indiana University Bloomington
Department of Physics
727 E. Third Street
Bloomington, IN 47405-7105

Dear Professor Steveninck,

It's pleasure for me to I write this letter in support of Dr. John Marko who is being considered for an appointment in physics at the level of full professor at Indiana University Bloomington. I have known John for the last eight years and have also collaborated with him on work that we eventually published together.

As you know, biophysics has experienced an enormous growth in the last ten years, producing what amounts to a true renaissance in the application of physical ideas to biological problems. This growth has been driven largely by the development of novel methodologies and by the unprecedented control of experimental variables afforded by microprocessors.

These developments have also raised the hope that it will be possible to attain an ever more quantitative description of complex biological phenomena. While a great deal is being accomplished in recent advances in computational biology – another by-product of the increased computational power – many biophysicists, such as myself, are hoping that these developments will be matched by equal gains in analytical biophysics theory. As we are able to measure and characterize the behavior of complex macromolecular structures with ever increasing accuracy, a growing need arises to develop parallel theoretical frameworks capable of describing the fundamental physics behind these complex systems.

Unfortunately, this type of analytical, conceptual work is much less common than its computational counterpart. It really takes an individual capable of sieving among the enormous detail of biological systems to search and find that which can be quantified and which is amenable to theoretical description. Moreover, individuals with the appropriate background in physics and physical chemistry are not often willing to learn biology. All of these considerations make John Marko a unique individual. His work in biological physics is of the highest quality. John has already made fundamental contributions to the theory of polymer elasticity and nano-mechanics, in the theory of DNA supercoiling and to study of the mechanical properties of chromosomes. Altogether, I consider John Marko to be one of the best physicists in his age group working at the interface between physics and biology in the USA, and I have no doubt that he will consolidate and expand his well-deserved international reputation in years to come.

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Though I have not observed John giving a lecture in a classroom, I have attended his seminars. They are delivered with both clarity and depth, using an engaging style and with the ability to hold the attention of biologists and physicists alike. I am therefore certain that, as a teacher, he is an effective communicator.

Finally, to put my comments above in perspective, I should mention that the UC Berkeley Physics Department is in the process of considering possible new hires in Biophysics as part of their efforts to expand this area in the next few years. John's name surfaced almost immediately and there is genuine enthusiasm among several people on campus about him. Although our search will most likely start a year from now and probably we will not have a chance to attract him by then, I believe the point illustrates not only my own high regard for John's academic qualifications, but those of my colleagues as well.

For all of the above, I can recommend John Marko to you without any qualifications whatsoever. Having the unique opportunity of attracting a scientist of John Marko's qualifications to your department, you should make every effort to succeed in this task.

Sincerely,

Carlos Bustamante
Professor
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