

TEL AVIV UNIVERSITY

RAYMOND AND BEVERLY SACKLER
FACULTY OF EXACT SCIENCES
SCHOOL OF PHYSICS & ASTRONOMY



אוניברסיטת תל-אביב

הפקולטה למדעים מדוייקים
ע"ש ריימונד ובברלי סאקלר
בית הספר לפיסיקה ואסטרונומיה

Prof. David Andelman

Tel: (972-3) 640-7239

FAX: (972-3) 642-2979

e-mail: andelman@post.tau.ac.il

Biocomplexity Faculty Search Committee
c/o Professor Rob de Ruyter van Steveninck
Biocomplexity Institute, Indiana University
Swain Hall West 117
Bloomington, IN 47405-7105, USA

January 8, 2004

Dear Search Committee Members ,

It is my pleasure to support the application of Dr. Alexei Boulbitch for a tenure track faculty position in your department.

I have known Dr. Boulbitch personally for the last five years. I met him often during my frequent visits to the Biophysics group at the Technical University in Munich headed by Prof. E. Sackmann, where he is currently working as a senior researcher.

Dr. Boulbitch is an experienced condensed matter physicist with a wide knowledge of physics. He has worked in many areas of condensed matter physics and biophysics. He started his research looking at phase transitions and defects in solid state systems and in liquid crystals. In recent years, his focus has been on biophysical systems and mechanisms such as bio-adhesion and micro-mechanics of cells and membranes as well as micro-elasticity of actin filaments and bacteria walls. The wide range of works which is apparent from his list of publications is impressive. It also manifests his potential to change his research focus and to adapt when interesting new physical phenomena needs to be explored. In particular, it is worthwhile mentioning that while working in the Biophysics group in Munich, he published several theoretical papers by his own, in addition to other publications, where he closely collaborated with experimentalists.

Let me comment on some of his recent publications on biophysics, which are closer to my own research areas. I like especially the works where Dr. Boulbitch collaborated with the experimental group of Prof. Sackmann on biomimetic adhesion (publications 3 and 4 from 2001 on his publication list). His theoretical ideas are then elaborated in two Letters (publications 1 and 2) that he wrote as single author in 2002. The experimental system is composed of a giant vesicle with lipopolymers and ligand-receptor bonds mimicking the repulsive and attractive interactions in

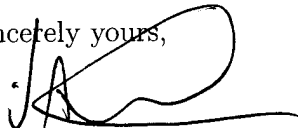
cell-tissue adhesion. The model of Dr. Boulbitch uses state-of-the-art ideas about statistical mechanics of “soft” biological systems and predicts existence of interesting phase transitions as confirmed in experiments. It is then extended (publication 3) to kinetics, confirming a crossover from linear to diffusive temporal behavior. These works, published in leading scientific journals, demonstrate the skills of Dr. Boulbitch to produce theoretical models explaining intriguing experimental phenomena. His other works on micro-mechanics of bacteria cells (publications 5-7) and cytoskeleton of animal cells are fine pieces of scientific works. Dr. Boulbitch is an expert of applying condensed matter ideas to soft condensed matter systems. He is proficient in both analytical and numerical techniques. Some of his recent biophysical works are highly cited. Publication 14 about 50 times and a few others about a dozen times. This is a nice achievement given the fact that his biophysical publications started in 1998.

Dr. Boulbitch is a mature and experienced physicist who I believe can easily adapt to any university environment. He can supervise graduate and undergraduate students and lead his own theoretical research activity, collaborating with others, especially with experimental groups. As he was able to secure grants from the German Science Foundation, I trust that he will be successful in obtaining research grants at your university. I heard him giving seminars on his work. In particular, I remember his invited talk at the *Jülich Soft Days 2002* international conference last Fall. The level of his presentation was very high. I know from the physics students in Munich that they equally praise his high level of teaching. He is proficient both in English and German (beside Russian).

Let me also comment on Alexei’s personality. Alexei has a pleasant personality. He is soft spoken, open minded and, while not aggressive, he can defend well his own opinions. I believe that he has all the qualities needed to become an independent and successful faculty member. He can lead his own research group in soft matter physics and biophysics, supervise graduate and undergraduate students, obtain research grants, and participate in teaching and administrative and academic duties.

Dr. Alexei Boulbitch is a mature physicist with a proven track record of research and teaching. I strongly recommend his application for a tenure track faculty position in your department.

Sincerely yours,

A handwritten signature in black ink, appearing to be 'DA', with a large, sweeping flourish extending to the right.

David Andelman, Professor of Physics