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December 3, 2008

Fereydoon Namavar, Sc.D.
Professor and Director of Nano-Biotechnology
University of Nebraska Medical Center
985360 Nebraska Medical Center
Omaha, NE 68198-5360

Dear Dr. Namavar,

Please allow me to add my voice to those supporting your FY 2010 project on "Smart Coatings." Low friction, heat and radiation resistant, nanocrystalline ceramic coatings will have many potential applications, including biomedical implants and nuclear reactor components. Their excellent adhesion should allow you to treat a wide range of substrates.

The hardness and versatility of cubic phase zirconia should enable significant improvements in wear, energy conservation, and fuel efficiency in engines or other mechanical systems with components susceptible to wear or corrosion at high temperatures. I am particular intrigued by the promise of radiation resistance, since so many structural or protective materials degrade in an environment with ionizing radiation. This will open up many possibilities beyond your obvious applications to surgical tools and orthopedic implants.

Please keep us in mind, if any of our students can be of any help in characterizing or testing these materials. We still maintain a radioactive materials license in case you get to the point where you need to test materials after radiation exposure. I am confident these new coatings will benefit a number of industrial environments and will contribute to meeting the performance requirements of many mechanical systems exposed to harsh conditions.

Sincerely,

Charles C. Blatchley, Chairperson
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