Call for applications to doctoral programs 2023A in UST KASI School

Korea Astronomy and Space Science Institute (KASI) School via the University of Science and Technology (UST) is offering doctoral (direct and integrated) scholarships starting from March 2023. PhD scholarships are provided with a competitive salary of and of about $1500-$2000 per month for the doctoral program. KASI is located in Daejeon, a high tech, educational and research oriented city. Convenient accommodation would be provided to students for the first 3 years in the campus.

KASI is actively involved in various fields of astronomy and astrophysics, from astronomical instrumentation to observation and theory, and participates in international collaborative and stand-alone projects including GMT, ALMA, SDSS4, DESI, LSST, KMTNet, and KVN. This semester KASI is accepting applications for the following research areas:

- Space Science (supervisor: Prof. Jaeheung Park (pj@kasi.re.kr)
- Cosmology (supervisor: Prof. Arman Shafieloo (shafieloo@kasi.re.kr)

and for the detailed description of the specific research topics, see the list attached or in our major homepage (https://www.kasi.re.kr/eng/pageView/140).

We encourage qualified international students to apply. Competent students with BSc degrees can apply for an integrated PhD program. Students with MSc degrees may apply directly to the PhD program.

Questions on each research area should be sent to each assigned professor, while other questions are sent to the Chief Major Professor (Sang-Sung Lee, sslee@kasi.re.kr). For more information of application, please see the UST web page (https://ust.ac.kr/admission_eng.do). **Applications are considered only if they are submitted during September 21 to November 1 (17:00 KST).**

Best regards,
Sang-Sung Lee
Chief Major Professor

1. **Prof. Jaeheung Park (pj@kasi.re.kr)**

   This project is for a PhD or integrated PhD student.

   This project aims at developing **space science instruments that can be carried on CubeSats**, such as Langmuir probes to diagnose ionospheric plasma, solid state telescopes to detect high-energy particles coming from the terrestrial radiation belt, and magnetometers that can monitor changes in the geomagnetic field disturbed by space weather. The applicants should have basic knowledge on the university physics, plasma physics, and electronics. Knowledge on or experience in project management, mechanical design, wireless communication, or low-level programming languages (e.g., assembly, C, and VHDL) will be welcomed. During this project, the students will participate in instrument design, development, testing, and validation. At the end of this project, the students are expected to be able to lead a CubeSat project.

2. **Prof. Arman Shafieloo (shafieloo@kasi.re.kr)**

   This project is for a PhD or integrated PhD student.

   We are looking for competent and enthusiastic PhD candidates to work on physical cosmology and studying dark energy using multi-messenger astronomy. A successful candidate will work on a project to use gravitational wave sources at low and intermediate redshifts (standard sirens) to study dark energy and model independent estimation of Hubble constant. Project would include theoretical analysis, simulations, as well as electromagnetic follow up observation of gravitational wave sources using multiple facilities followed by data reduction and interpretation. Successful candidate would work on projects at Center for the Gravitational-Wave Universe and KASI and can get also officially involved with DESI (Dark Energy Spectroscopic Instrument) and Rubin (formerly known as LSST) international surveys. Developing advanced statistical methods of data analysis (data mining, machine learning, regression approaches) might be a major part of the research activities during the PhD project or integrated-PhD.