



KASI-York Fellowship Program (KYFP) 2018

I. Introduction

KASI-York Fellowship Program (KYFP) is one of the joint research projects under a collaboration agreement for achieving shared goals in the field of astronomy, astrophysics and space science between **Korea Astronomy and Space Institute (KASI)**, a national research institute of Republic of Korea dedicated to astronomy and related research, and **the Centre for Research in Earth and Space Science (CRESS)**, **Lassonde School of Engineering, York University**, an university incorporated under *The York University Act, 1965*.

With the support of KASI, Lassonde School of Engineering and Faculty of Science, York University, KYFP Program is offered to prominent scholars at the postdoctoral level to enhance their further research. The KYFP Program is in particular aimed at researchers in the areas of (but not limited to) space weather, planetary science, space payload development, and space engineering.

Each candidate is expected to work equal time at each institution with a minimum of one year of his or her tenure at the York University and the remaining period at KASI.

II. Eligibility Requirement

KASI-York Fellowship Program applicants can be of any nationality and must have obtained their Ph.D. in Earth Science, Atmospheric Science, Physics, Astronomy, Space Science, and Space Engineering, or equivalent degree in the related fields.

Applicants must demonstrate his/her strong publication record in relevant prestigious journals and have sufficient conversational ability in English to prevent difficulties during their fellowship periods. The selection process will include an interview during which the candidate's ability to converse in English will be tested. We reserve the right to request additional English proficiency testing as needed.

III. Duration of Fellowship

KASI-York Fellowship Program can be on a 1 or 2-year appointment basis, with a possible extension up to a total of 3 years, which shall be determined by an evaluation of his or her research performance before the end of the contracted period.

IV. Application Procedure

Applicants should obtain and read carefully the KASI-York Fellowship Program announcement linked in an e-file at icapadmin@kasi.re.kr. Applications should be submitted by email. Regarding questions related to potential research projects for KYFP, we encourage applicants to contact principal researchers:

- Dr. Young-Jun Choi (yjchoi@kasi.re.kr), Director of Space Science Division, KASI
- Dr. Gunho Sohn (gsohn@yorku.ca), ESSE Department, York University

All application documents must be submitted by August 31st, 2018.

V. Required Documents for Application

- Curriculum vitae
- Brief summary of past research or instrumentation experience (1 pg max)
- Detailed future research plan, including objectives, purpose, methodology, content of research, research schedule and expecting research findings (3 pg max)
- Full list of publications, including detailed information for each
- A minimum of three letters of reference
- List of potential York and KASI supervisors for the fellowship

Note that application documents should be in pdf format, and should be submitted through an email appointed by KASI-York Fellowship Program.

- All documents must be typewritten in English. Documents written in any language other than English are not accepted.
- Submitted applications which are not satisfactory due to an omission of any required documents, accidentally or deliberately, will be automatically rejected.
- KASI-York Fellowship Program reserves the right to request additional documents if necessary.
- All documents received will become the property of the KASI-York Fellowship Program and will not be returned to applicants.
- All applications received will be acknowledged by KASI-York University Secretariat Office.

VI. Stipend

The annual stipend will start at \$60,000 Canadian Dollars depending on qualifications and experience. All applicants should be aware of that financial support is solely for individuals and does not cover his/her dependent or family.

Under no circumstances is any part of the fellowships transferable to any other persons.

V. KASI and CRESS

As the national research institute for astronomy since 1974, KASI has carried out research activities, especially by developing, establishing, and operating medium- and large-sized observational facilities and instruments and has laid the foundation for the advance of science. Solidifying scientific capabilities in research and on telescopes, KASI undertakes its efforts toward a higher level of the global network of research cooperation. The three research divisions (Optical Astronomy, Radio Astronomy and Space Science) and the three research centers (Center for Large Telescope, Center for Theoretical Astronomy, Center for SMEs Partnership) have been newly set up, securing spontaneous ideas and each research project and enhancing the cooperation and the flexibility of the researchers.

KASI space weather group deals with scientific investigations of the Sun-Earth connection, thus studying the solar activity and the physics of Earth's magnetosphere, ionosphere, and upper atmosphere by applying experimental and theoretical methods and numerical simulations. Recently, this group started new space projects. One is the small satellite mission named SNIPE (Small scale magNetospheric and Ionospheric Plasma Experiment), and the other is the development of Solar Coronagraph on the ISS (International Space Station).

KASI planetary science group is one of leading research institutes in South Korea for Korean lunar exploration mission. For supporting this challenging space mission, KASI is developing engineering models of cutting-edge space payloads including a near-infrared spectrometer, gamma-ray, and neutron spectrometer. With these payloads, KASI is investigating the presence of water ice on the Moon and physical properties on the surface of the airless body including lunar chronology, space weathering and lunar cratering.

The Space Astronomy Group research mainly on the Cosmic Infrared backgrounds from the early universe, and Galactic interstellar medium, based on the various observational data obtained in the space. The group has successfully launched several instruments on satellite and rocket: FIMS (Far-ultraviolet Imaging Spectrograph), MIRIS (Multi-purpose IR Imaging System), CIBER (Cosmic Infrared Background Experiment), and NISS (Near-infrared Imaging Spectrometer for Star formation history). The group takes part in international space telescope projects such as MESSIER, SPHEREx, and WFIRST, to enhance group's capability for the long-term goal of building Korean 1m-class space telescope.

More detailed information on KASI can be found:

- **Korea Astronomy and Space Science Institute:** <https://www.kasi.re.kr/eng/index>
- **Space Science Division at KASI:** <https://www.kasi.re.kr/eng/pageView/67>

The **Centre for Research in Earth and Space Science (CRESS)** is an interdisciplinary research unit in Lassonde School of Engineering at York University. The current areas of research cover a broad range of topics in earth and space science, from geodynamics to the study of the earth's troposphere, the stratosphere, mesosphere and thermosphere, and the earth's plasma environment. It also includes research on planetary atmospheres, on stars (including the sun), and on the interplanetary medium. CRESS is involved in numerous Canadian, NASA, and international spaceflight projects including the NASA OSIRIS-REx mission for planetary exploration and Phoenix mission to Mars. CRESS involves faculty from the Departments of Chemistry, Computer Science, Earth, and Space Science and Engineering and Physics & Astronomy. Some current highlights include:

- **The Centre for Research in Earth and Space Science (CRESS):** <http://www.yorku.ca/cress>
- **The Lassonde School of Engineering, York University:** <http://lassonde.yorku.ca/>

IV. Potential Supervisor

The applicant should select York and KASI supervisors each.

- **KASI**
 - Young-Jun Choi (Space Science Division/Planetary Science Group, yjchoi@kasi.re.kr)
Payload design for lunar mission, Planetary science
 - Jaejin Lee (Solar and Space Weather Group, jjlee@kasi.re.kr)
Cubesat and Science Payload development, Magnetosphere and Ionosphere data analysis
 - Woong-Seob Jeong (Space Astronomy Group, jeongws@kasi.re.kr)
Space Astronomy payload development, Optics design (ray tracing and stray light analysis), Mechanical Design (Thermal analysis and application)
 - Yeo-han Kim (Solar and Space Weather Group, yhkim@kasi.re.kr)
ISS Coronagraph Development, Solar Physics
- **York**
 - Refer to CRESS members list: <http://cress.info.yorku.ca/third-page/> or,
 - Contact Dr. Paulina Karwowska-Desaulniers (paulina.karwowska-desaulniers@lassonde.yorku.ca) for more information