

Job Title: Master/Ph.D. fellowships and a post-doctoral researcher position in superconducting quantum computing

Research Field: Physics, Materials Science and Engineering, Electronic Engineering

SUNUM is looking for Master/Ph.D. fellowship(s) and a post-doctoral researcher who will work on a research project funded by **“The Scientific and Technological Research Council of Turkey (TÜBİTAK) through 2232-International Fellowship for Outstanding Researchers Programme”** in the field of quantum computing technology to design, develop, and characterize a new type of Josephson junctions which can be promising candidates for superconducting spintronic memory circuits and as well as in superconducting qubits. The research program aims at realizing a new type of ferromagnetic insulator-based Josephson junctions exhibiting prerequisite signatures of a pi-junctions in the electrical measurements and testing the performance of these junctions in spintronic memory circuits and superconducting qubits.

Your responsibilities will include, but are not limited to, the following:

- Optimize growth conditions in a sputtering system to grow ferromagnetic/superconducting hetero-multi-layer films
- Structural, electrical and magnetic characterizations of as-grown films
- Prepare samples including ferromagnetic Josephson junctions for electrical characterizations
- Designing measurement setups (hardware and software) for investigating the transport characteristics of the junctions
- Test the performance of these junctions in superconducting circuits

Minimum Qualifications:

- Ph.D. and post-doctoral researchers should have extensive experimental experiences in thin film deposition techniques, circuit design, clean-room technologies, nano-scale and upscale device fabrications, Nanoelectronics, cryogenics, electrical and magnetic measurement techniques, and instrument programming and also a theoretical backgrounds in condensed matter physics particularly superconductivity and Josephson dynamics
- Self-motivated and open for learning
- Ability to work independently or in groups
- Experience in creative problem solving and innovative solutions
- Strong oral written communication skills are prerequisite
- Publish results in a refereed journals and make oral presentations at meeting conferences
- The candidates expected to collaborate with scientist at SUNUM, Sabancı University (SU) and Boğaziçi University

Education Requirements:

- Bright motivated applicants who have BSc/MSc and Ph.D. degree in Physics or related disciplines (Materials Science and Electronic Engineering)

Qualified candidates from all nationalities are invited to apply with a detail curriculum vitae and a cover letter to ysimsek@sabanciuniv.edu with e-mail subject “fellowship positions in superconducting quantum computing”

If you are a Ph.D. or Master student just recently enrolled in a related graduate program in Turkey, you may also work in the research project. Please feel free to directly send an email to “ysimsek@sabanciuniv.edu” for more detailed information concerning the open positions.

Application Deadline May 22, 2020 for the graduate programs in Sabancı University

- Benefits

The research project will be funded for 2 years (max 36 months), but researchers will be supported for up to 4 years

-Master Scholarship: 3500 TL per month

-Ph.D. Scholarship: 4500 TL per month

-Postdoctoral Researcher Scholarship: 6000 TL per month

- A tuition waiver and free accommodation at student dormitories will be provided by Sabancı University

SUNUM:

SUNUM is a Nanotechnology Research and Application Centre hosted by Sabancı University, Istanbul, Turkey. It is one of four Centers in the country that have recently been granted a special endorsement by the Turkish Ministry of Development as a National Research Centre of Excellence.

Its research focus is the intersection of four vertical thematic areas; namely, Life Sciences, Energy, Food & Agriculture, Water & Environment with the horizontal theme of Nanomaterials and Nanosystems.

SUNUM's mission is to excel as a Centre of Excellence for multidisciplinary and cross-disciplinary Nanotechnology research and development studies, offering global nano-technological solutions to societal challenges, creating socio-economic added-value through commercialization of research results by exploiting synergies and long-term strategic partnerships with stakeholders while contributing to the training of high caliber researchers.

Further details about the Center and its research activities can be found at <https://www.sunum.sabanciuniv.edu>