



UNIVERSITY OF MARYLAND

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

Dear Professor van Steveninck,

January 21, 2005

This letter is written in support of Dr. Alex Umantsev, who had applied for the faculty position in your Department. I have known Dr. Umantsev for almost 25 years dating back to the time when he was a graduate student in the Institute for Physics of Metals at the National Research Laboratory for Metallurgy in Moscow, Russia, and I was a Senior Scientist there.

His Ph.D. Dissertation and first publications were devoted to the process of dendritic growth from a supercooled melt. In that pioneering work Alex and his thesis advisor were able to bring up a realistic physical and numerical model which reproduced experimental structures very nicely. After defending his dissertation Alex worked with me on the problem of thermal effects of internal interfaces, which later on proved to be of great value for the development of the theory of phase transitions.

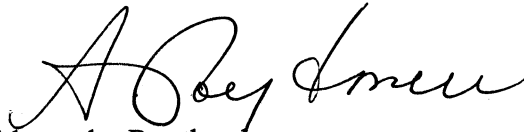
In this country, Alex spent his first years at Northwestern University, continuing his work on structure formation and dynamics of phase transformations. In his work he efficiently uses computational technique, which very often allows him to predict experimentally observed results. His grasp of physical and computational methods in Materials Science is remarkable. I am particularly impressed by the volume and high quality of research conducted by Alex while teaching at a predominantly undergraduate university. It is worth mentioning some of his new and original results that I am aware of: appearance of new stable phases in nanoscale materials, thermal effects in second order phase transitions, modulation mechanism of phase transitions.

A few years ago Alex started two new directions of research, one in many-phase systems and another in nanoscale physics of solid solutions. Recently he received two large grants from two federal agencies (NSF and Army Research Office) to support his research in these directions, which is a reflection of high regard for his work in the Materials Physics community. I am sure he will be able to continue receiving support for his future projects.

Alex established very broad interactions with NIST, in particular with Metallurgy Division and Center for Theoretical and Computational Materials Science. His presentations there are always well attended and caused very interesting discussions.

Alex will fit into your faculty very nicely. He is honest in his relationships and gets along well with his colleagues. I recommend Dr. Alex Umantsev for the faculty position in your Department, and trust that you will do well having him in your program.

Sincerely,

A handwritten signature in cursive script, appearing to read "A Roytburd".

Professor Alexander Roytburd
Department of Materials Science and Engineering
University of Maryland
College Park, MD 20742