REGISTRATION FORM FOR CZECH SCIENTIFIC INSTITUTION

1. Research institution data (name and address):

Faculty of Mathematics and Physics
Charles University
Ovocný trh 560
116 36 Praha 1

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

3. Head of the institution: Prof. MUDr. Milena Králíčková, Ph.D. – Rector

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

prof. RNDr. Vít Dolejší, Ph.D., Dsc.
dolejsi@karlin.mff.cuni.cz, +420 604 239 275
School of Mathematics, MFF UK
Sokolovska 83, 186 75 Prague

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

Natural Sciences and Technology: *Mathematics* - all areas of mathematics, pure and applied, as well as mathematical foundations of computer science, physics and statistics

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:

The School of Mathematics www.msekce.mff.cuni.cz/ of the Faculty of Mathematics and Physics that is looking for applications are the home of several excellent interdisciplinary and international research teams, primarily in Mathematical Analysis, Mathematical and Computer Modelling, Probability and Statistics and Structural Mathematics. This research is supported by ERC and other major national and international grants (such as from the Horizon 2020 and previous Framework Programmes of the European Commission, or the U.S. NSF and other funding sources) having been awarded in the past. **Mathematical Analysis** covers areas of geometric analysis, function spaces, functional and real analysis, and abstract partial differential equations. **Mathematical and Computer Modelling** focus the development of mathematical models for various real-world problems, mathematical analysis of their properties, development of the numerical methods and their implementation exploiting the available computational power of HPC systems. **Probability and Statistics** concentrates on problems of probability, statistics, stochastic geometry and analysis, econometrics and insurance mathematics. **Structural Mathematics** covers topics of representation theory, algebra, logic, number theory, cryptography, mathematical physics and differential geometry.

The research subjects cover the fields of the pure as well as applied mathematics, with frequent interdisciplinary cooperation as physics, chemistry, biology, medicine and economy. Moreover, there exist a few industrial cooperation related to real-world problems.

School of Mathematics (SM) has about 100 academic tenure-track positions (60 of them are permanent) and several tens of research positions supported by various projects. The most of postdocs are outside of the Czech Republic and among the assistant professors hired in the last 5 years, more than one half obtained PhD in abroad. The staff of SM supervise about 70 PhD students, some of them with cooperation with institutes of the Czech Academy of Science.

The researchers published approximately 3-5 monographs and 200 journal papers per year, some of the journal papers belong among top decile of journals. Many of the outputs were achieved based on international cooperation. It is difficult to extract the most important results.

Research is supported with various internal, national or international grants, some of them are mentioned below. The projects' financial resources cover almost 30% of the budget of SM.

SM organized regularly various workshops, summer/winter schools and international conferences, the list is available at https://www.mff.cuni.cz/en/math/research/research-events.

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:

ERC Consolidator Grant

"CoCoSym: Symmetry in Computational Complexity"

2018- 2023

prof. Libor Barto

EUR 1,211,000

ERC-CZ Starting Grant

"Contact: Analysis of PDE describing a contact between fluids and structures"

2021-2026

dr. Sebastian Schwarzacher

EUR 1,269,000

GACR-EXPRO

"Mathematical analysis of partial differential equations describing far-from-equilibrium open systems in continuous thermodynamics"

2020-2024

prof. Miroslav Bulíček

 EUR 1,406,000

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

School of Mathematics is located at the building of Faculty of Mathematics and Physics near the city center where offices, lecture rooms and mathematical library are located. Due to the large amount of research positions financied by grants, we rent several tens of office places in the office center located 20 m from the faculty building. The renting is very flexible depending on the requirements.

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

School of Mathematics (SM) is fully equipped with all necessary modern facilities for the research in any area of pure and applied mathematics, including libraries with access to journals, computers, printers and software. For the performing large computations, local cluster iwith 180 cores is available. In addition, SM has possibility to use the computing time on the Salomon supercomputer at the IT4Innovations National Supercomputing Centre where runs with up to 10 thousand processors can be performed.

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):

The School of Mathematics offers all employees additional benefits according to the rules of the School and the Faculty, and all benefits that the University provides as a whole; Charles University is the European HR Award (Human Resources Award) holder. Parttime and temporary contracts are common and easily amended according to the needs of employees. Among the benefits, supplemental pension fund contribution is offered to permanent staff, as are meal subsidies, personal development days and sick days, and all the benefits according to Labour Law (min. 5 weeks of vacation (8 for teaching/academic staff), full social security and healthcare insurance, etc.).

International relocation staff at the school will help with securing visa (if necessary), initial health insurance, information on suitable accommodation, personal mobile phone and data services, establishing bank account, etc. Depending of the country of origin, relocation support might be offered.

School of Mathematics offers very friendly and stimulating atmosphere for research. The wide range of the research areas allows an "inter-disciplinary" communication and collaboration. Additional funds for travelling and invitation host are available. Each year, several tenure track positions are opened.

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

As indicated above, a non-negligible part of the academic and research staff and a substantial part of postdocs and PhD students are from abroad. Therefore, the majority of educational and scientific activities hold in English, including administrative support. Plenty of various seminars in English are regularly organized, some of them are closely specific the others cover a wide range of topics, the list is available at https://www.mff.cuni.cz/cs/math/veda/seminare