

NEWSLETTER

FORgreensoft
SOFT MATTER MORE GREEN

2023-2024



Dear all,

We are glad to present our newsletter. It reports our accomplishments, highlights our research advances, and outlines forthcoming events.

The FORGreenSoft research aims are to develop environmentally friendly alternatives to common synthetic materials through the application of Soft Matter sciences, with a focus on bio-sourced materials and eco-friendly processes, made possible through knowledge-transfer within the consortium.

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SUMMER SCHOOL **Computational** **Methods**

FORTH (GREECE)
25–27/09/2025

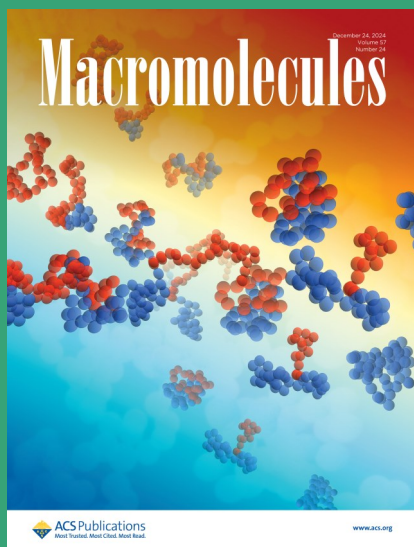
INTERNATIONAL **SOFT MATTER** **CONFERENCE**

CHANIA (GREECE)
29/09–03/10/2025

PUBLICATIONS

Our latest publications are showcasing diverse research that contributes to scientific progress. Examples are summarized below.

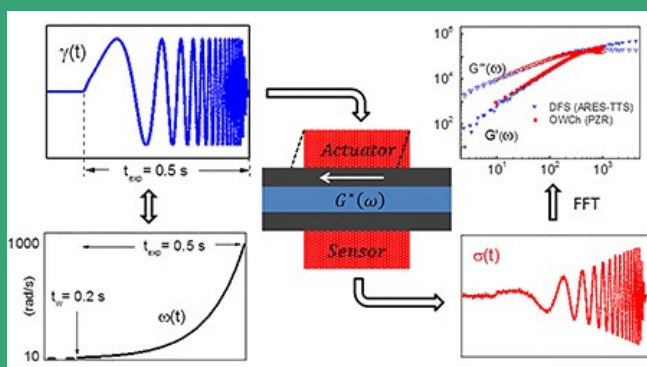
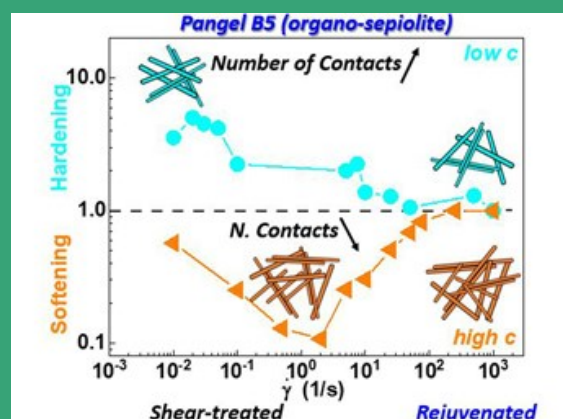
The article by **Lisa Sappl, Christos N. Likos, and Andreas Zöttl**, entitled **"Polymer Thermophoresis by Mesoscale Simulations"**, was published in *Macromolecules*



(*Macromolecules*, 2024, 57, 24, 11534–11549) and featured on the general cover of the journal.

Lisa Sappl and her co-workers developed a new numerical method to simulate the dynamics of linear homopolymers and copolymers in a temperature gradient, known as thermophoresis, using the method of multiparticle collision dynamics (MPCD). Their results show good qualitative agreement with previous experimental findings on thermophoretic mobility, underscoring the importance of this research in understanding polymer behaviors.

The article by **Nikolaos A. Burger, Benoit Loppinet, Andrew Clarke, and George Petekidis** explore the mechanical properties of organophilic clay dispersions in **"Tuning the mechanical properties of organophilic clay dispersions: Particle composition and preshear history effects"**, published in the *Journal of Rheology* (*J. Rheol.* 68, 695–707 (2024)). This article investigates how particle composition and preshear history affect the mechanical properties of these dispersions, providing valuable insights for industrial applications.



The article by **Thanasis Athanasiou, Michela Geri, Patrice Roose, Gareth H. McKinley, and George Petekidis** present a novel approach to rheometry for rapidly evolving viscoelastic materials in **"High-frequency optimally windowed chirp rheometry for rapidly evolving viscoelastic materials: Application to a crosslinking thermoset"**, also published in the *Journal of Rheology* (*J. Rheol.* 68, 445–462 (2024)). Their high-frequency optimally win-

indowed chirp rheometry method enables rapid and precise characterization of materials undergoing crosslinking, paving the way for innovations in the field of thermosets.

FORGreenSoft Short Courses

In 2023 and 2024, the FORGreenSoft project expanded its efforts to enhance scientific collaboration and accelerate knowledge-transfer in the field of soft green materials. Through summer school, technical training sessions, and progress meetings, the consortium reinforced FORTH's capacities and opened new avenues for interdisciplinary research with its European partners.



Group photo at FORTH for the 1st Short Course, July 2023

In July 2023 saw the 1st Short Course at FORTH dive into bio-based materials and sustainable innovations with expert talks on biodegradable polymers, polymer recycling approaches or electrospinning for Green nano/micro fibrous membranes for diverse applications.

The 2nd Short Course in May 2024 offered practical training in advanced microscopy techniques for soft matter characterization thanks to lectures on optical tweezers and 3D-Electron microscopy.



Group photo at FORTH for the 2nd Short Course

FORGreenSoft Soft Skills workshop

The University of Vienna hosted a Soft Skills Workshop in October 2024, aimed at enhancing professional development of researchers. Over 25 participants from across the consortium attended the workshop which featured lectures on a range of topics: EU funding opportunities, how to develop a business plan, the role of spin-off companies, deepening knowledge of management of research data management, and discussing project management principles.



Workshop on Transferable Soft Skills and Industrial Training, University of Vienna, Austria 2024



Group photo at the Workshop on Transferable Soft Skills and Industrial Training, University of Vienna Austria 2024

FORGreenSoft Mid-Term Review meeting

The Mid-Term Review Meeting in May 2024 brought together all partners at FORTH to present their official review to the Project Officer and to the EU expert reviewer. We received a positive review and we received the permission for the project to continue.

FORGreenSoft Progress meetings

To monitor progress and refine research directions, the consortium held two key progress meetings. The 1st Year Progress Meeting, hosted at FORTH in December 2023, reviewed developments in cellulose-based systems, computational methods, and green membranes.

Participation in events and conferences

Participation in international scientific events is a key factor in enhancing FORTH's visibility and reputation in the field of Soft Materials. Through the FORGreenSoft project, researchers have presented their work at leading conferences, showcasing their expertise in rheology, colloidal systems, and nanocomposites. These exchanges not only spotlight FORTH's progress on the global stage but also foster strategic collaborations with other institutions, paving the way for the development of new approaches and innovative technologies.

George Petekidis participated in several meetings and conferences as invited speaker such as EUROMECH Colloquium (Nice, France, 2023), Pacific Rim Rheology Conference (Vancouver, Canada, 2023), Hellenic Polymer Society Conference (Thessaloniki, Greece, 2023), NWO Physics (Veldhoven, The Netherlands, 2024), Complex Fluids Symposium (Hyderabad, India, 2024), Annual European Rheology Conference (Leeds, United Kingdom, 2024).

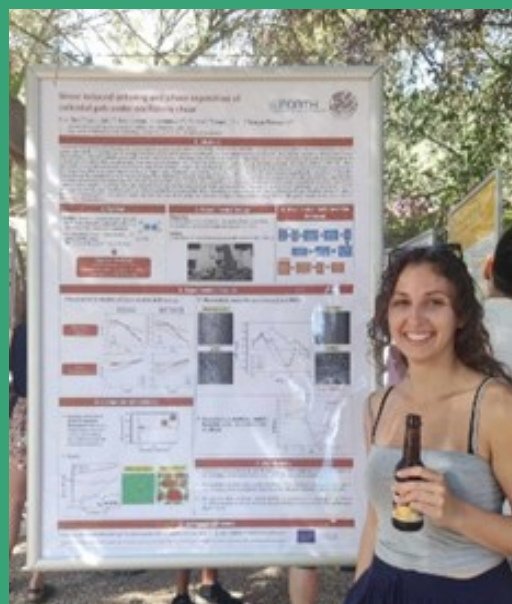
Several other FORTH researchers have actively participated in international conferences. Indicatively, Eva Vasiliki, Maria Vamvakaki participated at the Novel Materials for Future Conference (Nicosia, Cyprus, 2023). Vasiliki Chrysoulaki, Thanasis Athanasiou and Nikos Burger attended at the International Conference on Rheology (Athens, Greece, 2024). At the RheoSamos Summer School, Thanasis Athanasiou gave a lecture (Samos, Greece, 2024). Nikos Burger, Benoit Loppinet, Andrew Clarke, and George Petekidis attended at the Society of Rheology 95th Annual Meeting (Austin, USA, 2024).



Thanasis Athanasiou, giving a lecture at the RheoSamos summer school 2024

Summer school in Cargese (France)

From 23rd of July to 2nd of August 2024, FORGreenSoft joined the Cargèse summer school (France). This year's topic was: "Soft matter and food science". Experts shared cutting-edge insights on biodegradable systems polymers, colloids, and sustainable materials. Master students presented posters during this Summer School: Athanasios Machas prepared a poster on "Shear-Induced Tuning of Mechanical Properties and Ionic Conductivity of Composite Polymer Electrolytes" and Vaso Chrysoulaki on "Shear-Induced Ordering and Phase Separation of Colloidal Gels Under Oscillatory Shear".



Poster presentation at the International Summer School Cargèse, France.

European Researchers' Night at FORTH (Greece)

FORGreenSoft is committed to raise awareness among the general public about the challenges and progress of scientific research. To support this mission, the project actively participated in the 2023 and 2024 editions of the European Researchers' Night, hosted at FORTH. We engaged with a non-scientific audience, from children to adults, on the scope of FORGreenSoft's activities and its latest results. To illustrate the link between the materials' structure and its properties we used day-to-day items like soap and a cornstarch water mixtures.



Researcher's Night at FORTH, Heraklion, Greece, 2023



Researcher's Night at FORTH, Heraklion, Greece, 2024

UPCOMING DELIVERABLES & MILESTONES

DELIVERABLE	MILESTONE	LEAD BENEFICIARY	DUE DATE
D3.2 – Presentations’ material for Summer Schools and Soft Matter graduate program		EUGLOTTIA	31/07/2025
D3.3 Workshop presentations’ material		EUGLOTTIA	31/07/2025
D5.4 – Business and market analysis plan for a service providing spin-off		EUGLOTTIA	30/09/2025
D3.4 International conference material		FORTH	30/11/2025
D1.5 Final version of the Data Management plan		FORTH	30/11/2025
D2.5 Simulations techniques for specific green soft matter		EUGLOTTIA	30/11/2025
D5.1 – Report on Scientific Publications in peer-review journal and conference presentations		FORTH	30/11/2025
D5.5 – Final plan for dissemination and exploitation including communication activities		EUGLOTTIA	30/11/2025
	M3 Final (technical and financial) review meeting	FORTH	30/11/2025
	M10 Implementation of training activities	FORTH	30/11/2025
	M14 Acquired expertise in proposal management	FORTH	30/11/2025

ABOUT

FORGreenSoft is a project financed by the European Commission's research and innovation program, Horizon Europe, under the action Horizon Widera Twinning. The objective is to enhance networking and knowledge transfer between top-class leading European institutions and institutions within the Widening.

Most of our everyday materials are made out of synthetic compounds that are known to have a negative environmental impact and therefore need to be replaced. Soft Matter sciences are ideally placed to address these issues. We aim with this EU-funded FORGREENSOFT project to explore new routes to replace some of these ingredients. The focus is on bio-sourced raw materials obtained through eco-friendly processes. We will achieve this through a multilevel transfer of knowledge and research collaboration between FORTH and European centers of excellence at the University of Vienna in Austria and at the Max-Planck Institute in Germany.

Visit our website by scanning the QR code



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