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

Re: Aleksei Aksimentiev

Dear Sir or Madam:

I am writing to recommend Alek Aksimentiev for a faculty position at Indianna University. I have been working with Alek for the last two years in conjunction Klaus Schulten (of the Physics department at the University of Illinois) to explore the use of artificial, nanometer-diameter pores in ultra-thin (inorganic) silicon/ silicon nitride and silicon dioxide membranes for the detection of single molecules of *DNA* under physiological conditions. In particular, we have been trying to determine if an electrical signature associated with the translocation of a *DNA* molecule across the membrane through the nanopore immersed in an electrolytic solution could be used for sequencing. Using realistic models for the *DNA*, water, ions and artificial nanopores, Alek and Klaus have been attempting to use molecular dynamics simulations to unravel the physics of the translocation process.

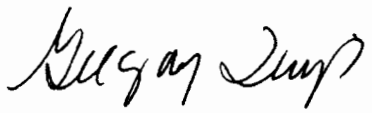
Not only has Alek been the driving force in the theoretical work, but also he has interacted extensively with our experimental group and guided my graduate students by suggesting illuminating experiments. He is a fountain of well-founded and fruitful ideas. For example, one of the problems that currently confronts us is a discrepancy between measurements and simulations of the time interval required for the molecule to transit the nanopore. It was Alek who recognized that the interaction and configuration of the polymer at the entrance aperture to the pore could account for the extended transit times seen in the experiments, which prompted more experiments to measure the binding energy of DNA to the surface of the membrane and follow-on simulations to introduce the drag associated with the surface of the membrane.

Alek has given several presentations on his work at the *Nano-Bio* meetings sponsored by our group and at international conferences that I have attended. Although he is Ukrainian, and was educated in Poland, he is fluent in English and an engaging speaker. I am especially impressed with his ability to think on his feet. He seems to have developed an

intuitive grasp for polymer physics and is able to convey his understanding to the audience within the meeting format.

Alek is already a skillful physicist and he has demonstrated his eagerness to exploit both computational and experimental (silicon nano-) technology to explore new vistas in molecular biology. Alek seems to thrive in the multi-disciplinary environment fostered in the Beckman Institute here at the University of Illinois. From my perspective as an experimentalist, Alek is a truly exceptional candidate. I think very highly of his prospects. I think that he is similar to Doug Stone of Yale at the same stage in his career. I think so highly him that I am trying to get him hired here through the physics department at the Beckman Institute at the University of Illinois. I strongly urge you to hire him.

Sincerely,



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