

NOTICE FOR POSTDOCTORAL FELLOWSHIP

This notice defines the simplified selection process for a Postdoctoral fellowship to work on the FAPESP project referenced below.

1. PROCESS IDENTIFICATION

Below is the information about the Thematic Project with which the candidate will be associated.

Process Number	2020/13703-3
Project Title	Environmentally friendly porous materials for the recovery and revaluation of metals recovered from contaminated water
Project Coordinator	Prof. Dr. Derval dos Santos Rosa (Federal University of ABC)
Project Abstract	<p>Water is a crucial natural resource, and its quality is one of humanity's most significant concerns. The anthropogenic pollution of water resources with metal ions has generated catastrophic effects for humans and the environment, resulting in a continuous search for efficient and sustainable methods of removing these metallic contaminants. This interdisciplinary project involves different knowledge areas and aims to develop porous biodegradable materials based on low-cost, environmentally friendly methodologies, analyzed by Life Cycle Assessment (LCA) and applicable on a large scale. Their adsorption and desorption efficiencies will be studied: the recovery of different metal ions (Cd^{2+}, total chromium – mainly Cr^{6+}, Cu^{2+}, Mn^{2+}, Ni^{2+}, Zn^{2+}). After using and disposing of the material, they can reduce environmental issues related to the metal's contamination. Aerogels, hydrogels, and membranes prepared from biodegradable and/or renewable raw materials will be incorporated with nanocellulose and nanoclay with high adsorption to increase their adsorption capacity. Its different properties, performances, biodegradation, and ecotoxicity will be characterized, seeking to investigate its environmental impacts from beginning to end in the production chain. The current materials used in water treatment do not entirely remove metals and are incinerated after use. Thus, this project aims to develop porous materials with a high capacity to purify wastewater, recover metals from contaminated water, and reuse these post-consumer-developed materials for agriculture applications, minimizing severe environmental problems.</p>

2. ABOUT THE POSITION AND THE DIVULGATION PROCESS

2.1 Position description, the application process, and requirements

The job description, requirements, and application procedure are described in Table 1.

Supervisor	Prof. Elisabete Frollini
Registration	Registration will be carried out exclusively via the Internet at the following addresses: elisabete@iqsc.usp.br ; dervalrosa@yahoo.com.br
Unit / Postdoc Institution	São Carlos Chemistry Institute, University of Sao Paulo
City	São Carlos, Sao Paulo
Scholarship Type	Postdoctoral
Number of Vacancies	1
Remuneration	The net amount of R\$ 8.479,20 per month and a Technical Reserve equivalent to 10% of the annual grant amount to cover unforeseen expenses related to the research activity.
Knowledge area	Analytical Chemistry; Physical Chemistry; Materials Chemistry; Materials Engineering.
Duration time	Two years (24 months)
Registration period	March 10, 2023, to April 10, 2023
Fellowship Start	1st of June 2023
Registration Documents	<p>The application will be made exclusively <i>via</i> the internet during the period described above, and the following documents must be sent:</p> <ol style="list-style-type: none">1) Letter from the candidate presenting his qualifications to develop the project;2) Two letters of recommendation, one from the candidate's former doctoral advisor;3) An abstract (up to 3 pages) of the applicant's doctoral thesis;4) Curriculum Vitae, in FAPESP Format, presenting their academic background, publications, and scientific and English language knowledge. <p>Note:</p> <ul style="list-style-type: none">-In case of failure to send all documents, the candidate will be disqualified;- In case of untrue information detection, the candidate will also be disqualified;-Applications that are not in accordance with this announcement will be rejected.

Working area	<p>Porous materials: Aerogels & Others</p> <p>Preparation of porous polymeric materials as aerogels; other porous materials, such as hydrogels and porous mats composed of fibers on a nanometer and/or submicrometer scale generated via electrospinning and/or blow spinning, will be considered.</p>
Vacancy Description	<p>The candidate for this position is expected to perform sorption (Absorption + Adsorption)/desorption extraction studies using biodegradable membranes and purification of the metals as mentioned earlier present in contaminated water, aiming at the circular economy. The extracted metals must be reused in niches to be researched. Moreover, the candidate should have a good knowledge of characterization techniques for metal ions (absorption or atomic emission spectroscopy, ion chromatography, XPS (ESCA), among others); physicochemical and microscopy techniques for the characterization of polymeric matrices, such as FTIR, DSC, DMA, MEV, BET, AFM, among others) and characterization techniques for nanoclays. The candidate should also know how to use statistical tools and mathematical models to investigate metals' sorption/desorption kinetics in polymeric matrices. Additionally, the candidate is expected to be proactive, highly motivated, and collaborative.</p> <p>Finally, the candidate is expected to perform other essential activities, including participation in scientific events, presenting papers and their publication in high-level indexed journals, organizing meetings and seminars and group meetings, and presenting the periodic work progress.</p>
Selection Criteria	<p>1) Analysis of the letter presenting and the qualifications to develop the project;</p> <p>2) Evaluation of two letters of recommendation, one from the former doctoral advisor;</p> <p>3) Analysis of the Summary (3 pages) of the doctoral thesis;</p> <p>4) Analysis of the Curriculum Vitae in FAPESP (Sao Paulo Research Foundation) format (https://fapesp.br/6351/instructions-for-the-elaboration-of-a-curricular-summary), presenting the academic background, publications, and scientific and English language knowledge. Relevance will be attributed to publications related to the FAPESP Project area</p>
Public Destination	Brazilian and foreign researchers

2.2 Hiring criteria

The hiring criteria are listed below:

1. Analysis of the letter presenting and the qualifications to develop the project;
2. Evaluation of two letters of recommendation, one from the former doctoral advisor;

3. Analysis of the Summary of the doctoral thesis (3 pages);
4. Analysis of the Curricular Summary, in FAPESP (Sao Paulo Research Foundation) format (<https://fapesp.br/6351/instructions-for-the-elaboration-of-a-curricular-summary>), presenting the academic background and publications. Relevance will be attributed to publications related to the FAPESP Project area.
5. Scientific knowledge in the area of the project;
6. English language proficiency.

2.3 Judging commission and results announcement

The judging panel will consist of the professors:

Prof. Artur J. M. Valente (University of Coimbra)

Prof. Derval dos Santos Rosa (Federal University of ABC)

Prof. Elisabete Frollini (University of São Paulo)

The ranking of the candidates in the selection process will be posted on the website <https://sites.google.com/view/derval-dos-santos-rosa> until April 30, 2023, and the selected candidate will be notified via e-mail.