



Horizon Europe, Marie Skłodowska-Curie Doctoral Networks - Industrial Doctorates (DN-ID)

## Ph.D. position opening (Doctorate candidate 1)

Advisor: **George Petekidis (FORTH)**

Co-advisors: **Joost de Graaf (Univ. Utrecht) & Nikos Tsiouvaras (Sunlight)**

Main location: **IESL, FORTH and Univ. of Crete, Heraklion, Greece**

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## **Tuning model colloidal gels by external shear and flow:**

### **Applications to energy related materials**

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**Context** – The Ph.D. project is part of the EU Doctoral Network “CoCoGel,” which aims to provide integrated training for young researchers in the field of Soft Matter and related Industrial Applications. The network involves leading experts in six academic and six industrial nodes and pertains to state-of-the-art expertise in experimental techniques, computer simulations, and industrial systems. The project is focused on colloidal gels that are core components in many industrial products, including building materials (e.g., cement), energy materials (e.g., batteries and fuel cells), consumer care and food products, and medicine. Recent advances in colloidal-gel physics strongly imply that the rational design of colloidal-gel properties is within reach. This design is based on tuning gel microstructure via external stimuli, such as shear, ultrasound, and (magnetic/electric) fields, and the addition of non-Brownian inclusions. CoCoGel aims to enable the translation from the current academic state of the art to industrial practice.

**Ph.D. project** – Within the European Doctoral Network, the candidate will perform a comprehensive study of the effect for different types of pre-shear protocols probing structural characteristics and flow profiles, both at steady state and during transient response. The candidate will investigate the interplay of gelation and phase separation, shear induced memory effects and manipulation of the structure and mechanical properties of dilute and concentrated colloidal gels. Experimental tools include combination of rheometry, microscopy and scattering. Experiments will be complemented by computer simulations in collaboration with [University of Utrecht](#) and University of Georgetown. The candidate will spend 18 months at industrial partners, [SUNLIGHT](#) and [ADVENT](#), implementing methods and protocols explored in model colloidal gels on industrial slurries for optimized anode manufacturing.

**Candidate profile** – The candidate should hold (by starting date) a Master’s degree in Physics, Materials Science, Engineering, or a related field and have a good background in Soft Matter Science. Prior knowledge of scattering and rheology and/or computer simulations will be a good asset. The candidate should not have resided in Greece for more than 12 months in the 36 months preceding recruitment

**Dates & remuneration** – 3 years starting in June-December 2024. Gross salary: 2760 to 3130€ per month.

**Contact** – Applications must be submitted through <https://www.iesl.forth.gr/en/jobs-bids/jobs/job-positions> and include a resume and a motivation letter. Please contact [georgp@iesl.forth.gr](mailto:georgp@iesl.forth.gr) if you need more information. Applicants should also send their application/CV to the Project manager ([cocogel@iesl.forth.gr](mailto:cocogel@iesl.forth.gr))

**Deadline for applications: 15 May 2024, Starting date: June – December 2024**



**Deadline and start date extension**

**One (1) PhD student position  
in CoCoGel project**

**Controlling Colloidal Gels for Novel Sustainable Materials**

**(Topic: HORIZON-MSCA-2022-DN-01-01 - MSCA Doctoral Networks 2022**

**Call: HORIZON-MSCA-2022-DN-01, GA 101120301)**

**Funded under HORIZON-TMA-MSCA-DN-ID - HORIZON TMA MSCA Doctoral Networks – Industrial Doctorates**



**Funded by European Union**

**Ref. 135321-DC1  
Heraklion 13/3/2024**

The Institute of Electronic Structure and Laser of the Foundation for research and Technology Hellas (IESL -FORTH), in the framework of the project CoCoGel, (Call: HORIZON-MSCA-2022-DN-01, GA 101120301), Funded under HORIZON-TMA-MSCA-DN-ID - HORIZON TMA MSCA Doctoral Networks – Industrial Doctorates, is seeking to recruit one (1) PhD student.

FORTH is seeking for one motivated PhD Candidate to work in the field of Soft Matter. The "CoCoGel" Network involves leading experts from 12 European labs and Industries with vast experience in experiments, computer simulations, and industrial systems. The two candidates will enroll in the PhD program of the Department of Materials Science and Technology of University of Crete.

**Job Description**

Tuning model colloidal gels by external shear and flow – Applications to energy related materials (DC1)

For details on the research projects see: <https://cocogel.iesl.forth.gr/esr-projects>

To qualify for the positions, you cannot have resided or carried out your main activity (work, studies, etc.) in Greece for more than 12 months in the 36 months preceding the recruitment start date. The candidates will spend 18 month at industrial partners during which they will work on industrial systems and applications.

**Required qualifications**

- Undergraduate degree and Master's in fields covering soft matter fundamentals (e.g., chemical engineering, physics, materials science) (25%)
- Background in physical chemistry and Laboratory experience with soft materials (polymeric, colloidal) (25%)
- Two (2) Recommendation letters (25%)
- Publications and Presentation/communication skills (25%)

### **Additional qualifications**

- Experience in experimental techniques, especially rheology, scattering or microscopy (15%)
- Experience in programming and computer simulations (15%)

**Location:** IESL-FORTH, Heraklion Crete GREECE

**Start Date (earliest):** July 1, 2024

**Project Duration:** 12 – 36 Months

### **Application Submission**

Interested candidates who meet the aforementioned requirements are kindly asked to submit their applications, no later than **May 15, 2024, 23:59 local Greece time** to the address ([hr@iesl.forth.gr](mailto:hr@iesl.forth.gr)), with cc to Prof. George Petekidis ([georgp@iesl.forth.gr](mailto:georgp@iesl.forth.gr)) and Dr. Dusanka Ljumovic ([cocogel@iesl.forth.gr](mailto:cocogel@iesl.forth.gr)).

### **In order to be considered, the application must include:**

- Application Form (please download file from the job announcement webpage <https://www.iesl.forth.gr/en/jobs-bids/jobs/job-positions>)
- Detailed curriculum vitae (CV) of the candidate
- Scanned Copies of academic titles

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

### **Contact**

For information and questions regarding the application and selection procedure, candidates are asked to contact the secretariat ([hr@iesl.forth.gr](mailto:hr@iesl.forth.gr)), tel. +30 2810-391301.

For information and questions about the advertised position and the research activity of the group or the institute, candidates are asked to contact Prof. George Petekidis ([georgp@iesl.forth.gr](mailto:georgp@iesl.forth.gr)), tel. +30 2810-391490.

### **Selection Announcement**

The result of the selection will be announced on the website of IESL-FORTH.

Candidates have the right to appeal the selection decision, by addressing their written objection to the IESL secretariat within five (5) days since the results announcement on the web. They also have the right to access (a) the files of the candidates as well as (b) the table of candidates' scores (ranking of candidates results). All the above information related to the selection procedure will be available at the secretariat of IESL-FORTH in line with the Hellenic Data Protection Authority.

### **GDPR**

FORTH is compliant with all legal procedures for the processing of personal data as defined by the **Regulation EU/2016/679 on the protection of natural persons with regard to the processing of personal data**. FORTH processes the personal data and relevant supporting documents that you have submitted to us. Processing of that data is carried out exclusively for the needs and purposes of this specific call. Such data shall not be transmitted to or communicated to any third party unless required by law. FORTH retains the above data up to the announcement of the final results of the call, unless further process and reservation is required by law or for purposes of exercise, enforcement, prosecution of certain one's legitimate legal rights' as defined in the Regulation EU/2016/679 and/or in national law. We inform you that under the Regulation EU/2016/679 you have the rights to be informed about your personal data, access to, rectification and erasure, restrictions of process and objection to as provided by applicable regulation and national laws. We acknowledge also to you, that you have the right to file a complaint to the national Data Protection Authority. For any further information regarding exercise of your personal data protection rights, you may contact the Data Protection Officer at FORTH at [dpo@admin.forth.gr](mailto:dpo@admin.forth.gr). You have the right to withdraw your application and consent for the processing of your personal data at any time. We inform you that, in this case, FORTH shall destroy such documents and/or supporting documents submitted and shall delete the related personal data.