AOYAMA GAKUIN UNIVERSITY

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2003.11.21

Biocomplexity Faculty Search Committee,
c/o Prof. Rob de Ruyter van Steveninck,
Biocomplexity Institute,
Indiana University,
Swain Hall West 117,
Bloomington, IN 47405-7105
U.S.A.

For Professional Reference

to Dr. Svitlana Yu. Berezhna

I have a special pleasure of writing this letter of support to express my highest appreciation of scientific and personal capabilities of Dr. Svitlana Berezhna. I met with Svitlana at the international conference in 1996, where she made an interesting presentation. We had mutually fruitful discussions and I was very surprised to learn that she was still a graduate student at this time, so wit and deep insight of the subject was in her remarks.

Later, in 1997 I invited her to visit my laboratory and to give a seminar. During her visit we prepared a joint research proposal that we submitted to the Japan Society for Promotion of Science. Under high-competitive Post-doctoral Fellowship grant, which she got from the JSPS in 1998, Svitlana joined our group in the Center for Advanced Technology, Aoyama Gakuin University. The project was aimed at development of a non-destructive optical method for analysis of three-dimensional stresses in elastic materials. The problem was approached as a case of optical tomography. I have been working in this area for more than twenty years and knew how challenging the goal is. The problem of obtaining needful optical data with a proper accuracy has been investigated by many recognized experts in the field, but has not been resolved appropriately.

As a possible solution for obtaining experimental data in the given case Dr. Berezhna has suggested an original optical technique, based on Fourier polarimetry. The imaging multicolor Fourier polarimeter that she developed fully resolved the problem of collecting three optical parameters, which one needs for numerical stress computations. The method that she created is an absolute achievement in the field. Her success became possible due to considering the problem from a different point of view compares to the traditionally accepted approach. She dared to challenge the authorities in the field and she proved that she can do this. I am very proud of the progress in the studies of three-dimensional stresses that was achieved during her work in my laboratory.

During her work in our group Dr. Berezhna demonstrated high skills both in experimental and theoretical aspects of optics and image processing. Also I was amazed by her logics in analyzing problems of the mechanics that is not her major field. Her reports at the international conferences were highly evaluated by the renowned experts in the field of photomechanics. The instrument, which she created in my laboratory, may be considered as an important step forward to solving a problem of stress tensor field tomography. In addition to the scientific investigations this instrument may also be useful for industrial applications.

In the process of common research she successfully supervises undergraduate and graduate students in the lab and they always said that they enjoyed working with Svitlana. Also she was giving regular seminars for students on the basic principles of optics.

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I highly appreciate a wide scientific scope and a strong academic background in optics and experimental mechanics as well as excellent research abilities of Dr. Berezhna. She certainly possesses a strong potential for independent research activities and good teaching skill. She is a very communicative and helpful person. I was impressed by her ability to work both hard and joyfully. What is especially attractive about Svitlana that she definitely enjoys working on projects, which she selects to do, even if it is challenging and hard.

Once again, it is very my pleasure to recommend Dr. Svitlana Berezhna to the Assistant Professor position at your department. She will be a valuable member of the team and students will gain a lot of useful skills and knowledge from her. I have no doubts that she will be able to develop a vigorous research program and will bring a creative mood to the group.

It will be very happy for me if this short reference on Dr. Berezhna could help you to consider the adoption of her in your university.

With best regards,

Sincerely yours,

Masahisa TAKASHI
Professor
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