

(BL151/2018-IST-ID)

SCHOLARSHIPS WITHIN R&D PROJECTS AND INSTITUTIONS

One (1) Post-doctoral Scholarship

A call is open for one Post-doctoral Scholarship within the framework of the COFRE project (CQE-IST, PTDC/CTM-ENE/1087/2014, RD 0541), supported by FCT/MCTES (PIDDAC), under the following conditions:

Scientific area: Materials Science and Engineering

Conditions for admission: Ph.D. degree in Materials Science and/or Engineering, Chemistry, Physics or a related area; preference may be given to candidates with research experience in sol-gel processing and photoluminescence measurements of glass and ceramic materials.

Work plan: The work will be devoted to the sol-gel deposition of rare-earth-doped oxide layers for up-conversion (UC) and white light generation (WLG), coupled with suitable photonic crystal (PC) structures. If white light is generated through infrared-pumped UC, the cost of a LED lamp will be reduced, while the energy loss from Stokes shift can be minimized. The active elements will in principle be Yb (as a sensitizer for 980 nm pump absorption), Er (red and green emitter), Tb (green emitter) and Tm (blue emitter). This task will start with TMM simulations of the microcavity structures with the desired properties. The PC structures will be used to obtain the right proportions of the three primary colors (RGB), based on the CIE (Commission Internationale de l'Eclairage) chromaticity diagram coordinates; these will be calculated in order to determine the colors obtained and their suitability for WLG, in terms of both the color (R,G,B proportions) and color temperature. The CRI (color rendering index) will also be calculated.

Legislation for the call available at: Lei n.º 40/2004, de 18 de agosto (Estatuto do Bolseiro de Investigação Científica); Regulamento de Bolsas de Investigação da Fundação para a Ciência e a Tecnologia em vigor (www.fct.pt/apoios/bolsas/docs/RegulamentoBolsasFCT2015.pdf); Regulamento de Bolsas de Investigação do IST-ID.

Work place: Research will be carried out at CQE – Centro de Química Estrutural, Instituto Superior Técnico (<http://cqe.ist.utl.pt/>), under the supervision of Professor Rui M. Almeida, of the Departamento de Engenharia Química, IST, Lisbon, Portugal.

Duration of scholarship: 10 months, eventually renewable; anticipated starting date is September, 2018.

Salary: € 1495 / month (<http://www.fct.pt/apoios/bolsas/valores>), payable by check or bank transfer, according to the candidate's preference.

Selection criteria: Selection will be based on the evaluation of each candidate's CV and an interview for relevant applicants, with 70%/30% weight respectively.

The selection committee will be composed of: Prof. Rui M. Almeida; Prof.ª Maria Clara Gonçalves; Prof. Luís Filipe Santos (all of IST).

Candidate notification: All candidates will be informed of the final result by e-mail.

Call deadlines: This call will stay open between 6 and 19 september to 2018.

Every application must include: Form B1 – “Candidatura a Bolsa de Investigação” (<http://drh.tecnico.ulisboa.pt/bolseiros/formularios/>), plus a *Curriculum Vitae*, *Habilitations certificate* and a *Letter of motivation*, sent by e-mail to: ruí.almeida@tecnico.ulisboa.pt