

Master's, PhD and post-doctoral positions available in the Polymer & Colloid Science group (FORTH, Crete, Greece)

*The positions are available immediately within the framework of national
(Greek ARISTEIA) and EU (ITN, Infrastructure) research projects*

The positions, funded by the Greek Ministry of Education and EU, are available at the **Polymer and Colloid Science** group of **IESL-FORTH** in collaboration with the Department of Materials Science and Technology of **University of Crete**. PhD (Master's) candidates should hold Master's (Bachelors) degree in the field of Physics, Chemistry, Materials Science or Engineering. Postdoctoral candidates should have a PhD degree with relevant experience in Soft Matter Science and Engineering. The positions are available in the framework of the following projects:

1) "Relating the Microscopic structure and dynamics to the macroscopic flow in colloidal Soft matter" (MicroSoft).

1 PhD position, 2 post-doc positions and 1 technician position are available immediately

This is an "ARISTEIA" project funded by the Greek Ministry of Education. The aim of the project is to understand the flow of highly concentrated colloidal suspensions, glasses and gels under external shear. Emphasis will be given in the elucidation of the relation of microscopic structure, dynamics and interparticle interactions with rheological properties. A synergy of state of the art experimental techniques including macro- and micro-rheology, light scattering, microscopy as well as computer simulations will be used. A key goal is to build new experimental tools such as a versatile optical tweezers set-up combined with a shear-cell for microscopic force measurements under shear and an EWDLS set-up adapted on a rheometer for the detection of wall slip.

People involved: G. Petekidis (georgp@iesl.forth.gr), B. Loppinet (benoit@iesl.forth.gr)

2) Shear thickening in Colloidal Suspensions.

1 PhD position available immediately

This is in the framework of an EU funded project "Lightweight, flexible and smart protective clothing for law enforcement personnel" SMARTPRO (FP7-SEC-2013-1, CP-FP). One aim of the project is to optimize the mechanical response of shear thickening (dilatant) fluids in order to use them more efficiently for body armor applications. The candidate will use a combination of rheological techniques as well as Light scattering and optical microscopy in a variety of systems involving colloidal particles of different shapes, surface roughness and interactions.

Contact person: G. Petekidis (georgp@iesl.forth.gr)

3) Microfluidic and nanopatterning applications in soft and biological systems (Polymer & Colloid/Laser/Biomaterials groups):

1 PhD or post-doc position is available to start immediately

Funding is provided by a Greek project "Thales". The candidate will work on applications of microfluidic devices in soft and biological systems and the use of laser assisted (two photon processes) nanopatterning with the aim to create bio-functional scaffolds for tissue engineering. The project involves a close collaboration of the candidate with polymer and colloid science group (G.Petekidis), the laser nanopatterning group (M. Farsari) and the Biomaterials and synthesis groups (M. Vamvakaki, M. Hatzinikolaïdou).

Contact person: G. Petekidis (georgp@iesl.forth.gr)

4) Nanocomposite thermoplastics and elastomers

1 PhD or post-doc position is available to start immediately

Funding is provided by EU (ESMI) and industrial collaboration. The candidate will work on developing appropriate rheological protocols to monitor the light crosslinking of thermoplastics, determine the crosslinking time and temperature and understand the effect of filler particles. The project involves collaboration with industry in France and Italy.

Contact person: D. Vlassopoulos (dvllasso@iesl.forth.gr)

5) Entanglement dynamics: rheological and scattering studies of model branched and cyclic polymers

2 Master's positions are available to start immediately

Funding is provided by the National project "ARISTEIA" RINGS. The candidates will work on the rheology and dynamic light scattering characterization of model comb, star and ring polymers in the melt and solution. Important open problems relate to the role of branches and knotting on diffusion dynamics and the use of nonlinear rheology (shear, extension) as a means to quantify dispersity in molecular structure. The project involves collaboration with theory groups in Austria and USA.

Contact person: D. Vlassopoulos (dvlasso@iesl.forth.gr)

6) Nanoscale Phononics: Engineering band structure, acousto-optical interactions, heat management based on polymer & colloids

1 Post-doc position is available to start immediately

Funding is provided by the National project "ARISTEIA" sophoX. The necessary integrated approach for the study of phonon propagation in periodic structures will combine state-of-art spontaneous Brillouin Light Scattering (BLS) in Max Planck Institute (Mainz, Germany) and tapered-based investigation of strong acousto-optic coupling in the visible (phoXonics). The project involves collaboration with theory groups in France .

Contact person: G. Fytas (fyta@iesl.forth.gr)

Deadline for applications: 30 March 2014

PhD fellowships provide a 36 month funding including a stipend and a health insurance scheme. Post-doctoral salaries (including national insurance and pension benefits) depend on research experience. Prospective candidates should send a full CV with names of two referees to the contact person of their choice.