HELLENIC REPUBLIC
MINISTRY OF EDUCATION, RESEARCH AND RELIGIOUS AFFAIRS
SECRETARIAT FOR RESEARCH AND TECHNOLOGY

FOUNDATION FOR RESEARCH AND TECHNOLOGY-HELLAS
INSTITUTE OF CHEMICAL ENGINEERING SCIENCES (FORTH/ICE-HT)

Patras, 16.03.2016
Ref. No.: 689

Invitation for Expression of Interest:
(1) Experienced Research Associate "Multiscale structural characterization of graphene related materials" &
(2) Experienced Research Associate "Modeling of the mechanical behaviour of graphene related materials and their composites"

The Institute of Chemical Engineering Sciences, Foundation of Research and Technology - Hellas, (FORTH/ICE-HT) is seeking applicants for two positions of experienced research associates in the context of the research project **"Graphene Core 1, GA: 696656 – Graphene-based disruptive technologies**". The project is implemented under the EU-Horizon 2020 Research & Innovation Actions (RIA) and is financially supported by EC-financed parts of the Graphene Flagship.

1. Job Description for Experienced Research Associate "Multiscale structural characterization of graphene related materials"

To conduct research in the framework of the aforementioned project "Graphene Core 1, GA: 696656 – Graphene-based disruptive technologies". The aim of this research is the general mechanical properties of graphene nanocomposites. In particular, the project is focusing on multiscale progression of damage and defect structures from the nano- to macro- scales by in-depth characterization studies using techniques such as Raman spectroscopy in conjunction with composite testing in different modes (bending, uniaxial tension/compression, DMA, impact, etc) at different temperature/humidity levels and with different GPL volume fractions and functionalization; thus an in-depth understanding effectiveness of enhancement of mechanical properties can be assessed. Additionally, the interfacial load transfer characteristics at the GPL/polymer matrix interface will also be measured.

The potential candidate should also be responsible for the following main tasks:
(a) Conduct research activities related to graphene and to other 2D related materials, such as characterization and assessing their properties using techniques such as Raman spectroscopy, atomic force microscopy etc in conjunction with mechanical testing
(b) Manage the day to day business in the research group and program management, by designing and establishing a full process development roadmap
(c) Work in collaboration with the other research and industrial partners of the project for accomplishing the corresponding tasks and subtasks
(d) Identify requirements for the research and develop tactics for future challenges
(e) Prepare the corresponding reports (technical and economical) for project's evaluation
(f) Scientific supervision of potential master and/or PhD thesis

Location: FORTH/ICE-HT, Patras, Greece
Duration: 12 months, with a potential of renewal, under the same conditions, according to the needs of the project
Salary: up to 2.800 € per month (VAT excluded), depending on qualifications
Envisaged starting date: 01/05/2016

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Requirements and Qualifications

The candidates are required to hold a Chemical Engineering Diploma, a Master's Degree in Polymer Science and Technology, and a PhD in Chemical Engineering, specialized in mechanical deformation of composite materials in tandem with characterization techniques such as Raman spectroscopy. Moreover, the candidates must be fluent in Greek and English, in order to meet working conditions. The appropriate candidate should have:

(a) Experience in the preparation and characterization of graphene (or related carbon based materials) and 2D related materials
(b) Previous research experience in an industrial environment is strongly required
(c) Be able to lead teams
(d) A great scientific background in materials, especially in 2D related materials
(e) Analytical thinking
(f) Strong personality and good communication skills
(g) Be a flexible and reliable person
(h) Be capable of autonomous working

The evaluation of the candidacies will be based on the following criteria and qualifications:

Qualifications	Weight	Evaluation criteria
Diploma in Chemical Engineering	15	Diploma Grade, courses in polymer materials
Master in Polymer Science and Technology	20	Master of Science Grade, Dissertation relevant to mechanical deformation of polymer based composites
PhD in Chemical Engineering	20	PhD in Chemical Engineering, Dissertation relevant to Raman spectroscopy and its application on polymer based composite materials
Proven industrial experience (minimum 4 years) in tandem with research and lab experience in : (i) Study of graphene and other 2D related materials, (ii) Characterization techniques such as Raman spectroscopy and (iii) Mechanical deformation of materials	25	Duration of proven research experience in industry and in research groups and projects. Quality and number of related publications in refereed journals and conference proceedings.
Research interests	10	Relevance, plans and potential
Awards of excellence	10	Number and type of awards

2. Job Description for Experienced Research Associate "Modeling of the mechanical behaviour of graphene related materials and their composites"

To conduct research in the framework of the aforementioned project "Graphene Core 1, GA: 696656 – Graphene-based disruptive technologies". The aim of this research is to develop a multi-scale modeling of GRM (graphene related materials) and their composites that, starting from the properties of single sheets at the nanoscale level, allows understanding of the properties, and the ultimate performance, of the GRM and their composites at the macroscopic level. The work will be an extension of previous analytical modeling that dealt with the mechanical behaviour of graphene and other 2D materials under tension and compression loading.

The mechanical behaviour of graphene nanocomposites will also be studied through atomistic simulations and/or analytical modeling. In particular, the constitutive law of the composite will be derived by varying geometrical parameters (concentration, size, shape, overlapping length, etc.), and the numerical results will be compared to analytical results, obtained from a dynamic shear lag model and fracture mechanics theory. The dynamic shear lag model is new and will be able to capture even the post-critical behaviour of the graphene (or other 2D materials) composites obtained from atomistic simulations thus providing for the first time a general analytical set of equations able to predict the entire stress-strain curve of the composite.

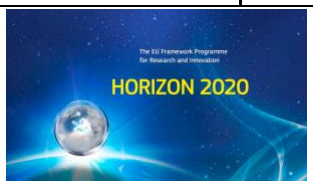
Location: FORTH/ICE-HT, Patras, Greece
Duration: 12 months, with a potential of renewal, under the same conditions, according to the needs of the project
Salary: up to 1.500 € per month (VAT excluded), depending on qualifications
Envisaged starting date: 01/05/2016

Requirements and Qualifications

It is prerequisite that the potential candidates are experienced academic faculty or senior researchers holding a Diploma in Mathematics and a PhD in Chemical Engineering. Moreover, the candidates must be fluent in Greek and English, in order to meet working conditions.
The candidate should have:
(a) Experience in mathematical- analytical- modelling
(b) Experience in the guidance and supervision of research students and projects
(c) Presence in the lab (FORTH/ICE-HT) at regular intervals
(d) Analytical thinking
(e) Be a strong personality with good communication skills
(f) Be a flexible and reliable person

The evaluation of the candidacies will be based on the following criteria and qualifications:

Qualifications	Weight	Evaluation criteria
Diploma in Mathematics	15	Diploma Grade
PhD in Chemical Engineering	15	Thesis relevant to modeling of chemical engineering problems
Senior Researcher	25	Proven over 10 years of experience as an academic and/or research staff
Awards of excellence	10	Number and type of awards
Guidance and supervision of research students and projects	15	Number and relevance



Research experience	15	Quality and number of publications in refereed journals and conference proceedings in the field of modeling of chemical engineering problems.
Research interests	5	Relevance, plans, analytical thinking and potential

Application Submission

Interested candidates who meet the aforementioned requirements should submit their applications, no later than March 31st, 2016, 14:00h., by email to Kleanthi Zacharopoulou: kleanthi@iceht.forth.gr.

In order to be considered, the application must include:

- Application letter
- CV
- Scanned copies of academic titles
- Statement of research interests

Any application received after the deadline will not be considered for the selection.

Selection Procedure

Applications that are received on time will be evaluated by a scientific committee using the criteria mentioned above. If necessary, certain candidates will be invited to a personal interview with the committee. The outcome of the selection will be announced on the website of FORTH/ICE-HT as well as on the website of "DIAVGEIA". The selected candidate will be notified and asked to accept the position within three (3) working days and to present all relevant documents that should match the submitted ones.

Contact

For information and questions regarding the application and selection procedure, candidates are asked to contact the FORTH/ICE-HT Research Secretariat, e-mail: kleanthi@iceht.forth.gr, tel.: +30 2610 965278. For information and questions about the advertised position and the research activity of the group or the Institute, candidates are asked to contact Professor Costas Galiotis, tel: +30 2610 965255, e-mail: c.galiotis@iceht.forth.gr .

For FORTH/ICE-HT,

Vasilis Burganos
Director