Engineered Surfaces and Thin Films for Emerging Technologies

7- 9th February 2024
Selcuk University, Konya, Türkiye

CONFERENCE PROGRAM

EngSurf Twin

SELÇUK ÜNİVERSİTESİ
AMBER Advancing Materials for Impact
FONDAZIONE BRUNO KESSLER

Scope

EngSurf-Twin is a three-year Horizon 2020 project funded by the European Union Research and Innovation programme under the Grant Agreement number **952289**. It is aims to overcome some of the main challenges in engineered surfaces and films with adoption of functionalised nanostructured materials, functional metal oxide films and surfaces for technological applications and practices, especially concerning the engineered nano-assemblies, metal oxide nanostructure arrays, for advanced chemical sensors design and applications. The need for advanced surface engineering and well controlled fabrication has rapidly expanded in line with the demand for emerging applications. Increased understanding of surface phenomena, particularly at a micro- and nanometer scale, has played a fundamental role in the development of many advanced fields and continued learning is required to maintain technological developments. The advanced application of surfaces and surface driven processes are reliant on the strict definition of thin films or assembled layers on substrates as well as their surface properties. These properties can be strictly designed by application of many technological methods such as material deposition, patterning, topographical control (to define surface features), self-assembly, and so on. The surface properties of thin films such as hydrophilicity/hydrophobicity, dissolution, surface area, chemical functionalisation, etc. are critical in improving the material response in many disciplines including material chemistry, energy, catalysis, electronics, biological environments and medical applications.

"**Engineered Surfaces and Thin Films from Emerging Technologies**" is the final activity of the EngSurf-Twin project as an international conference and aims to gather worldwide experts, to discuss the results obtained during the project and to plan future directions on engineered surfaces and films for emerging technologies.

The topics:

- Surface Engineering
- Nanomaterials and Nanotechnology
- Emerging Material Systems
- Optoelectronic Devices
- Magnetic and Spintronic Materials
- Surface Coatings for Corrosion Resistance and Wear Protection
- Flexible and Stretchable Electronics
- Functional Surfaces in Energy Applications
- Self-Cleaning and Anti-fouling Surfaces
- Surface and Thin Film Characterization Techniques
- Computational Modeling and Simulation of Surfaces and Thin Films
- Surface Functionalization
- Molecular Self-Assembly
- Thin Film Growth Mechanisms
- Catalysis on Surfaces
- Nano-devices and microsystems,
- Device fabrication to molecular design
- Microelectromechanical (MEMS) systems and applications
- Nanoscale materials for sensing applications.
- Advances in Multifunctional Materials and Nanofabrication for devices
- High-tech Surface, Characterisation, and New Applications

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In addition, there will be an industry session on the topic of commercialisation of technology, with talks from 3 CEOs of startups who have successfully exploited their research ideas in industrial applications.

Attendance and Registration

The conference attendance is **free** and **open** to students and researchers interested in Engineered Surfaces and Films for Emerging Technologies.
Regular updates are available from https://engsurf-twin.eu/
This 3-day conference is a hybrid event, and will take place on 7-9th February 2024, in Selcuk University, Konya, Türkiye. Deadline for abstract submission and registration is 20.01.2024.
Please submit your abstract and/or expression of interest to join the workshop to eng.surf.twin@gmail.com

Organising Committee

Dear colleagues and friends,
The field of Engineered Surfaces and Films for Emerging Technologies is rapidly developing in recent years. We have decided to gather the community working in this and related fields to present and share their latest achievements. We hope you will join us at this exciting scientific event.

Prof. Dr. Massimo Bersani, Fondazione Bruno Kessler, Italy
Dr. Karl Ackland, Trinity College Dublin/AMBER, Ireland
Prof. Dr. Semahat Kucukkolbasi, Selcuk University, Turkiye
Prof. Dr. Ahmet Kocak, Selcuk University, Turkiye
Prof. Dr. Ilkay Hilal Gubbuk, Selcuk University, Turkiye
Prof. Dr. Mustafa Özmen, Selcuk University, Turkiye
Prof. Dr. Salih Zeki Baş, Selcuk University, Turkiye
Prof. Dr. Gulsin Arslan, Selcuk University, Turkiye
Prof. Dr. Mustafa Acarer, Selcuk University, Turkiye
Prof. Dr. Faruk Özel, Karamanoglu Mehmetbey University, Turkiye
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Dr. Gül Genç Acar, Selcuk University, Turkiye
Res. İnci Ruya Temel, Fondazione Bruno Kessler, Italy

Scientific Committee:

Prof. Dr. Mick Morris, Trinity College Dublin/AMBER, Ireland
Prof. Dr. Massimo Bersani, Fondazione Bruno Kessler, Italy
Prof. Dr. Parvaneh Mokarian, Trinity College Dublin/AMBER, Ireland
Prof. Dr. Mustafa Ersoz, Selcuk University, Turkiye
Prof. Dr. Imren Hatay Patır, Selcuk University, Turkiye
Dr. Karl Ackland, Trinity College Dublin/AMBER, Ireland

Prof. Dr. Mahmut Kuş, Konya Technical University, Turkiye
Prof. Dr. Mustafa Karaman, Konya Technical University, Turkiye
Assoc. Prof. Dr. Serpil Edebali, Konya Technical University, Turkiye

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Res. Asst. Didem Aydın, Selcuk University, Turkiye
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Res. Asst Ömer Faruk Tunali, Bursa Technical University, Turkiye
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Res. Talha Kuru, Selcuk University, Turkiye
Res. Yiğit Osman Akyildiz, Selcuk University, Turkiye
Res. Kubra Turgut, Selcuk University, Turkiye

Confirmed speakers

(R denotes remote contribution)

Prof. Christophe Sinturel ICMN (Interfaces, Confinement, Matériaux et Nanostructures), France	Nanopatterned thin films from block-copolymer self-assembly http://www.icmn.cnrs-orleans.fr/?Nanostructuration-de-polymeres
Prof. Dr. Richard Hall-Wilton Fondazione Bruno Kessler, Italy	Developing Research Capacity and Excellence in a Research Institute Richard Hall-Wilton - FBK Magazine
Prof. Vesselin Paunov, Nazarbayev University, Kazakhstan	Bioimprint aided cell recognition of human and bacterial cells: Perspectives and applications" https://ssh.nu.edu.kz/faculty/vesselin-paunov/
Prof. Juhana Jaafar, Faculty of Chemical and Energy Engineering, Universiti Teknologi *Malaysia*	Nanofiber Coated Membranes https://research.utm.my/amtec/assoc-prof-dr-juhana-jaafar/
Prof. Dr. Massimo Bersani Fondazione Bruno Kessler, Italy	New Advancements in Mass Spectrometry Characterization Bersani Massimo | LinkedIn
Dr. Alberto Alvarez Fernandez, Gipuzkoa Fellow, Materials Physics Centre (MFC), Donostia–San Sebastian (Spain)	Surface Engineering: Advancing Biosensing Technologies via Block Copolymer Self-assembly https://cfm.ehu.es/team/alberto-alvarez-fernandez/
Caroline Johnson FBK-SD Fondazione Bruno Kessler, Italy	Nanogeoscience: using nature as a proxy to inform nanoscience and nanotechnology advances
Prof. Dr. Seda Keskin Avci Koc University, Türkiye	Computational Design of Porous Materials for Energy Applications SEDA KESKİN AVCI | Prof. Dr. Seda Keskin Avcı (ku.edu.tr)
Prof. Dr. Claudia Delgado Simão Eurecat Technology Center, Spain	Advanced technologies for the development of sensor devices in healthcare applications Claudia Delgado Simão - Google Scholar
Prof. Dr. Onder Metin Koc University, Türkiye	Two-dimensional (2D) Semiconductors and Their Heterojunctions as Photocatalysts for Sustainable Chemical Conversions https://science.ku.edu.tr/bolumler/kimya/akademik-kadro/show/ometin/
Dr. Colm Delaney, Assistant Professor of Inorganic and Materials Chemistry, Trinity College Dublin	Exploiting nanocomposite materials for sensing and actuation https://ambercentre.ie/people/colm-delaney/
Prof. Dr. Aysegul Uygun Oksuz Suleyman Demire University, Turkiye	Advancements in Magnetic Au-Ni Nanomotor-Based Drug Delivery for Breast Cancer Treatment https://ayseguluygun.com/
Prof. Dr. M. Serdar Onses Erciyes University, Türkiye	Sustainable Routes to Multifunctional Anti-Biofouling Surfaces Prof. Onses - (onseslab.com)
Prof. Dr. Sezgin Bakırdere Yıldız Teknik University, Türkiye	Different Nanomaterials used in Analytical Chemistry for the Development of Treatment and Preconcentration Strategies Prof. Sezgin BAKIRDERE | AVESİS (yildiz.edu.tr)

Dr. Brendan Rice, CEO and co-founder, Senoptica	Senoptica – the evolution of a solution to the problem of Global fresh packaged food waste. Team | Senoptica.com
Dr. Mohammad Reza Ghaani, Assistant Professor, School of Engineering, Trinity College Dublin and co-founder, NanobOx	Nanobubble Breakthrough: From Lab to Industry Leader https://onprem.tcd.ie/civileng/people/rezagham/ https://nanobox.ie/
Colm McGarvey, CEO and co-founder, Selio Medical	Medical device innovation: from unmet clinical need to market Selio Medical – Medical Device Innovation
Prof. Dr. Gökhan Demirel Gazi University, Türkiye	Physical Vapor Deposition: A Versatile Tool for Fabrication of Nanostructured Functional Films Prof. GÖKHAN DEMİREL | AVESİS (gazi.edu.tr)
Dr. Yavuz Nuri Ertas Erciyes University, Türkiye	Cancer Treatment via Nanoparticle Enhanced Radiotherapy Asst. Prof. YAVUZ NURİ ERTAŞ | AVESİS (www.ertaslab.com)
Prof. Dr. Filiz Kurulay Hacettepe University, Türkiye	Micro/Nanomaterial Technologies for Biomedical Applications: Sensing and Drug Delivery https://avesis.hacettepe.edu.tr/filizkur
Giancarlo Pepponi FBK-SD Fondazione Bruno Kessler, Italy	Radiation detectors for X-Ray analytical science at FBK
Dr. Sara Hejazi ISR Fondazione Bruno Kessler, Italy	Entangled societies: An anthropological perspective on quantum physics
Prof. Dr. Gulfeza Kardas Cukurova University, Türkiye	Nickel-based cathode catalyst for hydrogen production at an anion-exchange water electrolyser https://avesis.cu.edu.tr/gulfeza
Dr. Erhan Zor, Necmettin Erbakan University, Türkiye	Bacterial nanocellulose as a novel detection pad material for lateral flow assays: An ongoing study https://www.erbakan.edu.tr/personel/4299/erhan-zor

Workshop program (7-9th February 2023)

Venue: Selcuk University, Sultan Alparslan Culture Center, Malazgirt Hall

***Note**: Times are based on **local Turkish time** (two hours ahead of Central Eupoean time (CET))*

Note: Remote talks denoted in brown

Zoom Link: *https://zoom.us/j/92673087385*

Day 1:	**Wednesday, 7.02.2023 Chair: Prof. Dr. Sezgin Bakırdere-Prof.Dr. Mahmut Kus**
9:15- 9:30	Welcome from Mustafa Ersöz
9:30- 10:20	Prof. Christophe Sinturel Nanopatterned thin films from block-copolymer self-assembly
10:20-11.10	Prof. Dr. Richard Hall-Wilton Developing Research Capacity and Excellence in a Research Institute
11:10-11.30	COFFEE BREAK
11:30-12:10	Prof. Dr. Massimo Barzani New Advancements in Mass Spectrometry Characterization
12:10-12:50	Prof. Dr. Onder Metin Two-dimensional (2D) Semiconductors and Their Heterojunctions as Photocatalysts for Sustainable Chemical Conversions
12:50-13:30	LUNCH
	Chair: Prof. Dr. Onder Metin - Prof. Parvaneh Mokarian Tabari
13:30- 14:00	Dr. Alberto Alvarez Fernandez Surface Engineering: Advancing Biosensing Technologies via Block Copolymer Self-assembly
14:00-14:30	Dr. Colm Delaney Exploiting nanocomposite materials for sensing and actuation
14:30-15:00	Prof. Dr. Juhana Jaafar Nanofiber Coated Membranes
15:00-15:20	COFFEE BREAK
	Chair: Prof. Dr. M. Serdar Onses -Prof.Dr. Aysegul Uygun Öksüz
15:20-16:00	Prof. Dr. Caludia Delgado Simao Advanced technologies for the development of sensor devices in healthcare applications
16:00-16:40	Prof. Dr. Seda Keskin “Computational Design of Porous Materials for Energy Applications
16.40-16.50	Oksana Kostiv Preparation of novel microparticles of Transcarpathian clinoptilolite and use of different approaches for their functional activation
16.50-17.00	Radouane En-nadir Efficiency of InGaN/GaN based Intermediate Band Solar Cell as Promising Photovoltaic Technology
17:00-17:10	Hüseyin Ecevit Investigation of Ciprofloxacin Antibiotic Degradation by Sodium Borohydride Using Halloysite Nanotube Doped With Fe3O4 and Silver Nanoparticles as Catalyst
17:10-18:00	Poster Presentations

Zoom Link: *https://zoom.us/j/97028037229*

Day 2:	**Thursday 8.02.2023,**
	Chair: Prof. Dr. Richard Hall Wilton
9:30 -10:10	Dr. Giancarlo Pepponi Radiation detectors for X-Ray analytical science at FBK
10:10-10.40	Dr. Sara Hejazi Entangled societies.: An anthropological perspective on quantum physics
10:40-11.00	Caroline Johnson Nanogeoscience: using nature as a proxy to inform nanoscience and nanotechnology advances
11:00-11.230	COFFEE BREAK
	Chair: Prof.Dr. Filiz Kuralay
11:20- 12:00	Prof. Dr. Aysegul Uygun Oksuz Advancements in Magnetic Au-Ni Nanomotor-Based Drug Delivery for Breast Cancer Treatment
12.00– 12:40	Prof. Vesselin Paunov Bioimprint aided cell recognition of human and bacterial cells: Perspectives and applications
12:40-13:30	LUNCH BREAK
	INDUSTRY SESSION – From idea to commercialization – **Chair: Dr. Karl Ackland**
13:35-14:00	Brendan Rice, Senoptica Senoptica - the evolution of a solution to the problem of Global fresh packaged food waste
14:00-14:30	Dr. Mohammad Reza Ghaani, NanobOx Nanobubble Breakthrough: From Lab to Industry Leader
14:30- 14:45	COFFEE BREAK
14:45-15:15	Colm McGarvey, Selio Medical Medical device innovation: from unmet clinical need to market
15:15-15.40	COFFEE BREAK
	Chair: Prof. Dr. Gülfeza Kardas -Dr. Yavuz Nuri Ertas -
15.40-16:10	Prof. Dr. Filiz Kuralay Micro/Nanomaterial Technologies for Biomedical Applications: Sensing and Drug Delivery
16:10-16:40	Prof. Dr. Gökhan Demirel Physical Vapor Deposition: A Versatile Tool for Fabrication of Nanostructured Functional Films
16:40-17:10	Prof. Dr. Gulfeza Kardas Nickel-based cathode catalyst for hydrogen production at an anion-exchange water electrolyser

Zoom Link: *https://zoom.us/j/97385452831*

Day 3:	**Friday, 9.02.2023**
	Chair: Prof. Dr. Mustafa Karaman-Prof. Dr. Imren Hatay Patir
9:30-10:10	Prof. Dr. Sezgin Bakırdere Different Nanomaterials used in Analytical Chemistry for the Development of Treatment and Preconcentration Strategies
10:10-10.50	Prof. Dr. M. Serdar Onses Sustainable Routes to Multifunctional Anti-Biofouling Surfaces

10:50-11:10	COFFEE BREAK
	Chair: Prof. Dr. Serpil Edebali, Prof. Dr. Ilkay Hilal Gubbuk
11:10- 11:45	Dr. Yavuz Nuri Ertas Cancer Treatment via Nanoparticle Enhanced Radiotherapy
11:45-12:15	Assoc. Prof. Dr. Erhan Zor, Bacterial nanocellulose as a novel detection pad material for lateral flow assays: An ongoing study
12:15-12.30	Dilek Bölükbaş Synthesis, characterization of biochar from Pyracantha coccinea, and application in cationic dye elimination
12:30-13:30	Wrap up and lunch
13:30-13:45	Tayoub Hadijira P&O Algorithm Based Maximum Power Point Tracking (MPPT) Technique for Solar Photovoltaic Applications
13:45-14:00	Ahlam Harhouz An optical plasmonic micro-resonator based on MIM waveguide coupled with rectangular cavity for sensing application
14:00- 14:15	Evrim Celik Madenli Modification of Ceramic Membranes by Dip Coating
14:15-14:30	Sibel Uygun Batgi Synthesis and Characterization of Pt-Ir/CNT Alloy Catalysts at Various Molar Ratios for Direct Borohydride Fuel Cells
14:30-15:30	Networking for Horizon Europe program (2024)
15:30	City Tour