

A N E X O

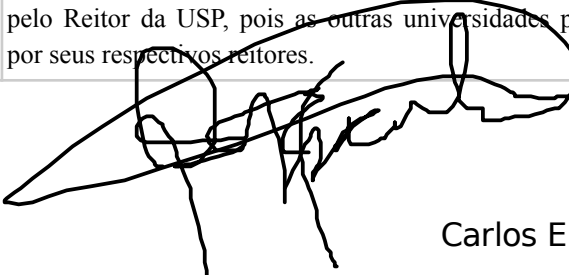
04

Parecer quanto à forma da proposta de convênio

Número do processo:	49404
Objeto preponderante:	Cooperação acadêmica nacional e internacional.
Fundamentação jurídica:	<p>PORTARIA GR N° 6580, DE 21 DE OUTUBRO DE 2014</p> <p>Artigo 5º-B – No caso dos convênios com <u>objeto preponderante de cooperação acadêmica nacional e internacional</u>, no âmbito específico de cada Unidade, Instituto Especializado ou Museu, fica delegada competência aos Diretores, condicionada à aprovação, quanto ao mérito, pela Congregação, Conselho Técnico-Administrativo ou Conselho Deliberativo, quando for o caso.</p> <p>http://www.leginf.usp.br/?portaria=portaria-gr-no-6580-de-21-de-outubro-de-2014-2</p>
Tipo de convênio:	ACORDO DE COOPERAÇÃO ACADÊMICA INTERNACIONAL. Trata-se de um termo de cooperação acadêmica com a finalidade de listar algumas atividades acadêmicas pretendidas entre as partes. Não há o detalhamento de nenhuma atividade, apenas a menção de cada uma delas.
Tramitação via sistema corporativo da USP?	Sim, Sistema MercúrioWeb (e_Convênios).
Instituição parceira	
Instituição estrangeira:	Universidad de Sevilla (Espanha), Universidad de Granada (Espanha), Universidad de Huelva (Espanha), Universidade de Lisboa (Portugal), Universidade Federal de Minas Gerais (Brasil), Universidade Federal Fluminense (Brasil), Westfälische Wilhelms-Universität in Münster (Alemanha).
País:	Espanha, Portugal, Brasil e Alemanha.
Apresentou manifestação de interesse em oficializar a colaboração?	Sim.
Aprovou o texto do convênio que será encaminhado para análise da Procuradoria Geral?	Sim.
Modelo de minuta utilizado	
Modelo de minuta padrão USP?	Não.
Presentes as cláusulas essenciais dos termos de cooperação acadêmica?	Sim.

Identificação das partes	Sim. PREAMBLE.
Objeto/objetivo	<p>Sim.</p> <p>OBJECTIVES OF THE TORDESILLAS DOCTORAL SCHOOL IN PHYSICS</p> <p>The Tordesillas Doctoral School in Physics has been designed according to the principles of inter-university cooperation, and it is supported by the intense scientific collaboration between the participant universities.</p> <p>The general objectives that are intended to be achieved with the Tordesillas Doctoral School are the following:</p> <ul style="list-style-type: none"> • To foster scientific collaboration between participating research teams, promoting research excellence in the different fields of Physics, especially in those of common interest for the partner universities. • To promote the training of new researchers in the different fields of Physics, gathering resources and creating synergies between the partner universities. • To promote the mobility of graduates, preferably PhD students, and researchers between the partner universities, encouraging the incorporation of students into research groups of universities from other countries involved in the program, with the subsequent improvement of their doctoral training.
Coordenação	Sim. Article 4. Coordination and Monitoring
Coordenador(a) do IF é docente que esteja ativamente exercendo suas funções na USP?	Sim.
Vigência	Sim. Article 9. Validity of the agreement
Resolução de controvérsias	Sim. Article 11. Unforeseen issues and disputes
Campo das assinaturas	Sim. Pelo IF, a diretora. Cf. PORTARIA GR Nº 6580, DE 21 DE OUTUBRO DE 2014. O acordo é de interesse do Instituto de Física, mas deverá ser assinado também pelo Reitor da USP, pois as outras universidades parceiras serão representadas por seus respectivos reitores.
Documentação	

Apresentou plano de trabalho?	Sim.
Apresentou aprovação do Conselho de Departamento?	Sim.
Apresentou parecer de mérito favorável à aprovação?	Sim.
Apresentou minuta em língua estrangeira?	Sim, em inglês e espanhol.
Apresentou minuta em língua portuguesa?	Sim.
Texto das minutas contém erros de ortografia/gramática?	Não.
Plano de trabalho	
Prevê implicações financeiras para o orçamento da USP?	Não.
Prevê mobilidade acadêmica de estudantes?	Sim, doutorandos.
Há projeto de pesquisa conjunta?	Não.
Parecer da Coordenação de Relações Internacionais	
Proposta de convênio aprovada quanto à forma?	Sim.
Observações	Não.
Data	10/04/2024
Encaminhamentos	Análise e aprovação da Procuradoria Geral. O acordo é de interesse do Instituto de Física, mas deverá ser assinado também pelo Reitor da USP, pois as outras universidades parceiras serão representadas por seus respectivos reitores.



Carlos E. Fiore

OF/DFAP/017/2024

SLM/es

São Paulo, 05 de abril de 2024.

Prezada Diretora,

Informamos que o Conselho do Departamento de Física Aplicada do IFUSP aprovou ad referendum, a solicitação do Prof^o Dr. Manfredo Harri Tabacniks, de Convênio Internacional com a Universidade de Sevilla, sendo este uma reedição do acordo específico assinado em 18/nov/2018, à criação do *Colégio Doctoral Tordesillas* (CDT) e com a participação da Universidade de São Paulo.

Anexos os documentos pertinentes à solicitação e o parecer favorável emitido pela Prof^a Dr^a Luciana Varanda Rizzo/DFAP.

Atenciosamente,



Prof^o Dr. Sérgio Luiz Morelhão
Chefe do Departamento de Física Aplicada do IFUSP

Ilma. Diretora
Prof^a Dr^a Kaline Rabelo Coutinho

05 de Abril de 2024

À Chefia do DFAP

Prof. Dr. Sérgio Morelhão

Ref: Parecer sobre convênio com o Grupo Tordesillas

A proposta de renovação de convênio apresentada pelo Prof. Dr. Manfredo Tabacniks trata da continuidade da participação da USP no Grupo Tordesillas (GT), que consiste em uma rede de universidades brasileiras, portuguesas e espanholas para a promoção e colaboração científica e tecnológica. No âmbito do GT, foi criada em 2018 a Escola Tordesillas de Doutorado (TDS) em Física (Tordesillas Doctoral School in Physics), com o objetivo de desenvolver atividades conjuntas em nível de pós-graduação, reunindo as Universidades participantes do grupo.

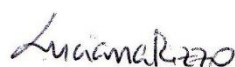
A TDS em Física foi desenhada seguindo os princípios de cooperação que regem as universidades do GT, e é apoiada pela intensa colaboração científica já existente entre os institutos de física das universidades proponentes: Universidade de Sevilha, Universidade de Granada, Universidade de Lisboa, Universidade de Münster, Universidade Federal de Minas Gerais, Universidade Federal Fluminense e Universidade de São Paulo. Na corrente proposta de reedição da TDS em Física, foi incluída a Universidade de Huelva (Espanha).

Ao participar da TDS em Física, essas universidades parceiras têm a intenção de:

- (1) aprofundar a colaboração científica entre seus times de pesquisadores, promovendo pesquisa de alto nível em áreas de interesse comum;
- (2) treinar jovens pesquisadores em diferentes áreas da física, unindo recursos e aproveitando a sinergia entre as instituições;
- (3) promover a mobilidade de alunos de pós-graduação e de pesquisadores.

Desta forma, há diversos impactos positivos na renovação deste convênio, como por exemplo: maior exposição discente e docente ao ambiente internacional de pesquisa; fomento de pesquisas com parceiros internacionais. Portanto, recomendo a renovação deste convênio pois considero ser uma grande oportunidade para internacionalização do nosso quadro discente e docente.

Atenciosamente,



Prof. Luciana Varanda Rizzo
Laboratório de Física Atmosférica – LFA
Instituto de Física da USP

São Paulo, 22 de março de 2024.

Ref. Colégio Doctoral Tordesillas

Prezado Prof Sérgio Morelhão

Encaminho-lhe para apreciação pelo Conselho do Departamento de Física Aplicada e devidas providências, minuta de Convênio Internacional com a Universidade de Sevilla para reedição do acordo específico assinado em 18-11-2018 para a criação do *Colégio Doctoral Tordesillas* (CDT) com a participação da Universidade de São Paulo, conforme detalhado no anexo.

O presente convênio foi ampliado em relação ao anterior: compreende a University de Sevilla (Espanha), a University de Granada (Espanha), a University de Huelva (Espanha), a University de Lisboa (Portugal), a Universidade Federal de Minas Gerais (Brasil), a Universidade Federal Fluminense (Brasil), a University de Münster (Alemanha) e a University de São Paulo (Brasil).

O *Colégio Doctoral Tordesillas* em Física foi concebido para estreitar a cooperação interuniversitária entre as Universidades partícipes e, em sua nova versão, pretende atuar como guarda-chuva e facilitador das múltiplas colaborações desenvolvidas que foram promovidas e estabelecidas desde a criação do primeiro TDS em Física.

Os objetivos gerais do *Colegio Dotoral Tordesillas*, que ainda prevalecem, visam promover a colaboração científica entre os grupos de pesquisa das universidades participantes; promover a formação de pesquisadores nos diferentes campos da Física, combinando recursos e criando sinergias entre as universidades participantes, promovendo a mobilidade de estudantes de pós-graduação e de pesquisadores das universidades participantes.

A adesão da USP e em particular do IF ao *Colégio Doctoral Tordesillas* em sua presente versão continuará promovendo vínculos e colaborações com as Universidades participantes, proporcionando aos nossos estudantes e pesquisadores mobilidade formativa, a co-orientação de Teses de Doutorado e o desenvolvimento de pesquisas conjuntas em ampla diversidade de temas cobertos pelas Universidades.

Atenciosamente,

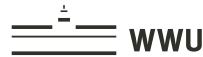


Prof. Dr. Manfredo H. Tabacniks

Ilmo Prof. Dr. Sérgio Morelhão,
Chefe do DFAP



SPECIFIC COLLABORATION AGREEMENT FOR THE OPERATION OF TORDESILLAS DOCTORAL SCHOOL IN PHYSICS



SPECIFIC AGREEMENT

FOR THE OPERATION OF A DOCTORAL SCHOOL IN PHYSICS BETWEEN THE UNIVERSITY OF SEVILLE (SPAIN), THE UNIVERSITY OF GRANADA (SPAIN), THE UNIVERSITY OF HUELVA (SPAIN), THE UNIVERSITY OF LISBON (PORTUGAL), THE FEDERAL UNIVERSITY OF MINAS GERAIS (BRASIL), THE FLUMINENSE FEDERAL UNIVERSITY (BRASIL), THE UNIVERSITY OF MÜNSTER (GERMANY), AND THE UNIVERSITY OF SAO PAULO (BRASIL), UNDER THE PREVIOUS FRAMEWORK AGREEMENT DATED ON 22-11-2016 FOR THE CREATION OF A TORDESILLAS DOCTORAL SCHOOL (TDS). THIS IS A REEDITION OF THE SPECIFIC AGREEMENT SIGNED ON 18-11-2018 FOR THE CREATION OF THE TORDESILLAS DOCTORAL SCHOOL IN PHYSICS.

PREAMBLE

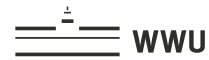
In the field of postgraduate studies, in general, and Doctorate, in particular, and in order to create and develop academic-scientific collaboration between research teams or departments of various institutions of the Tordesillas Group (TG), as well as to facilitate the mobility of their students and professors, the Tordesillas Doctoral Schools (TDS), well known in the international context, were developed.

This type of association of institutions was created with the objective of covering, among other activities and in specific subjects, the training and research mobility of students, the co-tutelle of doctoral theses, and the development of joint or multiple doctorates, in specific subjects and of current relevance. For all purposes, the concept of a Tordesillas Doctoral School (TDS) and for any given subject was defined as:

"A voluntary association of universities belonging to the TG —open to other governmental or business organizations— which, governed by a Framework Agreement approved by the GT and developed in particular in its Specific Agreement, wishes to develop Postgraduate and/or PhD activities in joint programs of Postgraduate studies of excellence, committing itself to a unique coordination in the necessary supplementary courses and lines of investigation".

The first agreement for a TDS in Physics was born under the premise of establishing and developing a system of academic and scientific exchanges within a framework of PhD studies and in a spirit of inter-university collaboration between Europe and Ibero-America. This Ibero-American and European nature, both in the education and research fields, is the basis of this cooperation proposal made within the framework of the programs promoted by the Tordesillas Group.

During the second TDS the goal was to attract, promote and strengthen the talent associated to the leading research in Physics that is presently being developed by the signing universities. Considerable actions, that resulted on research papers, joint experiments and measurements, articles, mobility, research networks, joint masters, etc in the field of Physics



This third TDS aims to act as an umbrella and a facilitator for the multiple developed collaborations that has been promoted and established since the creation of the first TDS in Physics. This TDS endeavours to increase and reinforce former and new academic bonds, both in research and education. For that, a new university, with established ties and prior engagements with all member universities is integrated into the consortium. This strategic move not only broadens the scope of interdisciplinary partnerships but also actively contributes to fostering innovation and growth within the TDS community.

Physics plays an essential role as the knowledge base underpinning a large corpus of science, technology and industry. As recognized in the UNESCO/ICSU World Conference on Science in 1999, the contribution of Physics to all aspects of life, material and non-material, will be essential for the near future. 'Physics' encompasses interdisciplinary fields such as nuclear and theoretical Physics, materials, energy, electronics, computer technologies, radioactivity and bioPhysics, etc. Physics is and will continue to be essential for analysing and solving urgent environmental and energy problems. Physics is global and constitutes our best 'anti-Babel'. Generations of physicists of the most diverse political and cultural backgrounds have historically collaborated based on shared understanding and shared ideas, and thus it is both natural and essential that programmes such as the one described in this proposal are developed.

Through international collaboration in science, not only will we be able to strengthen our economic and technological position, but also our social and cultural ties. In the previous TDSs, the expertise in science and technology in Physics was advanced in both theoretical and applied basis. This will expand and extend this network and TDSs, whose ultimate objective of this TDS is to conform a breeding ground that will generate cutting-edge knowledge in a collaborative environment.

The representatives of the Rectors of the Universities of the Tordesillas Group, gathered on November 22, 2016 at the Federal University of Pernambuco agreed on the basic principles that allow the free participation of institutions from Brazil, Spain and Portugal that, belonging to the TG, wish to develop academic activities aimed at the joint realization of Postgraduate programs by institutions of the three countries, always in harmony with its national standards and regulations. Subsequently, a new agreement was signed at Miguel Hernández University, on the 8th of November, 2022.

In this area of activity and in accordance with their respective regulations,

The **University of Seville** (Spain), acting as the Coordinating University of the TDS - represented by Prof. Dr. Miguel Ángel Castro Arroyo, appointed Rector of the University of Seville under the *Decreto 198/2020 de 1 de diciembre de la Junta de Andalucía*, BOJA núm. 235, de 4 de diciembre de 2020), acting in the name and on behalf of the University, in accordance with article 50.1 of Organic Law 2/2023, of 22 March, on the University System (LOSU) and article 20 of the Statute of the University of Seville.



The **University of Granada** (Spain), represented by Prof. Dr. Pedro Mercado Pacheco, appointed Rector of the University of Granada under the *131/2023, de 12 de junio* (BOJA nº 113 de 15 de junio de 2023), acting in the name and on behalf of the University, in accordance with article 50.1 of Organic Law 2/2023, of 22 March, on the University System (LOSU) and article 45 k) of the Statutes of the University of Granada

The **University of Huelva** (Spain), represented by Prof. Dr. María Antonia Peña Guerrero, appointed Rector of the University of Huelva under the *Decreto 171/2021 de 25 de mayo* (BOJA nº 101, May 28, 2021), acting in the name and on behalf of the University, in accordance with article 50.1 of Organic Law 2/2023, of 22 March, on the University System (LOSU) and article 31.n) of the Statutes of the University of Huelva, approved by Decreto 232/2011 of 12 July 2011 (B.O.J.A. no. 147 of 28 July 2011), amended by Decreto 35/2018 of 6 February (B.O.J.A. no. 30 of 12 February 2018).

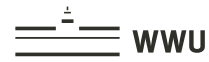
The **University of Lisbon** (Portugal), represented by Prof. Dr. Luís Manuel dos Anjos Ferreira, appointed Rector of the University of Lisbon under the Despacho 9867-A/2021 of October 11 (Diário da República nº 197/2021, 1º Suplemento, Série II de 2021-10-11), holding the legal representation of the University, according to the art. 85 of the Organic Law of Higher Education 62/2007 of September 10, and article 22 of the Statutes of the University of Lisbon.

The **Federal University of Minas Gerais** (Brazil), located at Antônio Carlos Avenue, 6627, Belo Horizonte, Minas Gerais, Brazil, CNPJ No. 17.217.985/0001-04, represented by its Rector, Prof. Dr. Sandra Regina Goulart Almeida, CPF No. 452.170.336-49, Brazilian, holding the legal representation of the University under the Decree of 17/03/2022 (March 17th 2022)

The **Federal University of Fluminense (Brazil)**, located at Rua de Miguel de Frias, 9 Icaraí, Niterói/RJ, Brazil, Prof. Dr. Antônio Cláudio Lucas da Nóbrega, registered with the CPF/MF 808.987.697-87, nominated by Decreto Presidencial of November 22nd, 2022, published in DOU n. 219-A, on November 22nd, 2022

The **University of Münster** (Germany), represented by Prof. Dr. Johannes Wessels, appointed Rector of the University of Münster (WWU) since 01/10/2016, holding the legal representation of WWU Schlossplatz 2; 48149 Münster, established 1780, a listed public institution of higher education in regard to the *Gesetz über die Hochschulen des Landes Nordrhein-Westfalen* (Hochschulgesetz – HG) (Universities and Colleges of North Rhine-Westphalia Act)

And the **University of São Paulo** (Brazil), *in the interest of its Institute of Physics*, represented by Prof. Dr. Carlos Gilberto Carlotti Junior, appointed Rector of the University of São Paulo under the decree from 08/12/2021 (DOESP, Executivo II, 09/12/2021), holding the legal representation of the University, according to the decree nº 29.272/1988 of December 24, and article 36 of the Statutes of the University of São Paulo, and by Prof. Dra. Kaline Rabelo Coutinho: appointed Director of the Institute of Physics starting on August 18th, 2023 (DOESP-05 July 2023).



agree to sign this specific collaboration agreement, in accordance with the general objectives and articles specified hereunder.

OBJECTIVES OF THE TORDESILLAS DOCTORAL SCHOOL IN PHYSICS

The Tordesillas Doctoral School in Physics has been designed according to the principles of inter-university cooperation, and it is supported by the intense scientific collaboration between the participant universities.

The general objectives that are intended to be achieved with the Tordesillas Doctoral School are the following:

- To foster scientific collaboration between participating research teams, promoting research excellence in the different fields of Physics, especially in those of common interest for the partner universities.
- To promote the training of new researchers in the different fields of Physics, gathering resources and creating synergies between the partner universities.
- To promote the mobility of graduates, preferably PhD students, and researchers between the partner universities, encouraging the incorporation of students into research groups of universities from other countries involved in the program, with the subsequent improvement of their doctoral training.

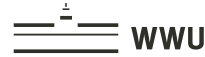
ARTICLES

Article 1. Nature of the TDS in Physics within the Tordesillas Group

The signatories recognize the need to foster the grouping of graduate and doctoral activities of students, researchers and faculty members of TG institutions in inter-university and tri-national TDSs in order to improve the capabilities and scope of an own program in the following aspects:

- Internationalization of postgraduate education for students.
- The development of academic activities on a multicultural scale.
- The generation of a critical mass that prevents young researchers from being relatively isolated in some disciplines.
- Improving the quality of students and the academic structure of programs.
- Increasing productivity and performance of programs in research results.
- Raising the attention of international organizations seeking for researchers.
- Promoting exchange and joint production by researchers working in related or complementary areas.
- Encouraging the creation of consortia for other university activities.

Article 2. Types of activities of the TDS in Physics



Considering and always respecting the regulations for the Postgraduate of each country and the rules regarding the partner Universities, the following activities will be developed:

- Training stays with academic and research recognition (without the issue of an official diploma or certificate).
- Mobility of graduate (especially PhD) students.
- Mobility of professors and researchers.
- Joint organization of training activities, enhancing those that can be carried out on-line.
- Mobility of academic staff (professors and researchers).
- Co-tutelle of doctoral theses.
- Joint experiments within the universities of the TDS using the facilities and research centers.
- Joint publications of research results.
- Any other activity that will be commonly decided in the future, focused in strengthening academic and scientific ties between the partners.

Except for the exchange of professors/researchers, graduate students and technical/administrative staff of the participating institutions, any other form of collaboration will be defined and implemented by specific agreements between the involved parties.

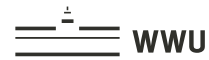
Double-degree diplomas, as well as co-advisors, will be implemented through a specific agreement to be signed between the interested parties.

Article 3. Doctoral programs and resources of the partner Universities

The TDS in Physics proposes the collaboration between the following doctoral programs and research resources:

University of Seville (Spain)

The University of Seville has two official doctoral programs associated to the Physics field: Doctoral Program in *Science and Technology* in Physics and Doctoral Program in *Science and Technology of New Materials*. Furthermore, there are three official MSc Degrees: *Science and Technology of New Materials*, *Nuclear Physics*, and *Microelectronics: Design and Applications of Micro/Nanometrics Systems* (both assigned to the Doctoral Programme on Physics) and *Science and Technology of New Materials* (assigned to the International Graduate School). The intense collaboration with Münster Universität (Germany) is supported by International Double Degree Agreements signed by both universities for the three above-mentioned MSc Degrees (Seville) and the *Master of Science (MSc) in Physik* (Münster Universität, one of the signatories of this agreement).



Finally, the University of Seville is the coordinator of the *Erasmus Mundus Joint Master in Nuclear Physics* that has been implemented from the academic year 2017-2018.

In terms of resources, besides the Departments of the Faculty of Physics, the University of Seville shares three research centres with the Spanish National Research Council in the field of Physics: the National Accelerators Centre, the Institute of Microelectronics and the Institute of Materials of Seville. On the other hand, the Inter-University Institute of Research in Computational and Theoretical Physics includes both the University of Seville and the University of Granada, with both universities signing this agreement.

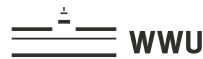
Finally, in December 2016, an agreement between the University of Seville and the European Organization for Nuclear Research (CERN) was signed that will promote and consolidate a direct relationship through the mobility of students, professors and graduates, the development of joint research projects, and the possibility that graduates from the University of Seville work at CERN under the most favourable conditions. The most complex instrumentation will be used in one of the greatest scientific facilities globally in order to generate novel knowledge in the fundamental laws in Physics.

University of Granada (Spain)

The University of Granada offers two distinguished PhD programs in the field of Physics: the Physics and Mathematics program and the Physics and Space Science program. Both programs boast substantial student enrollment and are hubs of continuous training and research activity. For example, during the 2020/21 academic year, the Physics and Space Science PhD program enrolled a total of 98 registered PhD students, including 27 new additions, alongside the participation of 70 professors. Moreover, both programs maintain an excellent relationship with the Institute of Astrophysics of Andalusia (IAA-CSIC), located in Granada. Many doctoral students from IAA-CSIC are affiliated with one of these two programs, and a significant portion of its researchers serve as instructors or supervisors within both programs. Notably, the faculty and collaborators of these programs include professors not only from the University of Granada, but also from various other Spanish universities, including the University of Seville, as well as institutions in countries such as the United Kingdom, France, Italy, and Germany. Furthermore, these programs have established agreements with prestigious international institutions, including Technion in Israel, the University of Bologna, the Institute of Astrophysics of the Canary Islands, the Arecibo Observatory in Puerto Rico, Politecnico di Torino, the Department of Physics and Astronomy at the University of California, Riverside, Kent State University, the University of Trieste, the University of Rennes, the University of Roma "La Sapienza," and the University Mohammed First in Morocco.

University of Huelva (Spain)

The University of Huelva has an active line of research on Physics, Mathematics and Computation in the framework of a multidisciplinary scientific PhD program. There are



ongoing collaborations between the program professors and the universities of Granada, Sevilla, Sao Paulo and Lisbon in different fields. This collaboration includes coordinated research projects and international research networks. Professors from the University of Huelva also teach in the University of Sevilla in the interuniversity master program on Nuclear Physics and the Joint Erasmus Mundus master on Nuclear Physics.

The University of Huelva currently hosts active research groups with strong national and international collaborations in the fields of Particle and Dark Matter Physics, Molecular Simulation, Quantum Many-Body Physics, Nuclear and Molecular Structure and AstroPhysics, Astronomy, Environmental Radiation, and Experimental Nuclear Physics. The researchers in these lines are mostly organized in the CEAFCM (University of Huelva Center for Physics, Mathematics, and Computation).

University of Lisbon (Portugal)

The Faculty of Sciences of the University of Lisbon has, currently, two PhD programs in the field of Physics: the PhD Program in Physics and AstroPhysics; and the PhD Program in Physical Engineering. These third-cycle programs are reinforced by Master's programs in Physics and Astrophysics, with three areas of specialization (AstroPhysics and Cosmology, Nuclear and Particle Physics, Statistical Physics and Condensed Matter), as well as a Master's Degree in Physical Engineering.

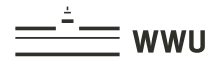
The Faculty of Sciences of the University of Lisbon also has research units whose strong point focuses on activities and scientific developments in the area of Physics and astrophysics, in line with the doctoral programs listed above. Such units are: the Center for Theoretical and Computational Physics (CFTC), , the Institute for AstroPhysics and Space Sciences (IA - Lisbon pole). In addition, since November 2016, the Faculty of Sciences has been an associate partner of the Experimental Particle Physics and Instrumentation Laboratory (LIP), covering particle and astroparticle physics and associated instrumentation. The BioSystems & Integrative Sciences Institute (BioISI), an interdisciplinary research unit at FCUL, is also involved in research and graduate training in Physics, in areas related to Biological Physics and associated instrumentation.

Federal University of Minas Gerais (Brazil)

The Federal University of Minas Gerais (FUMG) has a PhD program in Physics (PGP/Physics) rated as a program of excellence at an international level by the CAPES, the Agency under the Brazil's Ministry of Education for Assessment of Post-graduate Education.

Research in Physics at the Federal University of Minas Gerais started officially in 1957 with the setting-up of the PhD program in Nuclear Engineering of the Institute for Radioactive Research (IRR) of the Higher School of Engineering.

The department of Physics was created in 1963, and a Doctoral Program in Physics was implemented in 1970. Today, the PGP/Physics has 60 permanent professors, 60% of



which do experimental research, 30% do research in the theoretical field and 10% are astrophysicists.

The PGP/Physics offers masters and doctoral programs in various fields of theoretical and experimental Physics and, since it was created, it has registered more than 700 master's theses and more than 400 doctoral theses.

Research fields include: Biotechnological applications of nanomaterials; AstroPhysics of the interstellar medium; Extragalactic astroPhysics; Solar astroPhysics; Structure of liquids and solids: crystallography; Electronics of solids, surfaces and nanostructures; Atomic and molecular Physics; Classical and quantum Physics: mechanics and fields of action; Condensed-matter Physics; Physics of semiconductors; Physics of biological systems; Physics of surfaces; Statistical Physics and thermodynamics; Quantum information; Magnetic materials and properties; Nonlinear optics; Ultrafast phenomena; Quantum optics; and Particle and field general theory.

Located at the Physics department of the Institute of Exact Sciences (ICEX), the PGP/Physics is equipped with excellent laboratories and a specialized library with over 6,000 titles and access to over 21,500 on-line journals and a great number of databases.

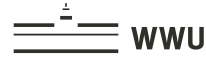
Fluminense Federal University (Brazil)

Fluminense Federal University (FFU) offers 84 Graduate Programs accredited by CAPES, of all fields of knowledge, 42 of which are composed of Academic Masters and PhDs, in addition to 17 Professional Master Programs. All programs are evaluated by CAPES, based on diverse parameters, such as the scope, focus areas, educational methodologies, physical structure and equipment, intellectual production, among others.

The program recommendations resulting from a CAPES analysis carried out by technical committees are expressed in grades varying from 3 to 7. According to CAPES parameters, grade 5 Graduate Programs are considered excellent nationwide, while programs grades 6 and 7 are excellent worldwide.

There is a program of Physics at UFF with a master's and doctorate degree (grade 6 by CAPES), whose lines of research include Low Energy Nuclear Physics (theoretical, experimental, and application), Nuclear AstroPhysics, Hadron Physics, Solid State Physics, Material Science, Quantum Field Theory and Physics, Electromagnetism, Nanostructured Systems, Optics and Quantum Information, Laser and Spectroscopy, Plasma, Statistical Physics and Complex Systems, Fine Films, Linear Optics and others.

Currently, there is already a solid scientific collaboration in the Nuclear Reaction with heavy ionic area, between research from the University of Seville and UFF (in fact, a former PhD student from UFF recently spent three months at the University of Seville through a sandwich doctorate). The specific agreement that we intend to sign with this university will certainly expand this cooperation and will foster development of new



scientific projects among the partners. Besides, it will initiate co-tutelle programs that will allow double diplomacy.

As there are groups working in different areas of research at the Physical Institute, we believe that this cooperation on the nuclear issue can be greatly expanded not only with the University of Seville, but with all the institutes participating in this agreement.

University of Münster (Germany)

The Westfälische Wilhelms-Universität Münster has a doctoral program in Physics hosted by the Physics department. Furthermore, there are two MSc degrees: *Physics* and *GeoPhysics*. In collaboration with the University of Seville we have a double degree program leading to a master's degree in *Science and Technology of New Materials, Nuclear Physics, or Microelectronics: Design and Applications of Micro/Nanometrics Systems* from Seville and a MSc in *Physics* from Münster. This program is financially supported by the DAAD (German Academic Exchange Service).

The main research fields of the Physics department are: nanoPhysics, nonlinear Physics, particle Physics, geoPhysics and science education. Recently the DFG (German Research Foundation) has granted financial support to the research group on "Strong and Weak Interactions - from Hadrons to Dark Matter".

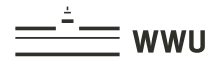
Within the University of Münster, scientists from the department of Physics collaborate with their colleagues from other departments in interdisciplinary centers such as the Center for Nonlinear Science (CeNoS), the Center for Nanotechnology (CeNTech), the Center for Soft Nanoscience (SoN), the Cells in Motion Interfaculty Centre (CiMIC), the Interdisciplinary Center for Electron Microscopy (ICEM), the European Institute for Molecular Imaging (EIMI) and the Center for Philosophy of Science (ZfW). The Physics department's research activities are also an integral part of numerous international research collaborations.

University of Sao Paulo (Brasil)

The IFUSP Graduate Program in Physics has been one of the pioneers in Brazil. Though officially created in 1970, PhDs titles are being awarded by IFUSP since the late 1940s. Nowadays, with 116 advisors and 284 students, the IFUSP Graduate Program keeps the highest score (of 7) by CAPES since 2002 promoting an extraordinary thematic diversity, which makes it stand out in the Brazilian academic scene.

The research activities carried out in our program include diversified areas and nearly all fields of Physics are covered: Nuclear Physics, Condensed Matter Physics, Optics, BioPhysics, Atomic and Molecular Physics, Mathematical Physics, Plasma Physics, Cosmology, Particles and Fields Physics, Statistical Mechanics, Nanotechnology, Applied Physics and Instrumentation.

The Institute of Physics of the University of Sao Paulo has an excellent infrastructure for the development of theoretical and experimental research. Modern and well-equipped



laboratories, up-to-date resources for data processing, and one of the best scientific libraries in Brazil are some of the advantages offered to those who develop their graduate studies here.

Article 4. Coordination and Monitoring

The bodies of coordination and monitoring of this agreement are:

- o The Management Committee
- o The Academic Committee

A **Management Committee** of the TDS will be created, with the objective of approving the annual plan of activities upon proposal of the Academic Committee, approving the annual budget, analyzing and evaluating the achievements in each year, approving the report of activities and accounts for each year; as well as all the functions necessary for an adequate coordination and monitoring of the program.

Composition of the Management Committee:

- From the University of Seville (Spain), which will be the president of the Management Committee: the Director of the International Doctoral School of the US, or the person to whom she/he delegates.
- From the University of Granada (Spain), the Director of the Doctoral School in Sciences, Technology and Engineering (assigned to the International School for Postgraduate Studies), or the person to whom she/he delegates.
- From the University of Huelva (Spain), the Director of the Doctoral School, or the person to whom she/he delegates.
- From the University of Lisbon (Portugal), The Coordinator of the Doctoral Program in Physics and Astrophysics of FCUL, or the person to whom she/he delegates.
- From the Federal University of Minas Gerais (Brazil), the Vice-Rector for Graduate Studies, or the person to whom she/he delegates.
- From the Fluminense Federal University (Brazil), the Director of the graduate courses of the Physics Institute, or the Coordinator of Academic Affairs of the “Superintendencia Internacional”, or the person to whom she/he delegates.
- From the University of Münster (Germany): the Dean of the Physics Department or the person to whom she/he delegates.



- From the University of Sao Paulo (Brazil): the Vice-Director of the Institute of Physics (IFUSP), or the person to whom she/he delegates.

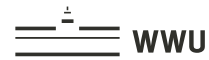
An **Academic Committee** will be created for the implementation, coordination and evaluation of the different academic activities that are developed in collaboration in the TDS in Physics. It will be composed of:

- From the University of Seville (Spain), which will be the coordinator of the Academic Committee, the Coordinator of one of the Doctoral Programs involved, or the person to whom she/he delegates.
- From the University of Granada (Spain), the coordinator of one of the Doctoral Programs involved, or the person to whom she/he delegates.
- From the University of Huelva (Spain), the coordinator of the Physics, Mathematics and Computation research line in the Environmental and Industrial Science and Technology Doctoral Program, or the person to whom she/he delegates.
- From the University of Lisbon (Portugal), The coordinator of the Doctoral Program in Physics of FCUL, or the person to whom she/he delegates.
- From the Federal University of Minas Gerais (Brazil), the Director of the Graduate Studies in Physics, or the person to whom she/he delegates.
- From the Fluminense Federal University (Brazil), the Director of the Group of Nuclear Physics from the Physics Institute of UFF, or the Coordinator of Academic Affairs of the International Superintendence of UFF, or the person to whom she/he delegates.
- From the University of Münster (Germany), the International Coordinator of the Physics Department or the person to whom she/he delegates.
- From the University of São Paulo (Brazil): the IFUSP Graduate Committee Chairperson or the person to whom she/he delegates.

Article 5. Selection of participants in the program and other academic issues

Under this Agreement, and within the legal and regulatory framework applicable to each University, the signatory institutions undertake to adopt common solutions for all academic, research and administrative aspects related to the program.

The program will integrate the production and facilitate the availability to different universities of the TG of on-line pedagogical contents or courses in e-learning format on specific topics associated with the scientific domain of the TDS.



Generally, the requirements and procedures of selection of their candidates for the different activities to be developed in the TDS will be established by the Academic Committee. All candidates should be previously accepted by the host and home institutions for the final admission of them.

Participating institutions undertake to require the following minima:

a) For the case of only academic mobility without the right to obtain an official diploma:

- For PhD students, the minimum duration of the training stay will be of one semester with academic recognition.
- The research stays of professors and researchers will have a minimum duration of one month.
- It is compulsory to have a system of reception and integration for foreign students
- It is mandatory to respect the personal data protection rules of the participating institutions.

b) With respect to the co-tutelles, the following will be required:

- At least two supervisors of the TDS from different countries signing the specific co-tutelle agreement, who jointly define the student's activity plan.
- Shared periods of training and research.
- A research stay in TDS centers from a country other than the student's home institution, with a minimum duration of one semester, and respecting the norms of each institution.
- Production of scientific publications resulting from the joint research activities in international reference journals in the area of this specific TDS, integrating authors from different institutions belonging to the TDS.
- Mixed Evaluation Committees, jointly defined.
- Double degree diplomas (one diploma for each of the institutions participating in the co-tutelle).

Article 6. Academic fees and other costs

The students should be enrolled in a Doctoral Program of the participating or associated Universities, and should have paid their tuition fees for the academic year in which the TDS activity will be accomplished.

As a rule, students that participate in academic mobility without the right to obtain an official diploma from the host university will pay for the enrolment fees only at the home university. Nevertheless, the host university could ask for the payment of minor costs (student's social fee, compulsory transport cards, library fees...) in the same conditions

as the rest of the students. In the case of students with double degree, the payment of tuition fees will be detailed in the specific agreement that will be signed by the parties.

The travelling costs, medical insurance, hosting, living expenses and any other cost involved during the exchange period will be covered by the student, notwithstanding the financial aid they can receive from their universities or other agencies. Students, professors and researchers must have a medical insurance to cover medical assistance at the host country. The insurance must cover medical and sanitary assistance, decease and disability by accident, repatriation assistance for any cause, and reimburse of medical expenses due to accident.

Each institution commits to provide support to find a suitable accommodation - however, the expenses associated will be covered by the student-. The host institution will also provide information for the integration of the student at the host university, and in the cultural, social and economic context of the host town.

Furthermore, each institution commits to provide the student, prior to his/her arrival, with the information about the host country, required visas and medical insurances etc., as well as the services offered by the institution to its own students.

Students participating in the programs of activities should apply in local, national, and international mobility calls, as far as they are compatible with this program.

Article 7. Incorporation of external members

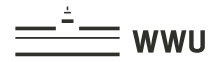
Each of the institutions signing the Agreement may propose to the other institutions in writing the participation of external members or collaborators (such as Universities or other organizations), belonging or not to the Tordesillas Group, in the TDS.

The proposed incorporation will be evaluated by the Management Committee, which will assess the suitability of the proposal. The Committee will have one month from the presentation of the proposal to accept or deny the incorporation.

To be accepted as a new member of the TDS in Physics, the requested Institution should present a commitment letter stating that it accepts the general rules of the Framework agreement signed by the rectors on 08-11-2022, as well as this specific agreement.

Article 8. Financing of the TDS

Activities carried out under this agreement will be self-funded by the signatory Universities, or through projects and collaborations with third parties. Concerning each university's own budget, the participating institutions will prioritize financing mobilities (students/staff) in the framework of the agreement.



The Tordesillas Group will be requested to provide funding for the annual activities. Cofounding of activities between the TG and own funds from the Universities will be considered.

Article 9. Validity of the agreement

This collaboration agreement will become effective at the moment of the legal signature by the members of the participating institutions, and will be valid for a 4-year period. However, at any time before the end of the period provided for in the previous section, the signatories of the agreement may agree, by mutual agreement and expressly, to modify and extend it, for a period that will not exceed the maximum period established in article 49.h of Law 40/2015, of 1 October, of the Legal Regime of the Public Sector.

In the event that any of the institutions signing the agreement wish to terminate it, that institution should declare so in writing at least 6 months in advance to the date of termination of the agreement and address this declaration to the Management Committee.

Artículo 10. Protección de datos personales

In relation to all actions arising from the execution of this collaboration agreement that involve the processing of personal data, the parties undertake to comply with the respective regulatory regulations that are applicable to them. The personal data protection regime to be complied with by the parties in the actions carried out in execution of this agreement shall be:

a) The Universities of Seville, Granada, Huelva, Lisbon and Münster are subject to the provisions of Organic Law 3/2018 of 5 December 2018 on the Protection of Personal Data and Guarantee of Digital Rights and Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and the free movement of this data, and, where appropriate, specific applicable regulations.

b) Universities in Latin America are subject to the following regulations: Law 29733.

The data processing(s) carried out will be aimed at fulfilling the purposes established in this Agreement. To this end, the signatory entities of the Agreement will each act as DATA CONTROLLERS, and must apply to the processing of personal data that may be carried out in execution of this Agreement, and to this end, they undertake, the principles, guarantees and technical and organizational measures established in the aforementioned regulations for the adequate protection of the rights and freedoms of individuals in the processing of their personal data.

The parties shall maintain confidentiality in the processing of the information provided by them and of the information, of any kind or nature, generated as a result of the

execution of this agreement; This obligation shall be extended indefinitely, even if the agreement has been terminated. All of this is without prejudice to the possible authorisation of the parties or, where appropriate, to the fact that, as the case may be, such information may be considered to be in the public domain.

All the institutions involved will be obliged to implement appropriate technical and organisational measures, in accordance with the provisions of their respective regulations, to guarantee the security and integrity of personal data and prevent their alteration, loss, processing or unauthorised access.

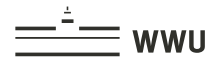
Each party shall be liable for any use of personal data that it makes that is not in accordance with the contractual, legal or public interest obligations arising from this agreement, and is solely responsible for assuming the consequences that may arise in accordance with the provisions of its regulatory framework. Failure to comply with the provisions contained in this clause shall entitle the parties to terminate this agreement. The contact details of the signatories of this Collaboration Agreement will be processed on the basis of the execution of the agreement, as well as on the basis of compliance with a legal obligation and a mission of public interest, in order to manage the maintenance, compliance, development, control and execution of the provisions of this Collaboration Agreement. Likewise, the signatory parties, as interested parties, may exercise, at any time, their rights of access, rectification, deletion, opposition, limitation of processing, portability and not to be subject to automated decisions, by writing to dpd@us.es indicating as a reference in the envelope "Data Protection" and accompanied by a photocopy of their national identity document. Where appropriate, the data subject may also lodge a complaint with the competent supervisory authority. Such data will be processed for as long as this Collaboration Agreement between the parties remains in force and, subsequently, will be kept for the time necessary to comply with the purpose for which they were collected and to determine the possible liabilities that may arise from said purpose.

The emails of the data protection officers of the signatory universities are as follows:

1. On behalf of the University of Seville (Spain), dpd@us.es
2. On behalf of the University of Granada (Spain), dpd@ugr.es
3. On behalf of the University of Huelva (Spain), delegado.protecciondatos@uhu.es
4. On behalf of the University of Lisbon (Portugal), rgpd@ulisboa.pt
5. On behalf of the University Federal de Minas Gerais (Brazil), suporte@dti.ufmg.br
6. On behalf of the Fluminense Federal University (Brazil), carlasilva@id.uff.br
7. On behalf of the University of Münster (Germany), Nina.Meyer-Pachur@uni-muenster.de
8. On the part of the Universidad de São Paulo (Brazil), encarregado.dados@usp.br

Article 11. Unforeseen issues and disputes

No university will be responsible of the nonfulfillment of the obligations established in this agreement if the fault will be originated under circumstances beyond the control of the associated universities.



All the universities agree to resolve the disputed issues in a friendly manner. In the event that any controversy or disagreement cannot be resolved amicably, the matter will be submitted to arbitration. The signatories involved in the disagreement will nominate a TG University for a deliberative jury consisting of nominated institutions and the current Chair. The result of the controversy will always be reached by consensus.

Article 12. Publicity

The signatories of this agreement expressly consent to the full text, including personal data, being made public on the website of the University of Granada.

And in proof of conformity, they sign this Agreement, as of the consigned date,

ON BEHALF OF THE UNIVERSIDAD DE SEVILLA
EL RECTOR

ON BEHALF OF THE UNIVERSIDAD DE
GRANADA
EL RECTOR

Fdo. Prof. Dr. Miguel Ángel Castro Arroyo

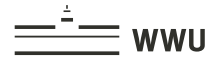
Fdo. Prof. Dr. Pedro Mercado Pacheco

ON BEHALF OF THE UNIVERSITY OF FEDERAL
DE MINAS GERAIS
LA RECTORA

ON BEHALF OF THE UNIVERSITY FEDERAL
FLUMINENSE
EL RECTOR

Fdo. Prof. Dr. Sandra Regina Goulart Almeida

Fdo.
Prof. Dr. Antônio Cláudio Lucas da Nóbrega

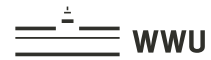


ON BEHALF OF THE UNIVERSITY OF MÜNSTER
THE RECTOR

Fdo. Prof. Dr. Johannes Wessels

THE HEAD OF THE PROGRAM
DEAN OF THE FACULTY OF PHYSICS

Fdo. Prof. Dr. Rudolf Bratschitsch



ON BEHALF OF THE UNIVERSITY OF LISBON
THE RECTOR

Prof. Dr. Luís Manuel dos Anjos Ferreira

ON BEHALF OF THE UNIVERSIDAD DE HUELVA
LA RECTORA

Prof. Dr. María Antonia Peña Guerrero

ON BEHALF OF THE UNIVERSITY OF SAO PAULO
THE RECTOR

Fdo. Prof. Dr. Carlos Gilberto Carlotti Junior

THE HEAD OF THE PROGRAMME
DIRECTOR OF THE INSTITUTE OF PHYSICS

Fdo. Prof. Dr. Kaline Rabelo Coutinho