

CONSORTIUM AGREEMENT ON ESTABLISHING THE DOCTORAL SCHOOL (hereinafter referred to as “Agreement”)

Preamble

The Contracting Parties listed in Annex 1 to this Agreement hereby establish the Doctoral School for Education in Mathematical Methods and Tools in HPC. The Agreement is governed by Act No. 89/2012 Coll. (Civil Code) as amended.

The main objective of establishing the Doctoral School for Education in Mathematical Methods and Tools in HPC (for the purposes of this Agreement, hereinafter also referred to as the "Doctoral School") is to create a platform for integrating PhD study programmes with the focus and/or outreach into the field of HPC. The Doctoral School was established by the founding partners, i.e. the Faculty of Mathematics and Physics of Charles University, the Institute of Mathematics of the Czech Academy of Sciences, the Faculty of Electrical Engineering and Computer Science (VSB – Technical University of Ostrava), and the university institute of IT4Innovations (VSB – Technical University of Ostrava) with financial support for the Doctoral School for Education in Mathematical Methods and Tools in HPC project (CZ.02.2.69/0.0/0.0/0.0/0.0/16_018/0002713) implemented under the Operational Programme Research, Development and Education.

Article 1 – The Doctoral School Objective

1. The Doctoral School objective and mission primarily include:

- a. support of the doctoral education in the field of mathematical methods and tools in HPC,
- b. development of a network integrating institutions and workplaces offering PhD study programmes in the field of mathematical methods and tools in HPC,
- c. enhancing mutual exchange of information, cooperation, internationalisation as well as cooperation with the non-academic sphere.

2. In this way, the Doctoral School aims to enhance both the quality of education and expertise of PhD students in the field of mathematical methods and tools in HPC.

Article 2 – Doctoral School form

1. The Doctoral School is not a legal person within the meaning of Act No. 89/2012 Coll. (Civil Code), as amended (hereinafter referred to as Civil Code), and therefore has no legal authority to act on its own in legal proceedings.

2. The Doctoral School is an open association of the Partners listed in Annex 1 of this Agreement

3. Each student enrolled in one of the PhD study programme offered by the respective Partner and incorporated in the Doctoral School (see Annex 1 of this Agreement) shall be considered as a student participating in the Doctoral School (hereinafter referred to as the Doctoral School Student). A student who successfully meets the requirements of the PhD study programme will receive the Ph.D. degree from the institution the PhD study programme of which he or she was enrolled in.

4. However, the Doctoral School offers joint activities for students of the participating PhD study programmes within the meaning of Article 6 of the Agreement.

Article 3 – Doctoral School Partners

1. The Doctoral School partners (hereinafter referred to as Partners) are entities listed in Annex 1 of the Agreement.

2. Any institution with a legal personality or a component thereof may become a partner if its application for a partnership within the Doctoral School is unanimously approved by all Partners who, on the date of the application, will be Partners of the Doctoral School within the meaning of Paragraph 1 of this Article of the Agreement. In that case, the newly acceded Partner will be listed in Annex 1 to the Agreement, the updated version of which will be contained in the amendment of this Agreement signed by the statutory representatives of all Partners (thus also the newly acceded Partner). The applicant shall become a partner from the entry into force and effect of this amendment of the Agreement.

3. The existing Partner has the possibility to propose integration of its PhD study programme focused on mathematical methods and tools in HPC into the Doctoral School by submitting a request to the Doctoral School Board (see Article 4). The proposed PhD study programme is incorporated in the Doctoral School once the application is approved of by the Doctoral School Board and this fact is mentioned in the Doctoral School Board meeting minutes. After integrating the PhD study programme in the Doctoral School, the Doctoral School Board (see Article 4) is extended to include the new PhD study programme representatives. A similar procedure is followed when a PhD study programme is withdrawn from the Doctoral School, with the membership of a respective representative being automatically terminated once the proposal to withdraw it is approved of by the Doctoral School Board.

4. Any of the Partners may withdraw from the Doctoral School at their discretion. At the same time, however, the withdrawal of the Partner from the Doctoral School must not jeopardise the achievement and fulfilment of Article 1 of the Agreement, namely, in particular, the educational mission of the Doctoral School. Furthermore, the partnership status shall cease if all remaining representatives of the Partners in the Doctoral School Board unanimously agree on this (the representative(s) of the Partner to be decided about has/have no voting right in such a vote) and this decision is approved in the form of an Appendix to this Agreement by the statutory representatives of the remaining Partners. The partnership in the Doctoral School shall cease upon its deletion from Annex 1 to the Agreement, with the entry into force and effect of the amendment of the Agreement which will contain the amendment of Annex 1 to the Agreement.

5. In addition to the full partnership within the Doctoral School, the existence of the associate partnership is also possible. An Associate Partner of the Doctoral School (hereinafter referred to as Associate Partner) may be any institution with a legal personality or a component thereof, including foreign and non-academic institutions, which submits an application for granting the Associate Partner status to the Doctoral School Board. The institution shall become an Associate Partner after approval of the application by the Doctoral School Board and after having indicated this fact in the minutes of the Doctoral School Board meeting. The respective Associate Partner shall participate in the activities of the Doctoral School within their professional competence.

6. The termination of an associate partnership of an institution or a component thereof shall be done either at the request of the respective Associate Partner or by the decision of the Doctoral School Board. The termination of the associate partnership must not jeopardise the achievement and fulfilment of Article 1 of the Agreement, in particular the educational mission of the Doctoral School.

Article 4 – Doctoral School Bodies

1. The ultimate body of the Doctoral School is the Doctoral School Board (hereinafter also referred to as the Board).
2. The Board is composed of the representatives of all the PhD study programmes offered by the individual Partners that are part of the Doctoral School. Therefore, the more PhD study programmes of an individual Partner incorporated within the Doctoral School, the more representatives of that Partner participating in the Board. The representatives of Partners in the Board shall be appointed by the relevant Partners based on a proposal from the sectoral boards of the respective PhD study programmes. In the event that a Partner is not the holder of a PhD study programme, they still have the right to appoint their representative to the Board.
3. Each of the Associate Partners of the Doctoral School has the power to appoint one representative in the Board, who will thus become a member of the Board with an advisory vote. The representatives of the Associate Partners are therefore not counted in the Board's voting quorum.
4. The Board shall be chaired by the President of the Board, who shall be elected from among the members of the Board by a simple majority of the votes of the members of the Board. The President of the Board conducts the proceedings of the Board and represents the Doctoral School in public.
5. The Board's constituent meeting is convened by the Principal Investigator of the Doctoral School for Education in Mathematical Methods and Tools in HPC (CZ.02.2.69/0.0/0.0/16_018/0002713) project and manages its meetings until the election of its President. The elected President then takes charge of the meeting.
6. The Board shall act by a simple majority of all its members. In the event of a tied vote, the President of the Board shall have the casting vote.
7. The Board shall meet as necessary but at least once a year. Its meetings shall be convened by the President of the Board at least two weeks in advance. If at least half of the Partners' representatives in the Doctoral School Board so propose, the President of the Board shall be required to convene a meeting of the Board even outside due date.
8. The representative's membership in the Board shall be indefinite; the representative may be replaced only by the Partner he or she represents. The office of the President of the Board is limited in time by a four-year term with the possibility of re-election without restriction. The removal of the incumbent President of the Board within the term of office, and the election of a new President of the Board shall be decided by the Board by a simple majority of the Board's members. A proposal to remove or elect the President of the Board may be made by any Partner Representative in the Board, and the Board is obliged to vote on it at its next meeting.
9. Rights and obligations of the Board:
 - a. The Board communicates with the sectoral boards of the Partners' PhD study programmes.
 - b. The Board proposes an amendment to Annex 2 of the Agreement. However, in the case of a proposal to amend Annex 2 of the Agreement, the individual members of the Board voting in favour of the amendment must demonstrate the agreement of the sectoral board of the PhD study programme they represent, stating that this sectoral board has been informed of the amendment and agrees with it.
 - c. The Board ensures the operation, maintenance and up-to-date nature of the Doctoral School website, in particular ensuring that the website includes a list of Partners and Associate Partners, a list of PhD study programmes incorporated in the Doctoral School, portfolio of dissertation topics, a list

of subjects taught, offers of internships (whether at foreign universities or, for example, associate industry partners), a list of planned events (e.g., summer and winter schools, student conferences, etc.).

d. The Board shall propose updates of the Agreement and, where provided for therein, submit them for approval to the Partners' statutory representatives.

e. The Board organises Doctoral school joint events – e.g., topical student seminars and workshops, student annual conferences, summer and winter schools, intensive courses, etc.

f. The Board ensures the selection of students for international internships, which follows the rules laid down in Annex 3 of the Agreement.

g. The Board produces the annual reports of the Doctoral School activity, which are submitted to the chairmen of the sectoral boards of the PhD study programmes participating in the Doctoral School.

Article 5 – Funding

1. Doctoral School activities are funded by individual Doctoral School Partners or may be funded by Associate Partners. To achieve this goal, the Doctoral School partners have agreed to make maximum use of grant titles to obtain dedicated funds for implementing the Doctoral School activities, both in the form of individual and joint grant projects.

2. The Doctoral School partners are involved in funding the Doctoral School activities according to the following rules:

a. Teaching of individual Doctoral School subjects within the meaning of Article Paragraph 1(a) of this Agreement will be provided by the Partner or Associate Partner who guarantees this subject teaching.

b. A student internship with a Partner or Associate Partner will be paid upon agreement of the sending and receiving partner.

c. Joint events of the Doctoral schools (summer and winter schools, annual student conference, student seminars, etc.) will be funded based on a mutual agreement between the Partners and the Associate Partners involved.

d. The costs of the jointly supervised dissertations will be covered upon a mutual agreement of the Partners or Associate Partners who will participate in the supervision of dissertations.

e. In all other cases, funding of the Doctoral School activities shall be ensured in compliance with a mutual agreement of the Partners.

Article 6 – Study Support

1. The study will be supported by the Doctoral School within the meaning of Annex 2 of this Agreement. 2. Should the Partners wish to change the scope and forms of study support by the Doctoral School, this can only be done by amending this Annex. The amendment will be applied by analogy to Article 7 Paragraph 2 of the Agreement in the form of an amendment of this Agreement.

Article 7 – Rights and Obligations of the Doctoral School Students

1. The Doctoral School itself does not lay down any specific rights and obligations of the Doctoral School students, so students are obliged to follow, in particular, the rules of the individual PhD study programmes in which they are enrolled, or the rules of the relevant sectoral boards guaranteeing

these PhD study programmes. which guarantee such courses. Similarly, students are entitled to the rights and obligations arising from the study regulations and other regulations of the Partners.

2. Doctoral School students are also obliged to follow the rules of the projects handled by the Doctoral School Partners, in which they are involved and from which their duties and rights arise.

Article 8 – Dispute resolution

1. Partners or Associate Partners, as the case may be, are first required to settle their Doctor School-related disputes amicably and by agreement. If conciliation is not achieved within a reasonable time period, either Partner or Associate Partner may refer the disputed matter for decision to the locally competent court.

Article 9 – Common and Final Provisions

1. This Agreement shall enter into force no earlier than on the date of its adoption by all founding partners of the Doctoral School. It shall take effect on the date of entry into force of the Agreement if, within the meaning of Act No. 340/2015 Coll., on special conditions for the effectiveness of some contracts, the publication of such contracts and the register of contracts (Register of Contracts Act), as amended, it is not subject to publication in the register of contracts. Where the Agreement is to be published within the meaning of this Act, it shall take effect on the date of publication in the Register of Contracts.

2. This Agreement is drawn up in four (4) copies. After the signature of this Agreement by all founding Partners of the Doctoral School, each of them shall receive one (1) copy.

List of Annexes:

Annex 1 – Partners and PhD study programmes of the Doctoral School

Annex 2 – Forms of study support within the Doctoral School

Annex 3 – Student selection method for international internships

Faculty of Mathematics and Physics of Charles University in Prague

Registered office: Ke Karlovu 2027/3, 121 16 Praha 2, Czech Republic

Company Registration No.: 00216208, Tax Identification No.: CZ00216208

prof. RNDr. Jan Kratochvíl, CSc., Dean

Institute of Mathematics of the Czech Academy of Sciences, v. v. i.

Registered Office: Žitná 25, 115 67 Praha 1, Czech Republic

Company Registration No.: 67985840, Tax Identification No.: CZ67985840

RNDr. Jiří Rákosník, CSc., Director

Faculty of Electrical Engineering and Computer Science at VSB – Technical University of Ostrava

Registered Address: 17. listopadu 2172/15 708 00 Ostrava-Poruba, Czech Republic

Company Registration Number: 61989100

Tax Identification Number: CZ61989100

prof. Ing. Pavel Brandštetter, CSc. Dean

IT4Innovations National Supercomputing Center at VSB – Technical University of Ostrava

Registered Address: 17. listopadu 2172/15 708 00 Ostrava-Poruba, Czech Republic

Company Registration Number: 61989100

Tax Identification Number: CZ61989100

doc. Mgr. Vít Vondrák, Ph.D. Managing Director

Annex 1 – Partners and PhD study programmes of the Doctoral School

Faculty of Mathematics and Physics of Charles University in Prague, Registered Office: Ke Karlovu 2027/3, 121 16 Praha 2, Czech Republic, CRN: 00216208 TIN: CZ00216208 PhD SP Physics / Mathematical and Computer Modelling, PhD SP Mathematics / Scientific and Technical Computing

Institute of Mathematics of the Czech Academy of Sciences, v. v. i., Registered Office: Žitná 25, 115 67 Praha 1, Czech Republic, CRN: 67985840, TIN: CZ67985840

Faculty of Electrical Engineering and Computer Science at VSB – Technical University of Ostrava, Registered Office: 17. listopadu 2172/15, 708 00 Ostrava-Poruba, Czech Republic, CRN: 61989100, TIN: CZ61989100, DSP Computational and Applied Mathematics, PhD SP Computational Sciences

IT4Innovations National Supercomputing Center at VSB – Technical University of Ostrava, Registered Address: 17. listopadu 2172/15, 708 00 Ostrava-Poruba, Czech Republic, CRN: 61989100, TIN: CZ61989100

Annex 2 – Forms of study support within the Doctoral School

The main objective of supporting the Doctoral school studies is to **integrate the PhD study programmes** offered within the Doctoral School to represent its coherent components. This interconnection will be implemented through the following tools:

Education

- Shared portfolio of study subjects
The selected study subjects taught within each of the respective PhD study programmes will be offered across the Doctoral School.
- Seasonal schools
With at least a two-year period, topical seasonal schools will be organised for the Doctoral School Students as well as for any other external interested candidates.
- Topical student seminars
Within the Doctoral School, teamwork will be encouraged to deal with related dissertations (relevant preferably to different workplaces). It is envisaged that the wider teams participating in such a collaboration will organise thematic seminars at which participating students will report on the significant results of their teamwork.
- Annual student conferences
An annual student conference will be organised regularly once a year with the recommended participation of all Doctoral School students. At this conference, students will report on the progress of work on their dissertations. The principal objective of the conference is mutual exchange of information among students as well as academics of the Doctoral School about the dissertation work to be done. The expected outcomes will be presented as both a conference lecture (presentation) and a contribution.

Research and development

- Stays at the partner institutions
It is generally assumed that part of the dissertation work will be handled based on a greater or lesser degree of teamwork. The lowest level of such cooperation will include short-term stays of students at the Doctoral School partners. These stays will address the part of the student's dissertation requiring expertise that is lacking in the home workplace.
- International internships
Doctoral students are expected to undertake international internships in order to enhance their expertise, to contribute to address the sub-task of their dissertation, and to develop the skills necessary for subsequent integration into the international scientific and research environment. The contact information of individual Doctoral School partners to foreign institutions where such internships could be beneficial will be shared by the Doctoral School Partners.
- Practical placements
For application-oriented dissertations, an internship at companies and other non-academic institutions is expected. In organising these internships, the Doctoral School Partners will share contacts based in the non-academic sphere.

- Dissertation joint supervision

One of the forms of linking the doctoral studies and research within the Doctoral School will be dissertations led (as a rule) by two experts from two different partner institutions. The way in which dissertations are jointly supervised will always be designed and implemented in specific cases to take into account the study regulations of all participating institutions.