
Postdoctoral position on light scattering methods for online assessment of turbid media in food manufacturing

ICFO is offering a postdoctoral position to a well-qualified, highly motivated and dynamic young scientist who wishes to enhance his/her scientific career in a friendly and stimulating environment.

The successful candidate will be joining the **Medical Optics Research group** led by **Prof. Dr. Turgut Durduran**. ICFO-Medical Optics (ICFO-MEDOPT) group was founded in 2009 by Dr Turgut Durduran as an inter-disciplinary group that develops new technologies using advanced photonics for pre-clinical and clinical bio-medicine.

The group's main expertise is in diffuse optical monitoring and tomography which uses photon diffusion to probe "deep" (0.1-10cm) into tissues. Our research aims to advance the field in theoretical instrumentation and application oriented approaches in parallel. We focus on applications in neurology and oncology and in both pre-clinical animal model studies and in clinical human studies.

Inter-disciplinary, collaborative work forms the core of our vision and we routinely work with biomedical centers, hospitals and engineering departments in Spain, around Europe and abroad. In particular, we have strong ties with other centers in Barcelona area, e.g. with the Barcelona Medical Photonics Network.

PROJECT DESCRIPTION

This project is a collaboration with a major food manufacturer to investigate the potential for non-invasive, online assessment of turbid samples during the manufacturing process. A wide array of methods ranging from dynamic light scattering to diffuse wave spectroscopy to speckle contrast methods alongside traditional diffuse optical spectroscopic methods will be evaluated in close collaboration with the industrial partner. The first phase of the project is to establish the feasibility of these approaches for this specific purpose from theoretical and laboratory assessments. The next phase may involve the development and deployment of initial prototypes on the production line.

TASKS:

- Theoretical evaluation of the capabilities, limitations of the methods versus the industrial need.
- Collaboration with the industrial partner to test the proposed method on laboratory samples.
- Reporting of the findings and development of roadmaps.

Eligibility and Conditions

Candidates must hold an internationally-recognized Ph.D.-equivalent degree (or evidence of its completion in the nearest future) in areas such as physics, photonics or related areas with a focus on light scattering methods, photon propagation in disordered media and diffuse optics.

Also, the appointee will preferably have:

- Experience in light scattering methods and theory.
- Experience in dynamic light scattering, speckle statistics, diffuse optical spectroscopy, diffuse wave spectroscopy, rheological methods.
- Experience in photon propagation in disordered and turbid media.

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- Experience in utilizing light scattering methods for non-invasive evaluation of concepts such as particle sizing, viscosity, flow, general rheology.
 - Experience in working with the industrial applications will be a plus.

The contract is offered for 1 year.

ICFO is an equal opportunity employer. Candidates are selected exclusively on merit and potential on the basis of submitted application material. No restrictions related to disabilities, citizenship or gender apply to ICFO positions. ICFO abides by the principles of openness, efficiency, transparency, supportiveness, and international comparability as stated in the European Charter for Researchers and the European Code of Conduct for the Recruitment of Researchers.

Application procedure

The formal application should be submitted online via <https://jobs.icfo.eu/?detail=605>

Suitable candidates are requested to submit:

- Presentation letter with a declaration of interest,
- Curriculum Vitae, including contact details,
- The contact e-mail of two potential referees.

Candidates may contact jobs@icfo.eu for formal enquiries regarding the application, as well as address scientific enquiries to turgut.durduran@icfo.eu

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