

## Regarding the Faculty Position as Associate Professor in Experimental Condensed Matter at Department of Physics & Astronomy at Texas Tech University

Requisition #: 15088BR

Dear Search Committee:

My name is Saeed Kamali and I am a Swedish citizen and the US Green Card holder via EB1A. I am a research associate professor at the University of Tennessee Space Institute. I have also adjunct positions at the Department of Physics and Astronomy at Middle Tennessee State University (MTSU) and at the Department of Science at Motlow State Community College, where I have been intensively teaching physics and Physics-related courses. I am also involved in synchrotron radiation measurements – in particular the novel and exciting techniques Nuclear Resonant Vibrational Spectroscopy, Nuclear Resonant Scattering, High-Energy X-ray Diffraction, Extended X-ray Absorption Fine Structure, and Magnetic Compton Scattering.

My PhD was in experimental condensed matter Physics from Uppsala University, Sweden. I studied aspects of Material Science, especially on new materials to be used as electrodes in the new generation of Li-ions batteries and on magnetism in nano-structured materials such as superlattices and nano-crystallites. For Post-Doctoral studies, I joined the Spintronic Division at the Department of Microelectronics and Applied Physics at The Royal Institute of Technology in Stockholm, Sweden. Subsequently, I received a high prestige Japanese grant from Japan Society for the Promotion of Science to work in Japan for two years studying components used in spintronic devices such as Magnetic Tunnel Junctions and Spin Valves. I have several years of experience in synchrotron-based techniques due to working at the largest synchrotron facility in the world, SPring-8, where I still have activities. During the period of 2009-2015 I did my research at University of California Davis, establishing a well-equipped Mössbauer spectroscopy laboratory. In 2015 I Joined the Department of Mechanical, Aerospace and Biomedical Engineering at University of Tennessee Space Institute.

I am also developing an independent research program, which may well contribute significantly to our in-house research. It uses a variety of synchrotron-based and laboratory techniques to study both interfaces within layered systems as well as superparamagnetism, inter-particle exchange interaction, and dispersivity in nano-crystalline components. These properties critically affect the functionality of these materials and a good understanding of their underpinning physics is needed in order to improve and develop these industrially important systems, which will open windows for collaboration with industries in these fields.

I have already a well-equipped Mössbauer laboratory comprising of Mössbauer Spectroscopy and Conversion Electron Mössbauer Spectroscopy setups:

1. As biomedical/pharmaceutical companies worldwide have numerous Fe-based products, they are very interested to be able to characterize these products using Mössbauer spectroscopy. I have already in contact with some of these companies, and the contracts with them bring a huge number of funding to the institute.
2. Due to working with industrial companies as external users in many years, I have it easy to establish connections with companies for collaborations and bringing funding to the institute.
3. I have the software and the expertise to analyze the most complicated Mössbauer spectra.
4. I have several grant proposals ready to be submitted to NSF.

5. I use this equipment for my research and in collaboration with my coworkers at other Universities with numerous publications per year.
6. I can use this equipment to define numerous small but interesting projects for undergraduate students to complete their thesis.
7. Also, in connection with the undergraduate students' thesis, they can be involved in my research. In this way, besides having their thesis completed, they can be coauthors in the related publications.
8. Students from other Departments can be offered the same opportunity as points 6 and 7 above.
9. Colleagues can use the equipment for their research as well.
10. Due to the demand for Mössbauer spectroscopy worldwide, based on the available equipment and apply external grants for more equipment, we can plan to establish a Mössbauer Center.
11. Due to my intensive synchrotron-related research activity, students can be involved in it in connection with their thesis. Once again, they can be coauthors in related publications besides completing their thesis.
12. As can be seen in my teaching philosophy, which is the main responsibility at institutes with a large number of undergraduate students, I have passion for teaching. I have been teaching since the start of my Ph.D. studies at Uppsala University. I have participated in several courses to improve my teaching skills. I have been teaching various physics course in Sweden, Japan, California, and in Tennessee.
13. Besides the assigned courses, I would like to coordinate with the Department to develop new and more specialized courses.
14. If it is approved by the Department, I would like to expand our programs with high schools to make high school students more interested in the natural sciences.

Thank you very much for considering my application. I believe that I will be highly appropriated instructor within the institute due to my long teaching and experimental experiences.

My CV, a list of my publications, my teaching philosophy, and a list of my references are also attached to this cover letter.

Yours sincerely,



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Dr. Saeed Kamali

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