

THE SÃO CARLOS INSTITUTE OF PHYSICS OF THE UNIVERSITY OF SÃO PAULO ANNOUNCES THE CALL FOR APPLICATIONS TO A PUBLIC SELECTION PROCESS FOR ONE FULL TIME TENURE-TRACK POSITION AT THE RANK OF ASSISTANT PROFESSOR (PROFESSOR DOUTOR) AT THE DEPARTMENT OF PHYSICS AND INTERDISCIPLINARY SCIENCE.

The Director of the São Carlos Institute of Physics of the University of São Paulo invites applications for 1 (one) full-time tenure-track faculty position in the field of Quantum Computing. The position nº 1021460 at the Department of Physics and Interdisciplinary Science is open for applicants for 60 days from 05/29/2023 and ending at 4 pm (Brasília time) on 07/27/2023, (GMT-3, Brasilia Time, Brazil). Salary is R\$ 13,357.25 (month, in Brazilian real), non-negotiable. This position comprises full-time dedication to research and teaching, level MS-3, RDIDP.

The following is the description of the academic disciplines and respective programs for the examinations in the field Quantum Computing.

Disciplines: 7600074 – Quantum Information and SFI5903 - Introduction to Quantum Information Theory

Topics:

- 1) Algorithms of Deutsch and Deutsch-Jozsa
- 2) Grover's Algorithm
- 3) Introduction to error correction codes
- 4) Superdense encoding and teleportation
- 5) Quantum computing based on quantum circuits and logic gates
- 6) Density operator and time evolution of closed systems
- 7) Distinguishability of quantum states: norms, entropies
- 8) Pure state of a bipartite system
- 9) Mixed states and separability
- 10) Quantification of entanglement
- 11) Local operation and classical communication
- 12) Quantum channels
- 13) Quantum dynamical maps
- 14) Time-local master equations
- 15) Master equations with memory kernel

APPLICATIONS

1- Applications must be submitted exclusively via the website <https://uspdigital.usp.br/gr/admissao> during the period stated above. Applicants must download, sign and submit the available application form addressed to the Director of the São Carlos Institute of Physics, containing his/her personal data and the

field (specialty) of the Department for which he/she is applying, accompanied by the following documents: I – Detailed Curriculum Vitae, in Portuguese or English, list of published papers, academic activities, and any complementary information that enables assessing the merits of the applicant in the specific field of this announcement, and associated documents proving the information provided, in digital format; II – Proof of a Ph.D. degree valid in Brazil, or accredited by the University of São Paulo: Concerning the proof that you hold the title of Doctor granted by USP, recognized by it or with national validity: 1. Minutes of defense will not be accepted without information on homologation when the granting of the Doctor's title depends on this measure within the scope of the issuing Educational Institution, being the candidate already aware that in this case the absence of proof of such approval will result in the rejection of your registration.

2. The Postgraduate Commission (CPG) may accept as equivalent to those awarded by USP, Doctoral degrees obtained abroad, in institutions of recognized excellence and considered, by merit analysis, compatible with those of USP, when the interested party is candidate for a teaching career contest within the scope of USP and intends to enter it. 3. It is up to the CPG to analyze the documentation and record it in the Postgraduate system. The equivalence of titles is valid exclusively within the scope of USP.

4. The analysis will be carried out based on detailed opinions issued, the documentation presented, taking into account the qualification of the institution, the merit of the academic activities and the thesis.

5. Those interested in requesting the equivalence of title by the IFSC/USP may do so, exclusively, electronically to svposgrad@ifsc.usp.br, and the candidate must attach the following documents: a) copy of the identity document/ passport, b) copy of the thesis, c) copy of the approval minutes with the signature of the members of the judging committee, d) copy of the doctoral defense diploma or certificate, e) copy of the academic transcript of the course or corresponding document, f) copy of the syllabi of the disciplines studied in the doctorate.

6. In the case of a Doctor's degree obtained in an institution that demonstrably does not require credits in disciplines and formal academic activities, or formal syllabi of disciplines, the decision will depend on the analysis of the merit of the thesis, which will be the subject of detailed opinions.

7. Processing, after receiving the order, takes an average of 30 days until the final result.

8. The positive result of the equivalence of the title must be attached by the candidate in the contest registration system in the specific field of proof of the Doctor's title indicated by the registration system at the link <https://uspdigital.usp.br/gr/admissao> and before the end of registration, that is, until 4 pm on 07/27/2023. III – For Brazilian male applicants, proof of discharge from military service; IV – For Brazilian candidates, proof of electoral discharge or a detailed certificate issued by the Electoral Court less than 30 days before the start of the registration period; V – Research project, in Portuguese or English, in accordance with one of the fields of this call. – Links from Dropbox or Google Drive or any other similar referring to pages subject to change by the applicant will not be admitted as proof of the items presented in the Detailed Curriculum Vitae. – It is the sole responsibility of the applicant to verify the integrity and to preserve the order of the uploaded files in the link: <https://uspdigital.usp.br/gr/admissao>. – It is the sole responsibility of the applicant to present his/her personal documents (front and back) in a legible format. If the applicant omits anything from the application process or fails to correct any unsuccessful, illegible or incomplete upload during the application period, the application will be rejected as incomplete. – Documents submitted out of the application period will not be admitted, even if an appeal is taken. 2. The

Congregation of the São Carlos Institute of Physics will judge and announce the formal acceptance of the applications. I – The examination of the candidates will take place within 30 to 120 days, after the formal acceptance of the applications. II – The candidate is fully responsible for keeping himself/herself informed about all stages of the process in the São Paulo State Official Gazette (Diário Oficial do Estado de São Paulo, Caderno Executivo I, Seção ‘Concursos’, Subseção ‘Universidade de São Paulo’). Other Important additional informations: – 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. - At the time of registration, candidates with special needs must submit a request for the necessary conditions to be provided for the tests. - Proof of vaccination against Covid-19 (complete vaccination schedule, i.e. one dose of Janssen immunizer or two doses of other immunizations) and the first additional dose, pursuant to Ordinance GR No. 7687/2021 and subsequent amendments, is required for holding the position. - The contest will be carried out according to objective criteria, in two phases, through the attribution of marks in tests, divided as follows: 1st phase (eliminary) – written test – weight 1 2nd phase – I) Judgment of the Curriculum Vitae with public proof of argument - weight 5 II) didactic test - weight 2 III) project oral test - weight 2 - Candidates who obtain, from the majority of the members of the judging committee, a minimum score of seven will be considered qualified for the 2nd phase; - The call for applicants to take the tests will be published in the Official Gazette of the State (Diário oficial do Estado de São Paulo). - Candidates who present themselves after the established time will not be able to take the tests. MORE INFORMATION Further information and relevant rules for the examination are available at the Academic Assistance Department of the São Carlos Institute of Physics, University of São Paulo, and e-mail atac@ifsc.usp.br, and <https://www2.ifsc.usp.br/portal-ifsc/concurso-publico-para-professor-doutor-edital-atac-ifsc-26-2023/>