

ANEXO – JUSTIFICATIVA PARA CONCESSÃO DO CLARO DOCENTE

O Departamento de Física Aplicada (DFAP) do IFUSP atua na área de física de materiais, dentre outras, sendo que a área de Física de Superfícies está contemplada com um conjunto de equipamentos multiusuários específicos para essa grande área. O Laboratório de Filmes Finos (LFF) onde esses equipamentos estão instalados, além da produção científica internacional em revistas indexadas, atende usuários em microscopia eletrônica de varredura, microscopia de varredura por sonda (AFM, STM, MFM, KFM, etc), medidas de energia de superfície de sólidos e tensão superficial de líquidos. Destacam-se ainda equipamentos de deposição de filmes finos, voltados para pesquisas diversas, em particular, produção e caracterização de novos materiais.

Situação Atual do Departamento/Área

O Departamento de Física Aplicada (DFAP), atualmente, possui 18 docentes em diferentes áreas de pesquisa: Ciência dos Materiais, Nanotecnologia, Física de Superfícies, Física de Plasmas, Física Atmosférica, Biofísica, Ensino de Física, Sistemas Caóticos e Acústica. A área de Física de Superfícies do DFAP está contemplada com um conjunto de equipamentos multiusuários específicos para essa grande área. Somado a isso, foi solicitado recentemente um microscópio eletrônico de varredura, com canhão de emissão de campo, dentro da Chamada FAPESP EMU-PMP, para também compor a infraestrutura de multiusuários na caracterização de superfícies. Em particular, o Laboratório de Filmes Finos (LFF), que abriga esse conjunto de equipamentos, atende usuários em microscopia eletrônica de varredura convencional, microscopia de varredura por sonda (AFM, STM, MFM, KFM etc) e medida de energia de superfície através de ângulo de contato. É importante ressaltar que o LFF conta também com equipamentos de deposição de filmes finos e implantação iônica, permitindo o desenvolvimento de uma vasta gama de projetos, em especial, na área de produção e caracterização de novos materiais.

Objetivo Geral da Contratação do Docente

O objetivo da contratação de um novo docente na área de Física de Superfícies é realizar pesquisa nesta área e dar continuidade à competitividade a nível internacional, assim como ampliação das colaborações e atendimentos multiusuários.

PLANO INDIVIDUALIZADO

a) Ensino - Metas

A meta imediata é ministrar disciplinas de graduação e pós-graduação, conforme atribuídas pela Comissão de Graduação e Comissão de Pós-Graduação do Instituto de Física (IF), dentro dos cursos de Bacharelado em Física, Bacharelado em Física Médica e Licenciatura em Física, ou disciplinas

ofertadas pelo IF a outras unidades da USP e mestrados e doutorados do IF. Propostas de disciplinas optativas aos cursos de graduação e pós-graduação serão incentivadas.

b) Pesquisa e Inovação - Metas

A meta em pesquisa e inovação consiste em que o docente desenvolva atividades de pesquisa básica e aplicada, publicando em revistas reconhecidas, com bom fator de impacto, buscando por recursos financeiros para pesquisa e orientações de alunos de Iniciação Científica, Mestrado e Doutorado. Supervisão também de pós-doutores é desejada.

c) Cultura e Extensão - Metas

Como já mencionado, o DFAP abriga um conjunto de equipamentos que, além de ter alta produtividade, também atende usuários em microscopia eletrônica de varredura convencional, microscopia de varredura por sonda (AFM, STM, MFM, KFM etc) e medida de energia de superfície através de ângulo de contato. Os usuários consistem em Empresas, além de Instituições, Fundações e acadêmicos. Desta maneira, a sociedade como um todo estará sendo beneficiada pela contratação de um novo docente no DFAP. Elaboração de cursos técnicos e/ou informativos de Cultura e Extensão sobre conceito e aplicações da microscopia por sondas será incentivada.

IMPACTO ESPERADO COM A CONTRATAÇÃO

Em termos de curto prazo, o impacto será imediato com a contribuição nos encargos didáticos, ministrando disciplinas de graduação e pós-graduação; selecionando e motivando alunos para Iniciação Científica, Mestrado e Doutorado; e finalmente, se dedicando com afinco no projeto de pesquisa a que se propôs no concurso de ingresso.

Em médio prazo, o impacto estará ligado ao aumento do acervo de publicações na área de Física de Superfície Experimental, possibilitando a obtenção de apoio financeiro para renovação das instalações experimentais dos Laboratórios, além da formação de recursos humanos. Também em médio prazo, o contratado poderá dar suporte no sistema de atendimento multiusuários, cumprindo seu papel em Cultura e Extensão.

Em longo prazo, o impacto estará relacionado a projetos abrangendo mais áreas interdisciplinares, incluindo a formação de novos recursos humanos nesse sentido, ampliando de forma significativa a contribuição na pesquisa nacional e internacional.

**TENURE-TRACK FACULTY POSITION IN PHYSICS
INSTITUTE OF PHYSICS, UNIVERSITY OF SÃO PAULO, BRAZIL**

Announcement IF-55,2024

Announcement of an open tenure-track faculty position at the Institute of Physics, University of São Paulo, Brazil, Level MS-3, RDIDP (Full-time dedication to teaching and research) at the Applied Physics Department. at the Institute of Physics, University of São Paulo.

The Director of the Institute of Physics at the University of São Paulo, Professor Kaline Rabelo Coutinho, invites applications for a full-time tenure-track faculty position in the field of “**Experimental Surface Physics**” to be appointed in 2025. Eligible candidates should have a Ph.D. and postdoctoral research experience. Applicants should possess an outstanding potential to establish an independent research program and a commitment to teach undergraduate and graduate courses in Portuguese, 2 years after appointment. This position comprises full-time dedication to research and teaching, level MS-3, RDIDP. Salary is **R\$15.498,97**, non-negotiable. The position nº **1245449** at the Applied Physics Department is open for applicants for 90 days, from **August 7th, 2024, at 12:01 a.m. to November 4th, 2024, at 11:59 p.m. (GMT -3, Brasília time)**. The following is the detailed description of the program for the examinations:

Electromagnetism I (4302303): 1. Maxwell's equations in a vacuum. 2. Electromagnetic potentials. Electrostatics in a vacuum. Poisson and Laplace equations. Magnetostatics in a vacuum. 3. Dielectric and magnetic materials. Maxwell's equations in a material medium. Constitutive relations. Electromagnetic induction 4. Electrostatic and magnetostatic energy. 5. Electromagnetic waves. Poynting vector. Wave superposition. Wave packets, uncertainty relations, and group velocity. Reflection and refraction of electromagnetic waves. Wave equations with sources. Radiation from oscillating dipoles.

Applications

1. Applications must be submitted exclusively via the link <https://uspdigital.usp.br/gr/admissao> during the period stated above, informing his/her personal data and the Department for which he/she is applying, accompanied by the following documents:
 - I - Detailed Curriculum Vitae (.pdf), outlining his/her experience in the specific area of the opening, list of published papers, activities related to the field of application, a two years research project and any complementary information which enables assessing the merits of the applicant;
 - II - Proof of a PhD degree with national validity, or accredited by the Institute of Physics of the University of São Paulo;
 - III – For Brazilian male applicants, proof of discharge from military service;
 - IV - For Brazilian applicants, electoral discharge certificate or detailed certificate issued by the Electoral court less than 30 days before the start of the application period.

- 1.1. An applicant already appointed at USP is exempted from the requirements III and IV, if these requirements were met during his/her appointment.
 - 1.2. Foreign applicants are exempted from the requirements III and IV, instead, he/she must submit a copy of the identity pages in the passport.
 - 1.3. An appointed foreign applicant may only take office if holding a temporary or permanent visa, which grants to the holder permission to exercise remunerated activities in Brazil.
 - 1.4. Upon registration, foreign applicants may submit a written request to take the application exams in English. The contents of the examinations conducted in English or in Portuguese will be identical.
 - 1.5. Upon registration, applicants with disabilities or special needs must submit a request for the necessary conditions being provided during the examinations.
2. The General Committee of the Institute of Physics will judge and announce the formal acceptance of the applications.
 - 2.1. The examination of the candidates will take place within 30 and 120 days, after the formal acceptance of the applications.
3. The examination of the candidates will consist of the following exams.
 - I) Analysis and public examination of the Curriculum Vitae – weight 4 .
 - II) Teaching exam (public lecture on a subject within the topics described above) – weight 3.
 - III) Public examination of the research project - weight 3.
 - 3.1. The list of eligible applicants will be published in the São Paulo State Official Gazette.
 - 3.2. Candidates who arrive late to the exams will be ineligible to proceed.

PUBLIC EXAMINATION OF THE CURRICULUM VITAE

4. The evaluation of the Curriculum Vitae includes a public examination graded by each member of the Committee.

Sole paragraph - The grading of the Curriculum Vitae must consider: I – the scientific, literary, philosophical, or artistic production; II - university teaching activities; III - services to the community; IV - professional or other activities, if applicable; V - degrees and university honors.

TEACHING EXAM

5. The public Teaching Exam consists of a 40 to 60-min lecture on a topic drawn from a list of topics. The lecture will begin 24 hours after the drawing.

I – The Examining Committee will prepare and announce a list of ten topics within the program detailed above;

II – Immediately after becoming aware of the examination topics, candidates may ask to replace one or more topics they understand not belonging to the program. The Examining Committee will decide the claim and if necessary, substitute the topics under objection.

III – After drawing the topic, a 24-h period to prepare the lecture will start. The lecture will begin the next day, at the same time of the drawing. The candidate may not waive this deadline.

IV - Candidates may use and consult all materials he/she deems necessary.

PUBLIC EXAMINATION OF THE RESEARCH PROJECT

6. The examination of the Research Project will be in the form of a dialogue: A short oral presentation of the project to the Committee (if asked for), up to sixty minutes questioning by the Committee and the same time, sixty minutes, for the answers of the candidate.

I - The Research Project, should consider its actual feasibility at the existing infrastructure of the Institute and must be framed within the field of the announcement.

GRADING

7. After the exams, members of the Examination Committee will individually grade each candidate.
8. The grades may range from zero to ten, with one decimal place.
9. Each candidate will have a final grade given by each member of the Examination Committee. The final grade is calculated as a weighted average (according to the weights given in item 3) of the grades of each exam.

§ 1º - Differentiated score formula to be applied for candidates of Black, Mixed-race, and Indigenous ethnicities (PPI candidates):

$$PD = (MCA - MCPPI) / MCPPI$$

Where:

- PD is the differentiated score to be added to the grades of all candidates who expressed interest in participating in the differentiated score.
- MCA is the average score of the broad competition among all candidates, excluding those who did not reach the minimum score referred to in item 10 of this Edict and PPI candidates participating in the differentiated score.
- MCPPI is the average score among all PPI candidates, excluding those who did not reach the minimum score referred to in item 10 of this Edict.

§ 2º - The formula to account for the differentiated score in the final grades of PPI candidates is:

$$NFCPPI = (1 + PD) * NSCPPI$$

Where:

- NFCPPI is the final grade of the public examination, after applying the differentiated score. It will generate the candidate's classification in the public examination stage, limited to the maximum grade stipulated in the Edict. At the end of the public examination, the final grade will be considered the candidate's simple grade.
- NSCPPI is the simple score of the PPI candidate, on which the differentiated score will be applied.

§ 3º - The calculations referred to in §1 and §2 of this item must consider two decimal places and fractions greater than or equal to 0.5 (five-tenths) must be rounded to the next whole number.

§ 4º - The differentiated score (PD) provided for in this article applies to all qualified candidates, that is, those who have achieved the minimum performance established in the Edict, considering for this last purpose the simple score.

§ 5º - If there are no PPI candidates with differentiated score among those qualified, the differentiated score will not be calculated.

§ 6º - The differentiated score will not be applied when, in the differentiated score (PD) calculation formula, the MCPPI (average PPI competition score) is greater than the MCA (average broad competition score).

10. To be eligible, candidates must achieve a minimum final grade of seven from the majority of examiners.
11. Each examiner will nominate the candidate he/she graded highest.
12. The candidate receiving most nominations by the Examination Committee will be indicated for appointment.
13. The Examination Committee will publicly announce the results of the examination immediately after its completion.
14. The effective appointment to the position depends on a medical examination conducted by the State's Department of Medical Skills (DPME), pursuant to article 47, VI, of Law No.10.261/68.
15. Further information and relevant rules for the examination are available at the Academic Assistance Department of the Institute of Physics, University of São Paulo, and e-mail ataac@if.usp.br.

Legal provisions: Announcement IF-55, 2024, approved during the 609th Ordinary Session of the Institute of Physics Committee, held on 06/27/2024. Decree GR 8318, 2024, Deliberation GR/Circ/109, art. 125, paragraph 1, of USP's General Regulations and by the Rules of the Institute of Physics: Resolutions No. 4,087 of June 21, 1994, 4,265 of May 3, 1996, 5,367 of October 18, 2006 and 5,829 of April 4, 2010. Authorization for taking exams in English: paragraph 8 of art.135 of the General Rules. The joining to the faculty in the Full-Time Regime (RDIDP) is conditional upon the approval of the Special Work Regime Committee (CERT), in accordance with Resolution 7271/16 and other applicable rules, and implies in exclusive relationship with USP, under ARTICLE 197 of the General Rules.

São Paulo, July 29th, 2024.

ANNEX – JUSTIFICATION FOR THE GRANTING OF THE FACULTY POSITION

The Applied Physics Department (DFAP) from IFUSP is known by studies on material science works, among others, being the area of Experimental Surface Physics contemplated with a set of multi-user equipments specific to this large area of expertise. The Thin Film Laboratory (LFF), where these equipments are installed, in addition to international scientific production in indexed journals, has users in scanning electron microscopy, scanning probe microscopy (AFM, STM, MFM, KFM, etc), measurements of surface energy of solids and surface tension of liquids. Also noteworthy are equipments for the deposition of thin films, aimed at various researches, in particular, the production and characterization of new materials.

Current Situation of the Department/Area

The Applied Physics Department (DFAP) currently has 18 researchers in different areas of expertise: Materials Science, Nanotechnology, Surface Physics, Plasma Physics, Atmospheric Physics, Biophysics, Physics Teaching, Chaotic Systems and Acoustics. The Surface Physics area of DFAP is contemplated with a set of multi-user equipments specific to this large area. In addition, a scanning electron microscope with a scanning cannon was recently requested.

In particular, the Thin Film Laboratory (LFF) has users in conventional scanning electron microscopy, scanning probe microscopy (AFM, STM, MFM, KFM etc) and surface energy measurement through contact angle. It is important to note that the LFF also has equipments for thin film deposition and ion implantation, allowing the development of a wide range of projects, especially in the area of production and characterization of novel materials.

General Goal

The objective of hiring a new teacher in the area of Surface Physics is to carry out research in this area and to continue competitiveness at an international level, as well as to expand collaborations and multi-user services.

INDIVIDUALIZED PLAN

a) Teaching - Goals

The immediate goal is to teach undergraduate and graduate courses, as assigned by the Undergraduate Commission and Graduate Commission of the Institute of Physics (IF), within the Bachelor's Degree in Physics, Bachelor's Degree in Medical Physics and Degree in Physics courses, or disciplines offered by the IF to other USP units and master's and doctoral degrees from the IF. Proposals for elective courses for undergraduate and graduate courses will be encouraged.

b) Research and Innovation - Goals

The goal in research and innovation is to develop basic and applied research activities, publishing in recognized journals, with a good impact factor, seeking financial resources for research and Scientific Initiation, Master's and Doctoral students supervision. Supervision of post-docs is also desired.

c) Culture and Extension - Goals

As already mentioned, DFAP houses a set of equipments that, in addition to having high productivity, also serves users in conventional scanning electron microscopy, scanning probe microscopy (AFM, STM, MFM, KFM, etc.) and measurement of surface energy through contact angle. Users consist of Companies, as well as Institutions, Foundations, and academics. In this way, society as a whole will be benefited.

EXPECTED IMPACT WITH THE HIRING

In short-term terms, the impact will be immediate by the contribution to undergraduate and graduate courses teaching; selecting and motivating students for Scientific Initiation, Master's and Doctorate; and finally, dedicating himself diligently to the research project he proposed.

In the medium term, the impact will be linked to the increase in the publications in the area of Experimental Surface Physics, enabling to get financial support for the renovation of the experimental facilities of the Laboratories, in addition to the training of human resources. Also in the medium term, it is expected that the new teacher/researcher will be also able to support the multi-users service system, fulfilling its role in Culture and Extension activities.

In the long term, the impact will be related to projects covering more interdisciplinary areas, including the training of new human resources, significantly expanding the contribution in national and international research.