

Postdoctoral Research Scientist in perovskite solar cells

The group of Prof. Carlos F. O. Graeff at School of Sciences from São Paulo State University (FC/UNESP), in Bauru (Brazil), is looking for 1 postdoctoral research scientist. The application deadline for the positions is 23/08/2024. The candidates are expected to design, produce, and characterize perovskite solar cells (PSCs).

About the Project:

The current project (FAPESP Process n° 2020/12356-8) aims to comprehend the degradation mechanisms involved in PSCs, and to find solutions to overcome the stability issues of these devices. Based on this premise, several chemical and physical aspects are being investigated, such as: the synthesis of different perovskite light harvester materials, strategies for the layers and interface passivation, analysis of interfacial and defects phenomena, search for optimal electron and hole transport layers materials, the use of promising novel techniques for materials synthesis and devices characterization. These investigations will converge toward the primary objective of proposing more stable and more efficient PSCs.

How to apply:

Candidates must contact Prof. Carlos F. O. Graeff (carlos.graeff@unesp.br) with a brief statement of research interest/cover letter, a CV, and contact information of 2-3 references. Students in their final year of Ph.D. training are encouraged to apply.

Key project aims:

- I. To optimize perovskite compositions to minimize defects during crystallization and thin-film deposition steps.
- II. To design novel electron and hole transport layers as alternatives for the currently low stable used materials.
- III. To characterize the structure, morphology, and optical properties of nanomaterials used as active components in PSCs.
- IV. To study defects and their effects on PSCs by using advanced spectroscopic and electrical and optical techniques such as photothermal deflection spectroscopy (PDS), photo-CELIV, and UV-Vis spectroscopy.

Requirements:

- Ph.D. in Physics, Materials Science & Engineering, Chemistry, or related areas.
- Experience in the fabrication and characterization of perovskite solar cells is necessary.

- Experience different film deposition methods (slot die coating, roll-to-roll, spray-coating, vacuum based techniques, etc) will be positively evaluated.
- Previous experience with the characterization techniques PDS or CELIV is a plus.
- English knowledge (fluent in writing and speech).

The selected candidate will receive a post-doctoral fellowship from the São Paulo Research Foundation (FAPESP) of R\$ 9.318,90 monthly and a research contingency fund, equivalent to 10% of the annual value of the fellowship that must be spent on items directly related to the research activity.