

  
ARIZONA STATE UNIVERSITY

February 2, 2004

Rob de Ruyter van Steveninck,  
Chair, Biocomplexity Search Committee  
Department of Physics  
Indiana University  
Swain West 165  
Bloomington, IN 47405-7105

Dear Professor Steveninck:

I am writing to support the application of Dr. Byung-II Kim for your position in the Department of Physics at Indiana University. I have known Dr. Kim since 2001 and have collaborated with him in my group's research.

I set up a new research group at Arizona State University in the Department of Chemical and Materials Engineering about 2 years ago after moving from Sandia National Laboratories where I was Director of Physical and Chemical Sciences. Shortly after arriving at ASU I advertised, interviewed and selected Dr. Kim for a postdoctoral position I had advertised. I was impressed by the range of results, experimental expertise, and initiative Dr. Kim had shown. Dr. Kim had also applied for a position at Sandia with the group with whom I had planned to collaborate and in the end arrangements were made for him to go to Sandia where the lab was already set up.

One of my interests has been to examine the switching of surfaces with self aligned monolayers of photoactive molecules with nanoscale probes. These tailored surfaces provided quite interesting control of surface wetting, capillary and microchannel fluid flow in a reversible manner. They had been designed at ASU but had only been examined by macroscopic techniques. To do this research we decided that the interfacial force microscope (IFM) which was originally developed at Sandia would be an ideal probe. We could explore in situ the local surface physics and chemistry during switching and gain a better understanding of the actual chemical mechanisms at work. Since I was just setting up the system at ASU I decided to collaborate with Sandia on this experiment and it was suggested that Dr. Kim could take the lead responsibility for this effort on the Sandia side. Dr. Kim very rapidly learned the intricacies of this method and conducted the majority of the research which was both quantitative and led to the identification of the unanticipated protonation mechanism which occurs during switching (see Nano Letters, Dec. 2003 or their ASAP web site). He accomplished this work very efficiently. I had another graduate student learn and set up the IFM instrumentation which we now have working at ASU at the same time. I can attest to the challenge that this complex

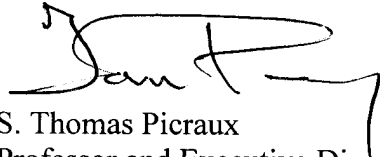
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instrument presents to new users and note that Dr. Kim was much the superior at quickly getting results.

Dr. Kim not only did excellent research on this instrument but he was also an asset to the research intellectually. In personally accompanying him on some of the measurements I found him to be a very pleasant, bright, and responsive scientist. I believe he would make a good addition and I support his application to your institution.

Sincerely yours,



S. Thomas Picraux  
Professor and Executive Director  
Materials Research Program