



This project is co-financed by the European Union
and the Republic of Türkiye



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PRESENTER FULL NAME: MUSTAFA ERSOZ

ORGANIZATION: SELCUK UNIVERSITY

WORKSHOP NAME: TWIN GREEN AND DIGITAL TRANSITION IN INDUSTRY

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Description of the Organisation

Selcuk University (SU) is one of the biggest universities located in the central of Anatolia, Turkey, currently has 3000 full-time faculty members, 1500 research staff. Its main objective has always been focused on education and training of highly component professionals in various fields and has been in the top list of the frame of entrepreneurship and innovation universities.

SELCUK has highly qualified staff and state of the art facilities to carry out research in the areas of nanotechnology, advanced materials, and biotechnology



Faculty of Science, one of the most established and pioneer in research at the university

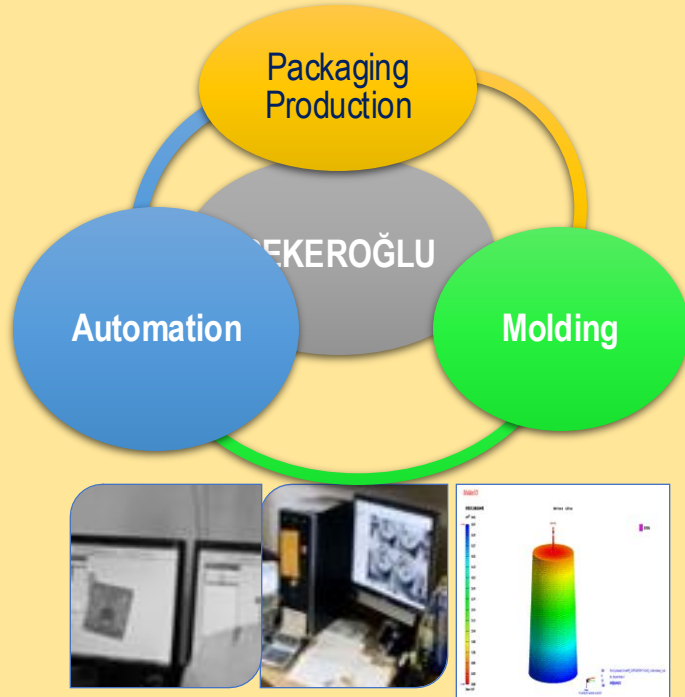
SU, Advanced Technology Research and Application Centre (ILTEK) and Faculty of Science

- Conduct interdisciplinary projects, to maintain the coordination of the R&D activities, directed to technology production primarily on the strategic technology fields.
- multidisciplinary research and joint projects about the subjects on which industry of the region needs.



COLLABORATION with INDUSTRY

❑ Chemical/Plastic (Bio-Plastic) Ind



<https://www.sekeroglu.com.tr/en/>

❑ Burotime (Furniture industry)



<https://www.burotime.com/en/>

MULTIACTOR APPROACH

KONYA ŞEKER
“The Production
Power of Türkiye”

- Food
- Energy
- Agricultural products

>40 Company

Close tie with industry in TR-52 region and We have already established a university-industry platform which is called as “**ANATOLIA Cooperation Network**” have been formed about 22 R&D and 7 Design Centers approved by Ministry of Industry and Technology in TR-52 (Konya) region.

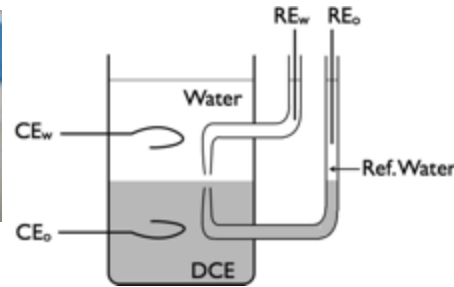
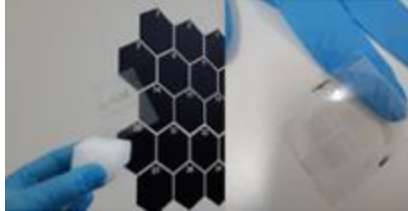
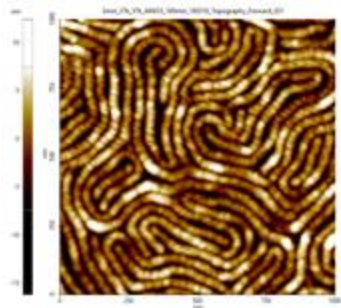


- Materials Science and technologies
- Membrane technology and applications
- Graphene chemistry applications (materials, optoelectronics, sensors, flexible electronics, energy, nanocomposites),
- Bio-based materials & applications
- Energy (Renewable)

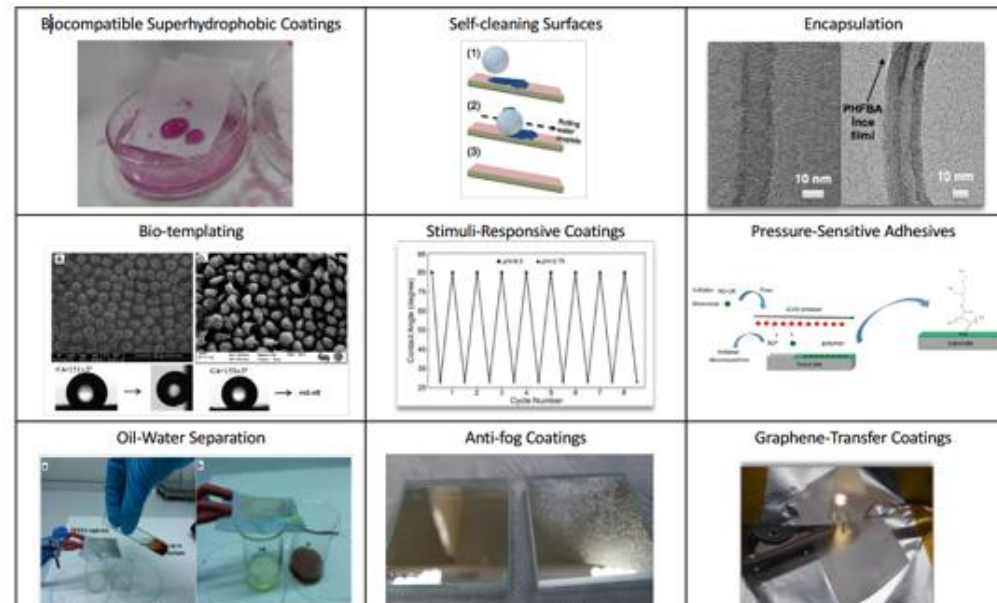
Nanotechnology & Surface Engineering Laboratory



- BCP technology
- Directed self assembly of nanostructures for CMOS Technologies
- Interface Chemistry
- Nanomaterials & Semiconductor (synthesis, patterning, functionalization, surface treat),



- CVD/PVD systems / Processing techniques (films, fibers, coatings, etc).
- Smart surfaces,
- Sensors developments
- Layer-by-layer assembly, electrodeposition



Current Projects

- ✓ **HORIZON-WIDERA-2021-ACCESS-03-01**, **Regeneu-101079123** “Consolidating the Expertise Of Necmettin Erbakan University Towards the Development Of Biofibers For Wound Healing and Tissue Regeneration “
- ✓ **HORIZON-MSCA-2021-SE-01**,—**Bio-Acouis 01086325** “Bio-based Solutions for Improved Acoustic Applications.
- ✓ **COST CA22154-** DAEMON, Data-driven Applications towards the Engineering of functional Materials: an Open Network
- ✓ **COST CA22131-** LUCAS, Supramolecular LUMinescent Chemosensors for Environmental Security
- ✓ **TUBITAK-2247-National Outstanding Researchers Program-** New generation of membranes with advanced efficiencies by using of nanomaterials

Completed projects

- ✓ **H2020-Twinning-2019 EngSurf-Twin-952289** “Reinforcing the Scientific Excellence of Selcuk University in Engineered Surfaces and Films for Emerging Technologies ”
- ✓ **H2020-SPIRE, 2020**, **Waste2Fresh** “Smart Innovative system for recycling wastewater and creating closed loops in textile manufacturing Industrial processes
- ✓ **H2020-MSCA-RISE-2017-778098 NanoFEED** “Nanostructured Carriers for Improved Cattle Feed”
- ✓ **FP7-NMP**, Large Area Molecularly Assembled Nanopattern for Devices (LAMAND)
- ✓ **FP7-INFRA-2012**, The European Solar Infrastructure for Concentrated Solar Power (EU-SOLARIS)
- ✓ **FP7-SME-2012-**“Enhanced chitin-based biosorbents for drinking water purification “ChitoClean”
- ✓ **FP7-SME-2013** “”Ingredients for Food and Beverage industry from a lignocellulosic source (LIGNOFOOD)
- ✓ **COST (CM1101, MP1106, D43, 637 D36)** **ERA-NET**, Bilateral and National projects

We are interesting to the following calls

Topic: HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-01: Integrated approaches for remanufacturing (Made in Europe Partnership) (IA)

Contribution;

Ecodesign approach, circular-by-design approach including repairability, adaptability and exchangeability of components as well as refurbishment and repurposing of products or components

- **Sustainable alternatives to microplastics** in industrial remanufacturing, ensuring that disassembly and separation processes minimize plastic waste and pollution.
- **Application of bio-composites** in circular product design to enhance the eco-design approach, prioritizing renewable and recyclable materials.

Smart, Multi-Functional Coatings for Reuse & Repurposing

- **Functional coatings for durability and reusability** in remanufactured components, extending their lifetime.
- **Bio-based protective layers** that facilitate disassembly and repurposing without chemical-intensive processing.

Topic: HORIZON-CL4-INDUSTRY-2025-01-MATERIALS-51: Development of safe and sustainable by design alternatives to PFAS (IA)

Objective:

Develop **safe, sustainable, and high-performance polymeric hybrid materials** that replace PFAS for multiple industrial applications. By integrating **bio-based, biodegradable, and advanced hybrid polymer technologies**, Sus-PHIA will deliver innovative solutions for, **textiles, filter and separation media, coatings, and packaging** industries

Key Objectives:

- **Develop PFAS-free novel polymeric hybrid materials** with tailored properties such as water repellency, thermal stability, barrier protection, and chemical resistance.
- **Align with EU regulatory frameworks** (e.g., REACH, EU Ecolabel, Eco-design).
- **Optimize biodegradability and recyclability**, preventing microplastic pollution and promoting circular economy principles.
- **ML** to predict the **chemical behavior, stability, and performance** of novel materials and optimisation.

Expected Outputs:

- **Development of next-generation sustainable hybrid polymers** that outperform conventional materials (PFAS) while being non-toxic and eco-friendly.
- **Prototype materials tailored for key sectors** (e.g., textiles, coatings, and packaging).
- **Lifecycle and safety assessment reports** to evaluate the environmental, economic, and social impact of the new materials.
- **Regulatory-compliant formulations** and certification roadmap to accelerate market adoption.
- **Industrial-scale pilot demonstrations.**

No	Partner Name	Type	Country	Role in the Project
01	Selcuk University	RTO	Türkiye	Coordinator
02	Trinity College of Dublin	RTO	Ireland	
03	Fondazione Bruno Kessler	RTO	Italy	
04	Sekeroglu Co.	SME	Türkiye	
05	<i>Universite Catholique De Louvain</i>	RTO	Belgium	

Need partners

RTO: Polymer chemistry, Green Chemistry etc,

SME: Textile, Filter & Separation Media, Coatings

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