

REGISTRATION FORM FOR CZECH SCIENTIFIC INSTITUTION

1. Research institution data (name and address):

Faculty of Electrical Engineering
Czech Technical University in Prague
Technická 2
166 27 PRAGUE, Czech Republic

2. Type of research institution: Public university (veřejná vysoká škola)

3. Head of the institution: prof. Mgr. Petr Páta, Ph.D. – dean, FEE CTU

4. Contact information of designated person(s) for applicants:

Mgr. Helena Hakenová – Assistant
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Technická 1902/2, 166 27 Praha 6 – Dejvice, Czech Republic

5. Research discipline in which the strong international position of the institution ensures establishing a Dioscuri Centre:

Natural Sciences and Technology: *Astronomy and space research* - astrophysics, astrochemistry, astrobiology, solar system, planetary systems, stellar, galactic and extragalactic astronomy, space science, instrumentation

6. Description of important research achievements from the selected discipline from the last 5 years including a list of the most important publications, patents, or other results:

Participation in several space satellite projects and experiments mainly of European Space Agency ESA (ESA THESEUS, SMILE, ATHENA). Participation in two EU funded research projects H2020, in the field of experimental high-energy astrophysics and in close collaboration with Max Planck Institute for Experimental Astrophysics MPE in Garching, Germany. Design, development and tests of novel instrumentation for satellite based high energy astrophysics. Novel X-ray optics and X-ray telescopes for space missions. Cubesatellite missions with novel scientific payloads onboard. Teaching Space Engineering and participation of students in space projects. Organization of international conferences and workshops.

Mereghetti, S., S. Balman, M. Caballero-Garcia, ..., R. Hudec et al.: Time domain astronomy with the THESEUS satellite, *Experimental Astronomy*, Volume 52, id.309 (2021)

Urban, M., O. Nentvich, T. Báča, et al.: REX: X-ray experiment on the water recovery rocket, *Acta Astronautica*, Volume 184, id.1 (2021)

Urban, M., O. Nentvich, V. Stehlikova, T. Baca, V. Daniel, and R. Hudec: VZLUSAT-1: Nanosatellite with miniature lobster eye X-ray telescope and qualification of the radiation shielding composite for space application, *Acta Astronautica*, Volume 140, id.96 (2017)

R. Hudec and V. Simon: ESA THESEUS and Czech participation, *Astronomische Nachrichten*, Volume 341, id.348 (2020)

Hudec, R., G. Branduardi-Raymont, S. Sembay, and V. Simon: European Space Agency SMILE and Czech participation, *Astronomische Nachrichten*, Volume 341, id.41 (2020)

Pina, L., R. Hudec, et al.: X-ray testing of the multifoil optical system REX II for rocket experiment, *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, Volume 11776, id.1177608 (2021)

Hudec, R.: X/EUV and UV optics for miniature cubesats payloads, *EUV and X-ray Optics: Synergy between Laboratory and Space VI*, Volume 11032, id.1103204 (2019)

Pína, L., R. Hudec, A. Inneman, et al.: Multifoil optics for rocket experiments, *EUV and X-ray Optics: Synergy between Laboratory and Space VI*, Volume 11032, id.1103203 (2019)

Hudec, R.: X/EUV and UV optics for miniature cubesats payloads, *EUV and X-ray Optics: Synergy between Laboratory and Space VI*, Volume 11032, id.1103204 (2019)

Burwitz, V., R. Willingale, G. Pareschi, R. Hudec, et al.: AHEAD joint research activity on x-ray optics, *Space Telescopes and Instrumentation 2018: Ultraviolet to Gamma Ray*, Volume 10699, id.106993T (2018)

Šimon, V., R. Hudec, and G. Pizzichini: Perspectives of observing the color indices of optical afterglows of gamma-ray bursts with ESA Gaia, *Experimental Astronomy*, Volume 44, id.129 (2017)

7. List of no more than 3 important research projects in the selected discipline awarded in national and international calls to the institution in the last 5 years:

AHEAD Integrated Activities in High Energy Astrophysics

Rene Hudec

EU H2020

112 000 Euro.

AHEAD2020 Integrated Activities in High Energy Astrophysics

Rene Hudec

EU H2020

179 000 Euro.

8. Description of the available laboratory and office space for a Dioscuri Centre:

Office space: 3 rooms/offices for up to 9 scientists.

Laboratory:

- a) fully equipped optical lab
- b) radio navigation lab
- c) radio measurement lab

9. List of the available research equipment for a Dioscuri Centre:

hypespectral camera

variety of astronomical cameras

10.000 fps camera

astronomical telescope

reference GPS transmitter

GNSS receivers

radio equipment able to perform measurement up to 1.5Ghz

10. List of the additional benefits (other than listed in the conditions for hosting a DC, see invitation) that the Institution declares to provide for a Dioscuri Centre (i.e.: additional funds, personal benefits, dual career options, relocation support or other):

Extended collaboration with other Czech Institutions and companies in the research area of space engineering and research. Involvement of students in space projects. Wide international collaboration.

11. Other information about the internationalization of the research institution, international researchers employed at the institution, the availability of English language seminars etc.:

Teaching of Space Engineering Course in English with numerous foreign students, supervising bachelor and diploma thesis in the field of space engineering, PhD student education and supervising, extended international collaboration with numerous foreign Universities and Institutes.

Czech Technical University in Prague (CTU) has been educating engineers for more than 300 years. CTU continues to seek cooperation with the best European universities. As a large university with a long tradition, CTU provides education through many study programs. CTU is a research-based university with its academic staff involved in many national and international research projects. CTU participated in 93 research projects in the European Commission's Horizon 2020 programme.

CTU meets the requirements of the Human Resources Excellence in Research Award granted by the European Commission. The award promotes a stimulating and supportive work environment for researchers in our institution. The Human Resources Strategy for Researchers (HRS4R) at CTU reflects the commitment to continuously improve human resource policies in line with the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers, notably commitment to achieve fair and transparent recruitment and appraisal procedures.