



PhD Position Study of molecular photoswitches for energy conversion

The candidate will work in the framework of the ERC project “Photo Thermal Management Materials (PHOTHERM)”. This project seeks to fundamentally change how we generate heating and cooling by developing a new class of materials that capture, store, and release both solar and ambient heat. These solar thermal management materials are a unique combination of molecular photo-switches that capture and store solar energy, so-called MOST systems, that together with phase change materials (PCM) can contribute to thermal management

In particular, the candidate will be in charge of studying new molecular systems with unique thermal management function. Hence, the focus of the candidate’s research will be on the device design, photochemistry and physicochemical characterization.

The **Supramolecular Nanomaterials** group, has a broad expertise on the design, synthesis and characterization of molecular solar thermal systems (MOST), and recent publications from the group are e.g. Chem. Sci., 2022, 13, 834, Joule 5 (12), 3116-3136 (2021), Accounts of Chemical Research, 2020, 53, 8, 1478–1487, J. Am. Chem. Soc. 2020, 142, 28, 12256–12264, Energy and Environmental Science, 2019,12, 187-193, Nature Communications 2018, 9:1945, Energy and Environmental Science 2017, 10, 728-734.

This is a multidisciplinary and transversal project and the candidate will be part of a team formed by several researchers.

Main tasks of the candidate

- a. Characterization of the energy storage function of the new molecular materials.
- b. Investigate the materials performance in devices.

Requirements

The fellow should have an internationally recognized Masters degree (or equivalent) in a relevant discipline (Chemistry, Chemical Engineering, Physical Chemistry).

The ideal candidate should have a strong background in physical chemistry. Knowledge of physical chemistry or photochemistry is a merit.

About The Supramolecular Nanomaterials Group

The Supramolecular Nanomaterials group lead by prof. Kasper Moth-Poulsen is using modern synthesis tools to develop new materials for energy storage, solar energy, sensors and molecular electronics. We also build demonstration devices to illustrate the function of our new materials. The group is interdisciplinary and focus in addition to traditional organic synthesis on development of advanced flow chemistry tools, lab automation, devices for thermal energy storage materials and photoconversion. The group is supported by the European Research Council (ERC), the Catalan Institute of Advanced Studies (ICREA), the European Union and ICMAB through the Severo Ochoa excellence project.

We value a diverse and inclusive work environment where all team members have excellent opportunities for learning and contributing.

For more information, please visit:

www.moth-poulsen.com

About ICMAB

The Institute of Materials Science of Barcelona (ICMAB-CSIC) is a multidisciplinary research center focused on cutting-edge research in functional advanced materials in the fields of ENERGY, ELECTRONICS, NANOMEDICINE and application fields yet to imagine.

The ICMAB is integrated within the Barcelona Nanocluster in Bellaterra (BNC-b), a research network that includes the UAB, the CSIC (ICMAB, IMB-CNM and ICN2) and IRTA, part of the UAB Research Park of the Universitat Autònoma de Barcelona (PRUAB) and the ALBA Synchrotron. The BNC-b aims to share advanced scientific equipment and promote and disseminate nanoscience and nanotechnology.

The ICMAB offers a complete range of scientific services, including a 10,000 class cleanroom (the Nanoquim Platform) that are open to interested parties, whether these are academic or from industry, and it participates in all kinds of educational and promotional activities. Many ICMAB researchers teach at the UAB Master's degree in Nanotechnology and Materials Science and also on the UAB degree on Nanoscience and Nanotechnology.

<https://icmab.es/>

Details of the position

Contract (full time).

Tentative Starting date: negotiable.

Further information (contact person): Prof. Kasper Moth-Poulsen, kmothpoulsen@icmab.es



MINISTERIO
DE CIENCIA
E INNOVACIÓN



The student will be enrolled into the graduate program of the UAB (Universitat Autònoma de Barcelona). UAB is a public university, and a young one too (it has only just celebrated its first half century of life). It is full of energy, of ideas and of an innovative spirit, a ‘disruptor’, not afraid to embrace modern methods in teaching, in research and in knowledge transfer to society. UAB is among the best young universities in the world; within this group, it stands out through its research and its capacity to establish collaborative networks with the best international research groups.

The UAB campus is a green, sustainable, friendly and welcoming environment where there is time and space to go beyond the activities of teaching and research. It is a space for culture, sport, associations, participation in university life, both that which is institutional and that which takes place outside the regulated areas.

How to apply

Submit the following application documents to group administrator Eulalia Pujades epujades@icmab.es:

- Resume or CV including a list of possible publications
- Motivation Letter
- Statement of the applicant’s research experience
- List of three references with contact details
- Please mention position “PhD1 KMP group” in the email title

Closing date for application: The recruitment process will be closed on march 24 or when a suitable candidate is found.