## AΔA: PP55469HKY-ΩΘ6



HELLENIC REPUBLIC MINISTRY OF DEVELOPMENT GENERAL SECRETARIAT FOR RESEARCH & INNOVATION



Patras,21.3.2025 Ref. No.: 172611





#### Invitation for Expression of Interest:

**Postdoctoral Research Assignment** "Integrating Novel Materials with Scalable Processes for Safer and Recyclable Li-ion Batteries"

The Institute of Chemical Engineering Sciences, Foundation of Research and Technology - Hellas, (FORTH/ICE-HT) is seeking applicants for one postdoctoral research assignment in the context of the research project "Integrating novel materials with scalable processes for safer and recyclable Li-ion batteries", INERRANT, GA: 101147457, which is implemented under the Horizon Europe.

#### **Job Description**

The **main aim** of **INERRANT** is to drive genuine advancements for safe-and-sustainable-by-design materials, to ensure the economical and widespread utilization of safer LIBs in modern society. To realize this, INERRANT is formulating a holistic approach to **enhance safety**, **boost performance** and improve **fast charging**, of Gen 3 LIBs tailored for mobility applications. The pivotal S&T challenges encompass: development of functional materials, design sustainable fabrication and recycling processes and understanding of pertinent interfacial phenomena and degradation mechanisms. Specifically, INERRANT aims to pioneer: **(i)** *innovative* (*nano*)*materials combinations* for **anodes** and **cathodes**; **(ii)** *nanofiber-based architectures* for smart-functioning **separators** able to protect battery flaws; **(iii)** *stimuli responsive* **electrolyte formulations** designed for rapid reactions against external disturbances and mitigate degradation processes at the cathode; **(iv)** *cutting-edge and eco-friendly* **recycling processes** to improve the purity of recovered materials from end-of-life LIBs.

One of the objectives of the project is **to develop novel electrolyte formulations to enhance battery safety and performance by improving the impact resistance and mitigate degradation of cathode materials.** One of the main directions towards this goal is via the development of safe impact resistant electrolytes that possess a *discontinuous shear thickening* behavior at low particle concentration. The mechanical response of Gen 3 LIB electrolytes with various additives, will be explored to achieve optimal shear thickening (ST), maintaining or improving electrical conductivity of the composite electrolyte.

Within this framework the selected candidate will explore, under a work or a fixed-term employment contract, the rheological properties of complex composite suspensions and yield stress fluids with varying colloidal shapes (sphere, rods, platelets) and interactions, aiming to design impact resistant electrolytes for Li-ion Batteries. Our research plan will include a combination of state-of-the-art



rheometry and imaging/microscopy and/or scattering probes (such as rheo-confocal microscopy and light scattering under shear). These will enable us to unravel links between rheological properties with microstructure and particle dynamics. Rheological measurements will also be complemented with insitu conductivity measurements that will allow further fine-tuning structure and mechanical properties in conjunction with electric properties of the electrolyte suspension.

## Location: FORTH/IESL, Heraklion, Crete, Greece

**Duration:** up to 24 months, with the potential of renewal or extension according to the needs of the project.

**Salary:** up to approximately 3000 € per month depending on qualifications (total cost of the employer, including social security and taxes)

**Envisaged starting date:** 01/08/2025

#### **Requirements and Qualifications**

The applicants should have a PhD in a relevant field of experimental Soft Matter with strong experience in the characterization and rheology of complex polymeric and/or colloidal systems. Experience on shear-thickening systems and conductivity measurement and or simulations techniques will be also be desirable. Candidates must have good knowledge of English (at least B2 level) language.

Qualifications	Weight	Evaluation criteria
Research experience in Soft Matter Science and experimental techniques	30	Criterion is the proven research experience in research groups, 2 points / year, maximum score 30 points
Research experience in colloidal suspension rheology and data analysis	30	Criterion is the proven research experience in research groups, 2 points / year, maximum score 30 points
PhD thesis	20	PhD in a relevant field of experimental Soft Matter: strong relevance: 20 points, medium relevance: 10 points, weak relevance: 5 points
Publications in peer-review international journals	20	1 point / publication, up to 20 points
Overall	100	

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

#### **Application Submission**

Interested candidates who meet the aforementioned requirements should submit their applications, no later than 3<sup>rd</sup> of April 2025, 16:00 h, by email to Kleanthi Zacharopoulou: <u>kleanthi@iceht.forth.gr</u>, cc.: Spyros Yannopoulos: <u>sny@iceht.forth.gr</u>.

In order to be considered, the application must include:

- Application letter
- CV with clear description of the methodologies possessed by the applicant and the level of experience





- Scanned copies of academic titles & English language certificate
- Copy of PhD thesis
- Copies of publications in peer-review international journals
- Employer's certificate and any other official documentation of the required experience

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.

Interview Criteria: (a) Background in the objective of the assignment (5 points). (b) Organizational and communication skills (5 points). (c) Team-spirit and self-motivation (5 points). (d) Commitment to achieving the goals (5 points)

The outcome of the selection will be announced on the website of FORTH/ICE-HT as well as on the website of "DIAVGEIA".

In case of titles and qualifications awarded by foreign Higher Education Institutions, the provisions of the Law 55/2023 (article 36) and 4957/2022 (article 304) are implemented.

#### **Selection Announcement**

The result of the selection will be announced on the website of: FORTH/ICE-HT.

Candidates have the right to appeal the selection decision, by addressing their written objection to the FORTH/ICE-HT Research Secretariat, e-mail: <u>kleanthi@iceht.forth.gr</u>, within five (5) days after the results announcement on the web.

#### Contact

For information and questions regarding the application and selection procedure, candidates are asked to contact the FORTH/ICE-HT Research Secretariat, e-mail: <u>kleanthi@iceht.forth.gr</u>, 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 contact: Prof. George Petekidis (georgp@iesl.forth.gr) and Professor Spyros Yannopoulos: tel: 30 2610 965252, email: <u>sny@iceht.forth.gr</u>

# **General Protection Data Regulation**

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.

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.

For FORTH/ICE-HT,

Theophilos Ioannides, Director

