

## **JOB POSTING**

Marie Skłodowska-Curie European Training Network "TheLink" (H2020-MSCA-ITN-2014) to Accelerate the Development Chain of Nanostructured Polymers

**Recruiting organisation:** Institute of Chemical Engineering Sciences / Foundation for Research & Technology, Hellas

**Subproject title:** Simulation of transport phenomena in mixed matrix membranes

**Starting date:** 1<sup>st</sup> June 2015

### **Background information:**

*Marie Skłodowska-Curie European Training Networks (ETNs)* are joint research and training projects funded by the European Union. Funding is provided for postgraduate researchers from both inside and outside Europe to carry out individual project work in a European country other than their own.

*The training network "TheLink"* is made up of 10 partners, coordinated by the Fraunhofer ICT in Germany. The network will recruit a total of 15 postgraduates for project work lasting for 36 months.

Nanostructured polymers, composites and phase-separated materials are attracting scientific and industrial interest due to the outstanding properties and functionalities that can be achieved. However, in order to exploit their potential an in-depth understanding of the relationship between nano/micro structures and macro-level properties is required. TheLink therefore aims to generate this knowledge along the material development chain from design to production, combining the disciplines of simulation, characterization and processing. The postgraduate researchers recruited by the network will move the development of polymeric nanomaterials towards a knowledge-based, industrially-feasible approach. Three case studies (phase separated polymers, separation membranes, composites for electrical conductivity/self-diagnosis/EMI shielding) will be used to guide research and training and to demonstrate the project developments.

*The advertised subproject* will be carried out by one postgraduate ("early-stage researcher") at the Institute of Chemical Engineering Sciences / Foundation for Research & Technology, Hellas over a period of 36 months.

The objective of the proposed subproject is the simulation of transport and separation properties of polymer-based mixed matrix membranes as well as hybrid membranes with CNTs, silica, zeolites or other performance enhancing fillers. Knowledge of the structure-to-transport relationship with a multi scale modelling approach will be generated as the filtering and separation effects are strongly dependent on the material configuration on a nano- and micro scale. The project will be carried out in close cooperation with other running projects focusing on membranes and filtering mechanisms, and with another postgraduate from TheLink (based in The Netherlands), allowing a validation of the simulation results with experimental results of nanostructured membranes.

This subproject is fully funded by the Marie Skłodowska-Curie European Training Network "TheLink" (H2020-MSCA-ITN-2014). The recruited researcher will have the opportunity to

work as part of an international, interdisciplinary team of 15 postgraduates, based at universities, research centres and industrial firms throughout Europe. He/she will receive theoretical and practical training in the three project disciplines of simulation, characterization and processing. He/she is expected to finish the project with a PhD thesis and to disseminate the results through patents (if applicable), publications in peer-reviewed journals and presentations at international conferences.

### **Requirements:**

#### *Qualifications / experience:*

- Early-stage researcher: a researcher without a PhD, who is in the first four years (full-time equivalent research experience) of his/her research career, measured from the date when he/she obtained the degree which would formally entitle him/her to embark on a doctorate.
- Technical requirements and expertise expected from the candidate:
  - o MSc or equivalent in Natural Sciences or Engineering
  - o Experience in simulations of material structure and transport phenomena
  - o Experience in working in a multidisciplinary team
- An interest in the three project-wide disciplines of simulation, characterization and processing, and the willingness/ability to work within an interdisciplinary team
- The ability to work in an internationally-oriented environment, including fluency in English

#### *Mobility:*

- The applicant must not have resided or carried out his/her main activity (work, studies etc.) in Greece for more than 12 months in the past three years.

### **How to apply:**

Please send your CV by post or e-mail to the following address, quoting the reference "TheLink-FOR-ESR1":

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**Application deadline:** 1<sup>st</sup> February 2015