

**AGREEMENT FOR TRIPLE INTERNATIONAL PhD PROGRAM/ COTUTELLE OF A DOCTORAL THESIS
BETWEEN**

POLITECNICO DI MILANO

and

UNIVERSIDADE DE AVEIRO
Doutoramento em Matemática

and

UNIVERSITAT AUTÓNOMA DE BARCELONA

Preamble

In consideration of laws and regulations governing the co-operation between public institutions of a scientific, cultural and professional nature and other public or private organizations in Italy and abroad;

In consideration of the Regulations on the Doctoral Research Program of the Politecnico di Milano;

In consideration of the Regulations on the Doctoral Research Program of the Universitat Autònoma de Barcelona: The development of the PhD program and the thesis project at UAB shall comply with its academic regulations and with applicable general legislation in force, in particular Spanish Royal Decree 99/2011, of 28 of January, which regulates official doctorate studies shall be observed.

Additionally, each candidate must comply with the academic and admission requirements established for the PhD programme to which the student has been admitted, along with the general regulations.

In consideration of the Portuguese legal regime of higher education degrees and diplomas provided for in Decree-Law No. 65/2018, published in the Diário da República, No. 157, 1st series, of August 16, which republishes Decree-Law No. 74/2006, of March 24, as well as the respective regulations by the Universidade de Aveiro, namely the Universidade de Aveiro Study Regulations, Regulation No. 833/2021, published in the Diário da República, No. 172, 2nd series, of September 3, amended by the Declaration of Rectification No. 733/2021, published in the Diário da República, No. 206, 2nd series, of October 22., and by Regulation no. 1180/2023, published in the Diário da República, no. 212, 2nd series, of November 2nd, and the Regulation of PhD in Cotutelle Regime of the Universidade de Aveiro, Regulation No. 899/2019, published in the Diário da República, No. 224, 2nd series, of November 21st.

the Politecnico di Milano

with legal domicile at piazza Leonardo da Vinci 32, 20133 Milano (Italy), represented in this deed by its Rector, Prof. Donatella Sciuto and

the Universidade de Aveiro

with legal domicile at Campus Universitário de Santiago, 3810-193 Aveiro (Portugal), represented in this deed by its Vice-Rector, Prof. Doctor Artur Manuel Soares da Silva

the Universitat Autònoma de Barcelona

with legal domicile at Campus de la UAB, 08193 Bellaterra (Cerdanyola del Vallès, Spain), represented in this deed by Mr. Francisco Javier Lafuente Sancho, Rector of the Universitat Autònoma de Barcelona (UAB), appointed by Decree 131/2020, of 10th November (DOGC No. 8269, of 12th November), acting as legal representative of this Institution, by virtue of the powers derived from article 75, paragraph m) of the Statutes of this University, approved by Decree 237/2003, of 8th October (DOGC No. 3993, of 22nd October); and on his behalf, Mrs. Inmaculada Ponte Marull, Director of the Doctoral School, with the functions conferred upon her,

agree to develop a system of academic exchanges that will allow a PhD candidate to perform coordinated doctoral studies at the three Institutions by spending periods of similar duration at the three Institutions, jointly guided by scientific supervisors from the three Institutions, aimed at obtaining the doctoral title from each Institution by satisfying the requirements and quality standards of the doctoral studies of each Institution.

This agreement is based on the principles specified hereunder.

Part 1 - General principles

1. Selection and Admission

Candidates selection is performed by the home university through comparative Open Calls and independent commissions, in accordance with the respective regulations of each Institution. Each Institution will inform the others about the admission.

2. Language requirements

The PhD candidate must have a good knowledge of the languages of the three Institutions or at least of the language of one of the three Institutions and of the English language.

3. Starting date

The starting date of the triple Ph.D. program coincides with the beginning date of the doctorate which has the latest starting date.

4. Duration of studies

The duration of the doctorate will be 48 months after the starting date of the triple PhD. The PhD candidate will spend 12 months at the Universidade de Aveiro, followed by 12 months at Universitat Autònoma de Barcelona, , and the final 24 months at the Politecnico de Milano. Under extraordinary, exceptional and clearly motivated situations, the duration of the program can be reduced or extended. Should the triple PhD specified objectives not be reached, the duration may be extended beyond the 48 months for up to an additional year if in accordance with the regulations of the three institutions.

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5. Residency

The research and study activities will be carried out at the three Institutions during alternated or consecutive periods. The total duration of the periods spent at each of the three Institutions is according to the times established in the previous section.

Visits at Institutions other than the hosting one can be authorized, if useful to the studies.

6. Enrolment and fees, health insurance and protection measures

The PhD candidate will be enrolled annually at all three Institutions. However, the grant will be provided by the Fundação para a Ciência e a Tecnologia for the first 24 months and by the Politecnico di Milano for the last 24 months, as specified in the Addendum of this document.

The fees at the Universidad Autònoma de Barcelona are to be paid by the candidate each academic year.

The PhD candidate will be required to show proof of health insurance before assuming his/her residency at the hosting Institutions. Each institution shall maintain policies of insurance and safety for staff and students within the law of its own country.

7. Supervision of the PhD candidate

Each Institution will appoint a professor holding a PhD title as thesis supervisor (Prof. Fabrizio Colombo at Politecnico di Milano, Prof. Uwe Kähler at Universidade de Aveiro, and Dr. Alberto Debernardi Pinos at Universitat Autònoma de Barcelona). The PhD candidate will turn to the supervisor for advice or assistance during his residence at that Institution. The three supervisors will jointly exercise the function of scientific guide of the PhD candidate and are responsible for the PhD candidate doctorate education and research training.

8. Studying activities

The main activities that the PhD candidate must carry on during the doctoral program include taking advanced level courses, doing research work and elaborating and defending the doctoral thesis. The PhD candidate may take courses and the associated exams at each of the three Institutions, in accordance with the study curriculum concerted with the supervisors.

At least 50 ECTS credits related to courses must be acquired in the three Universities, 20 of which at the Politécnico de Milano and 30 at the Universidade de Aveiro.

The PhD candidate shall fulfill all requirements and regulations ruling the Ph.D. programs of the three Institutions, particularly with regard to the course credit recognition, qualifying examination (if requested) etc. The doctoral thesis is expected to contain research material of relevance superior to that attainable by work performed within a single PhD program. It will be written in English, with three extended summaries in the languages of the three involved Institutions.

9. Intermediate evaluations

Each Institution will separately examine and evaluate the progress of the PhD candidate annually or with the prescribed frequency and transmit the result of the evaluation to the other Institutions.

10. Final evaluation and award of the title

After completing the triple doctoral program and satisfying all the associated requirements (in particular the fulfilment of the coursework credits and the positive evaluation of the thesis work by the committee specified in art. 11 of Part 1), the PhD candidate will be awarded the "Dottorato di ricerca in Modelli e Metodi Matematici per l'Ingegneria" by Politecnico di Milano, the title "Doutor em Matemática" by Universidade de Aveiro, and "Doctorat en Matemàtiques" by Universitat Autònoma de Barcelona.

The PhD candidate will present and defend the thesis according to the respective rules of the Institutions. The presentation of the thesis by the PhD candidate will take place at the Politecnico di Milano. The doctorate degree is conferred by each of the universities that separately emit the diploma and herein or in its supplement include in the statement that it is a doctorate in international joint supervision/cotutelle.

11. Composition of final evaluation committee

The committee for the thesis defence will be composed by expert professors in the subject of the thesis and according to the regulations of all parties. In the final examination at least two external counterreports are requested and the commission must include at least two external members. The committee for the thesis defence shall comply the following conditions:

1. To have a minimum of 3 members and a maximum of 8 members.
2. The majority of the members must be external to each of the universities involved in this agreement.
3. If the tribunal has 5 or more members, the supervisors from Politecnico di Milano, Universidade de Aveiro, and Universitat Autònoma de Barcelona must be a part of it.

The committee will be nominated jointly by the three Institutions and approved by the Rector of Politecnico di Milano, as well as by the corresponding authorities of the other institutions involved.

The committee for the thesis defence will be composed by at least three professors expert in the subject of the thesis and according to the regulations of all parties. In the final examination at least two external counter-reports are requested and the commission must include at least two external members.

12. Thesis defence

The defence of the thesis will be held at the Politecnico di Milano in the English language. Two professors from Institutions different from the three engaged in this agreement will have to prepare a written report on the thesis work.

13. Financial matters

The PhD candidate will be financially supported by grant as specified in art. 6 of the Addendum in attachment. The PhD candidate will assume expenses for travel, accommodation and all living expenses.

For the PhD candidate's activities each Institution will freely make available its own resources, including office space.

The travel expenses for the Politecnico di Milano thesis supervisor will be in charge of the supervisor's own research funds and/or of the Dipartimento di Matematica

The travel expenses for the Universidade de Aveiro thesis supervisor will be in charge of the supervisor's own research funds and/or the Center of Research and Development in Mathematics and Applications (CIDMA), Universidade de Aveiro.

The travel expenses for the Universitat Autònoma de Barcelona thesis supervisor will be in charge of the supervisor's own research funds.

The travel expenses for the external members of the committee will be in charge of the University where the defense will be held.

There are no other financial charges for the Institutions.

14. Research results protection

The protection of the content of the thesis and the publication, exploitation and protection of the results of the research work developed by the PHD candidate during the work carried out in all Institutions will be submitted to the regulations in force in each Country and will be guaranteed according to specific procedures in force in each Country.

15. Controversies

The parties agree to solve in a friendly manner any controversy arising from the interpretation of the present agreement. In the event that the disagreement cannot be resolved, the issue(s) will be submitted for the court at the defendant's domicile.

16. Validity of this agreement

This agreement for a triple PhD is effective from the date of its signature and will expire when all PhD titles are conferred, and in any way will expire five years after the starting date of the triple PhD program. Should the PhD candidate decide not to proceed with the program, or be denied authorization to proceed, the three Institutions will end jointly the present agreement.

Signatures

For the Politecnico di Milano	For the Universidade de Aveiro	For the Universitat Autònoma de Barcelona
Prof. Donatella Sciuto Rector	Prof. Artur Manuel Soares da Silva Vice-Rector	
The head of the doctoral school of Politecnico di Milano Prof. Daniele Rocchi	The head of doctoral school of Universidade de Aveiro Prof. António Gil D'Orey de Andrade Campos	The rector, and by authorisation, the director of the doctoral school of Universitat Autònoma de Barcelona Prof. Inmaculada Ponte Marull
Milano	Aveiro	Barcelona

Addendum

Individual data and conditions

1. The PhD candidate

João Marques da Costa

Place of birth: Leiria (Portugal) on May 26, 2000

Admitted to the 39° cycle of “Dottorato di ricerca in MODELLI E METODI MATEMATICI PER L'INGEGNERIA” at Politecnico di Milano, on October 1, 2023

and

admitted to the Programa doutoral em Matemática, Universidade de Aveiro, on October 1, 2023,

and

admitted to the PhD program Mathematics at the Universitat Autònoma de Barcelona, on October 1, 2023, starts the program for the triple doctorate on *October 1st*, 2023

2. Enrolment and grants

The PhD candidate will be enrolled in the graduate schools of all three institutions.

The PhD candidate will receive a grant from the Fundação para a Ciência e a Tecnologia for the first 24 months of the triple doctorate program, from September 1, 2023, until August 31, 2025.

The PhD candidate will receive a grant from POLITECNICO DI MILANO for the last 24 months of the triple doctorate program, from September 1, 2025, until August 31, 2027

The PhD candidate pays enrolment fees as specified below:

fees to Politecnico di Milano paid by the grant from POLITECNICO DI MILANO,

fees to Universidade de Aveiro paid by the grant from Fundação para a Ciência e a Tecnologia

fees to Universitat Autònoma de Barcelona paid by the candidate each academic year.

3. The supervisors of the thesis are:

for the Universidade de Aveiro, prof. Uwe Kähler,

for the Politecnico di Milano, prof. Fabrizio Colombo,

for the Universitat Autònoma de Barcelona, prof. Alberto Debernardi Pinos.

4. Thesis title

The thesis has the tentative title “*Spectral Theory over Noncommutative Structures with applications in Integral Geometry*”.

Signatures

For the Politecnico di Milano	For the Universidade de Aveiro	For the Universitat Autònoma de Barcelona
Prof. Donatella Sciuto Rector	Prof. Artur Manuel Soares da Silva Vice-Rector	
The head of the doctoral school of Politecnico di Milano Prof. Daniele Rocchi	The head of doctoral school of Universidade de Aveiro Prof. António Gil D'Orey de Andrade Campos	The rector, and by authorisation, the director of the doctoral school of Universitat Autònoma de Barcelona Prof. Inmaculada Ponte Marull
The Supervisor Prof. Fabrizio Colombo	The Supervisor Prof. Uwe Kähler	The Supervisor Dr. Alberto Debernardi Pinos
The doctoral student João Marques da Costa		
Milano	Aveiro	Barcelona