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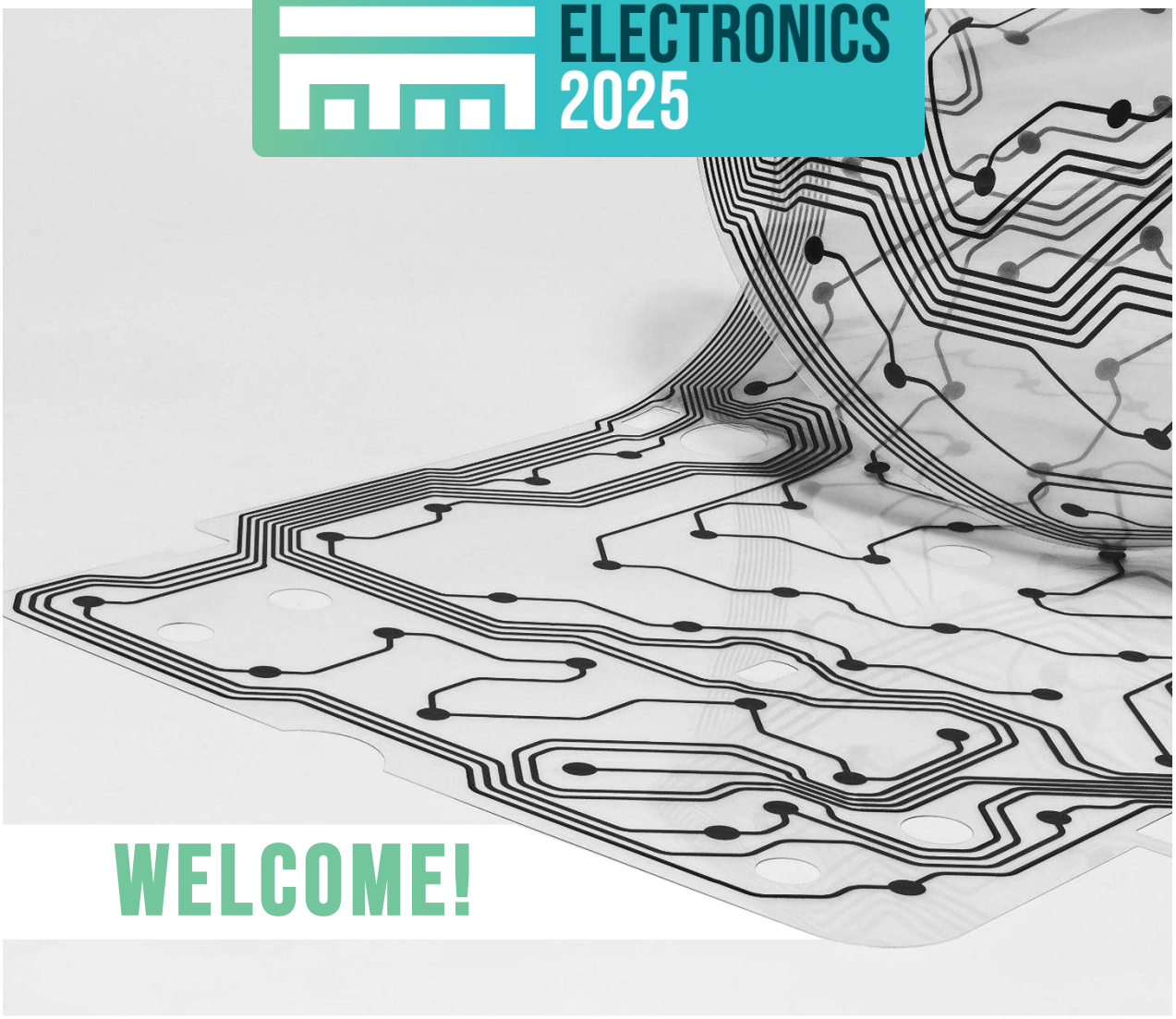
SUSTAINABLE PRINTED ELECTRONICS 2025



WELCOME!

TUESDAY 23RD TO THURSDAY 25TH OF SEPTEMBER 2025

KEDEA BUILDING,
ARISTOTLE UNIVERSITY OF THESSALONIKI, GREECE

www.exelisis-events.gr

CONFERENCE CHAIRS

SUSTAINABLE PRINTED ELECTRONICS 2025 | THESSALONIKI

WELCOME



Prof. Dr. Dimitrios Bikiaris | Dr. Zachary J. Davis | Dr. Ioanna Deligkiozi

Aristotle University of Thessaloniki | Danish Technological Institute | Axia Innovation GmbH

Dear colleagues and friends,

*We are pleased to announce the international conference SPE2025 – Sustainable Printed Electronics: Sustainability and Challenges that will be held at the **KEDEA Building** in Thessaloniki, Greece, from September 23rd to 25th, 2025. This event is organised by EXELISIS and supported by the **Aristotle University of Thessaloniki** (AUTH), the **Danish Technological Institute** (DTI) and **AXIA Innovation GmbH,** who are partners in the SaP EU project.*

Printed electronics (PE) are becoming increasingly prevalent in various aspects of our daily lives, including flexible displays, energy harvesting devices, wearable sensors, smart labels, consumer electronics, and home appliances. Considering that less than 40% of electronic waste is currently recycled in the EU, it is necessary to develop the next generation of PE that are reusable, recyclable, and manufactured from biobased and/or biodegradable materials. SPE2025 will focus on the latest cutting-edge advancements in PE and their applications, with an emphasis on sustainability across their entire life cycle.

We are excited to explore novel, greener manufacturing techniques for large-scale and high-speed mass production of low-cost PE, and highlight breakthroughs in the employment of advanced materials (nanoparticles, carbon dots, conductive nanocomposites, biobased and biodegradable polymeric substrates) that enable reuse or high-quality recycling, thereby promoting sustainability.

We welcome presentations on high-performance ink formulations containing biobased components, including adhesives and solvents, that facilitate the extraction and reuse or recycling of precious metals. Primary, mechanical, and chemical recycling methods, including on-demand de-bonding, will also be discussed. We will demonstrate innovative applications of printed, flexible, and stretchable devices. Finally, we will address the integration of Safe and Sustainable by Design (SSbD) methodologies and circular economy principles in PE.

We look forward to welcoming you to Thessaloniki!

Prof. Dr. Dimitrios Bikiaris, Dr. Zachary J. Davis & Dr. Ioanna Deligkiozi

Sustainable Printed Electronics 2025 Chairs

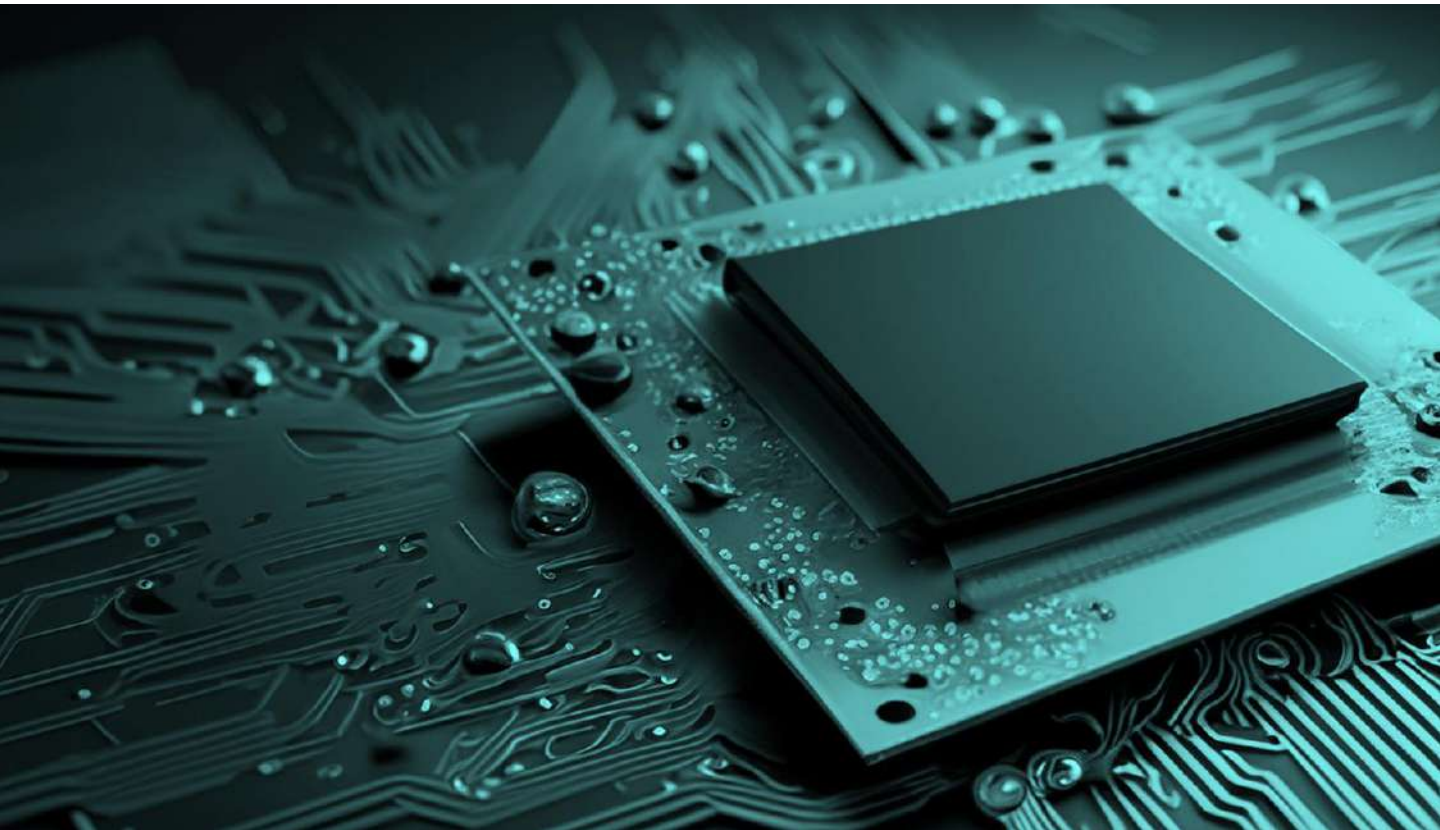
CONFERENCE DETAILS

SESSIONS

SUSTAINABLE PRINTED ELECTRONICS 2025 | THESSALONIKI

SESSIONS AND THEMATIC AREAS

1.	**Prof. Gianmarco Griffini** (Politecnico di Milano)	Printed electronics & manufacturing
2.	**Prof. George Hadziioannou** (University of Bordeaux)	Advanced Materials for PE
3.	**Anna Marie Gorman** (CPI)	Ink formulations
4.	**Dr. Zachary J. Davis** (Danish Technological Institute)	Clustering Session
5.	**Dr. Panteleimon Panagiotou** (BayFor)	Sustainability Circularity, SSbD, market and end of life
6.	**Prof. Nikos Pleros** (Aristotle University of Thessaloniki)	Devices applications



SESSIONS

SUSTAINABLE PRINTED ELECTRONICS 2025 | THESSALONIKI

1. PRINTED ELECTRONICS & MANUFACTURING

This session will cover the latest advancements in the manufacturing processes of printed electronics, including techniques like inkjet printing, screen printing, and gravure printing. It will also discuss the integration of electronic components onto various substrates.

Session 1 Key Words - flexible electronics, organic Electronics, Thin-film electronics Conductive synthetics/polymer electronics, 3D structural electronics, large-area electronics, printing Technologies, Inkjet printing, aerosol-jet printing, electrohydrodynamic printing, screen printing, printing processes - additive manufacturing, self-assembly manufacturing, 3D printing, roll-to-roll manufacturing.

2. ADVANCED MATERIALS FOR PE

This session will focus on the development and use of advanced materials in printed electronics, such as conductive polymers, nanomaterials, and flexible substrates. It will explore how these materials enhance the performance and functionality of printed electronic devices.

Session 2 Key Words - Organic, inorganic, Metallic Nanoparticle Ink, carbon dots, graphene, multiwalled nanotubes, conductive polymers, nanocomposites, doped semiconductors, printed substrates, Polymers and their composites for flexible electronics, PET PLA substrates, PDMS, TPU, other polymers, Conductive polymers and polymeric composites, Bio-Based Polymeric Substrates.

3. INK FORMULATIONS

This session will delve into the formulation of inks used in printed electronics, including the selection of materials, the impact of different formulations on device performance, and the challenges associated with achieving consistent and high-quality prints.

Session 3 Key Words – functional materials and nanomaterials, conductivity, adhesives, curing methods, green solvents, 2D-Material Ink, D-Material Ink, Molecular Ink, UV-Curable Ink, solvent-based materials, functional inks, functional inks with sustainable and biobased polymer Metal Oxide Nanoparticle Ink, Liquid Metal-Based Inks, Direct Ink Writing (DIW), Solution Processing Techniques.

4. CLUSTERING SESSION

This session will include insightful presentations from several EU-funded project active in the field of the development of printed electronics, among which Sustain-a-print, SUINK, CircEL Paper, HyPELignum and REFORM EU projects will be highlighted.
Session 4 Key Words - flexible electronics, stretchable electronics, circular economy, green manufacturing, conductive inks, Sustainable circuit boards, additive manufacturing, functional electronics.

5. SUSTAINABILITY CIRCULARITY, SSBD, MARKET AND END OF LIFE

This session will discuss the sustainability and circular economy principles applied to printed electronics. It will cover strategies for designing for sustainability (SSbD), market trends, and the economic impact of sustainable practices in the industry.
Session 5 Key Words - governance, market standards, life cycle analysis, safe and sustainable by design, roadmaps, policies, Circular Economy, Sustainability Strategies, Market Trends, Economic Impact, SSbD (Safe and Sustainable by Design).

6. END USER DEVICES APPLICATIONS

This session will showcase various applications of printed electronics in devices such as sensors, displays, batteries, and wearable technology. It will highlight real-world examples and discuss the potential for future innovations.
Session 6 Key Words - flexible and stretchable device, printed device, stretchable device, energy devices, conductive electrodes, applications of 3D-Printing Technology, Power supply, energy, consumer electronics, information display, flexible sensors, integrated circuit, consumer electronics, textiles-clothing, packaging, automotive, healthcare, pharmaceuticals, patient tracking to smart drug packaging, smart buildings. Bioelectronics and biosensors.

CONFERENCE TIMETABLE

SUSTAINABLE PRINTED ELECTRONICS 2025 | THESSALONIKI

SUSTAINABLE PRINTED ELECTRONICS 2025

DAY 1 - TUESDAY 23 SEPTEMBER 2025

TIME	PRESENTATION TITLE	PRESENTER
	WELCOME	
16:00 - 17:30	Registration	-
17:30 - 18:00	***Opening Talk*** Advanced materials for printable electrochemical energy devices	**Prof. Vassilios Binas**
18:00 - 20:00	Welcome drink	-

CONFERENCE TIMETABLE

SUSTAINABLE PRINTED ELECTRONICS 2025 | THESSALONIKI

DAY 2 - WEDNESDAY 24 SEPTEMBER 2025

TIME	PRESENTATION TITLE	PRESENTER
S1: Printed Electronics & Manufacturing | CHAIRED: Dr. Zachary J. Davis (DTI)		
09:00 - 09:45	Polymers for light management in solar energy systems: harnessing multifunctionality for sustained performance	**Prof. Gianmarco Griffini** (Politecnico di Milano)
09:45 - 10:05	Aerosol Jet Printing: Technique Overview and Proof-of-Concept Demonstrations for Additive Manufacturing	**Maria Karani** (CERTH)
10:05 - 10:25	Halftone-Printing to Control the Resistance in Arbitrarily Shaped Areas	**Dr. Vanessa Tischler** (Alpen-Adria Universität Klagenfurt)
10:25 - 10:55	Furanoate polyesters: New biobased alternative substrates for printed electronics	**Prof. Dimitrios Bikiaris** (Aristotle University of Thessaloniki)
10:55 - 11:25	**Coffee Break & Session Poster**	
S2: Advanced Materials for PE | CHAIRED: Prof. Dimitrios Bikiaris (AUTH)		
11:25 - 12:10	Polymers, electronics and the genesis of polymer printed flexible electronics	**Prof. George Hadziioannou** (University of Bordeaux)
12:10 - 12:30	Development of green Lignin-MWCNTs hybrids for sustainable conductive materials	**Dr. Sofia Paraskevi Makri** (Creative Nano)
12:30 - 12:50	Carbon Nanofiber-Polylactic Acid LTO Composite filaments for the fabrication of 3D Printed Lithium ion Battery	**Muhammad Saqlain Iqbal** (University of Bari)
12:50 - 13:10	High-performance biobased substrates for printed electronics: The role of copolyesters based on PLA and poly (ethylene azelate)	**Rafail O. Ioannidis** (Aristotle University of Thessaloniki)
13:10 - 14:10	**Lunch Break**	

CONFERENCE TIMETABLE

SUSTAINABLE PRINTED ELECTRONICS 2025 | THESSALONIKI

SUSTAINABLE PRINTED ELECTRONICS 2025

DAY 2 - WEDNESDAY 24 SEPTEMBER 2025

TIME	PRESENTATION TITLE	PRESENTER
S3: Ink Formulations| CHAIRED: Dr. Cristian Rein (DTI)		
14:10 - 14:55	Closing the Loop: Sustainable and Cost-Effective Glucose Biosensors Through Circular and Digital Design	**Anna Marie Gorman** (CPI)
14:55 - 15:15	Novel PLA nanocomposites based on Ag and Cu nanoparticles: The Next Generation of Printed Electronics	**Lazaridou Kyriaki** (Aristotle University of Thessaloniki)
15:15 - 15:35	Washable Graphene-based Conductive Coating: The Impact of TPU Segmental Architecture on its final performances	**Ilaria Improta** Gennaro Rollo (National Research Council - CNR)
15:35 - 15:55	From Copper Particles into Conductive Inks for Sustainable Membrane Switches	**Dr. Sol Gutierrez** (Danish Technological Institute)
15:55 - 16:25	**Coffee Break**	
S4: Clustering Session | CHAIRED: Dr. Michele Ponzelli (AXIA INNOVATION GmbH)		
16:25 - 16:45	Sustainable and Circular Materials for Printed Electronics: The Sustain-a-Print Project	**Dr. Zachary J. Davis** (Danish Technological Institute)
16:45 - 17:05	Towards sustainable End-of-Life strategies for printed electronics: Recycling and material recovery approaches from the REFORM project and beyond	**Dr. Max Torrellas** (AIMPLAS)
17:05 - 17:25	Electronics from renewables: the HyPELignum project	**Kealie Vogel** (EMPA)
17:25 - 17:45	Printed Circuit Boards based on Paper? Challenges that have to be considered and potential solutions	**Gerhard Domann** (Fraunhofer ISC)
17:45 - 18:05	Sustainable conductive polylactic acid ink for digital printing	**Leire Sanchez-Duenas** (TEKNIKER)
20:30 GALA DINNER		

CONFERENCE TIMETABLE

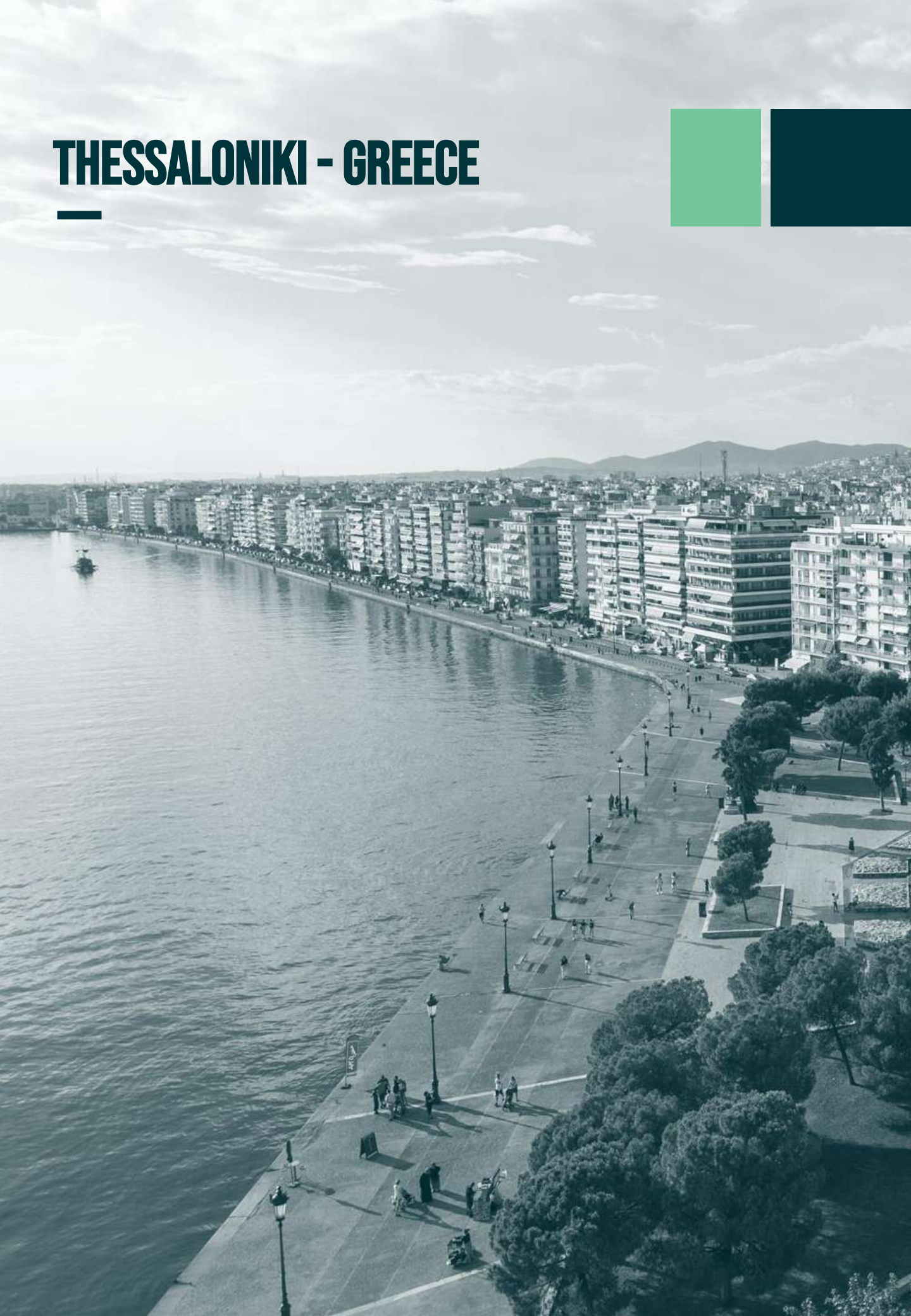
SUSTAINABLE PRINTED ELECTRONICS 2025 | THESSALONIKI

SUSTAINABLE PRINTED ELECTRONICS 2025

DAY 3 - THURSDAY 25 SEPTEMBER 2025

TIME	PRESENTATION TITLE	PRESENTER
S5: Sustainability Circularity, SSbD, market and end of life | CHAIRED: Dr. Ioanna Deligkiozi (AXIA INNOVATION GmbH)		
09:00 - 09:45	EU-funds in the scope Horizon Europe Framework funding for Research	**Dr. Panteleimon Panagiotou** (BayFor)
09:45 - 10:05	Life cycle assessment of two ecodesigned printed electronic devices	**Lou Bernard** (Lomartov)
10:05 - 10:25	Lignin as component of sustainable printed electronics: An overview of IP landscape	**Sotiria Tzampazidou** (AXIA Innovation)
10:25 - 10:45	Chemical Recycling of PLA and Its Copolyesters with Poly(Ethylene Azelate) via Microwave-Assisted Alkaline Hydrolysis	**Nikos Bikiaris** (Aristotle University of Thessaloniki)
10:45 - 11:05	Implementing Safe-and-Sustainable-by-Design (SSbD) in Early-Stage Materials Development: Insights from the GreenOmorph Project	**Dr. Elisabeth Schwarz-Funder** (JOANNEUM RESEARCH)
11:05 - 11:35	**Coffee Break & Session Poster**	
S6: Devices & Applications | CHAIRED: Daniel Izquierdo Bote (Metrohm DropSens)		
11:35 - 12:20	Plasmonics and Photonics for High-Performance Biochemical and Environmental Sensing Applications	**Prof. Nikos Pleros** (Aristotle University of Thessaloniki)
12:20 - 12:40	Printed Cellulose-Based Sensors for Process Optimisation and Structural Health Monitoring	**Arunjunai Raj Mahendran** (WOOD KPLUS)
12:40 - 13:00	A Sustainable Printed Platform for Sweat-Based Kidney Disease Monitoring	**Daniel Corzo** (Silicon Austria Labs)
13:00 - 13:20	Eco-Conscious Printed Sensors on Algae-based and Cellulose Substrates for Health and Environmental Monitoring	**Emily Bezerra** (Silicon Austria Labs)
13:20 - 14:20	**Lunch Break**	

THESSALONIKI - GREECE



IN A NUTSHELL

SUSTAINABLE PRINTED ELECTRONICS 2025 | THESSALONIKI

THESSALONIKI: A MUST VISIT TOWN

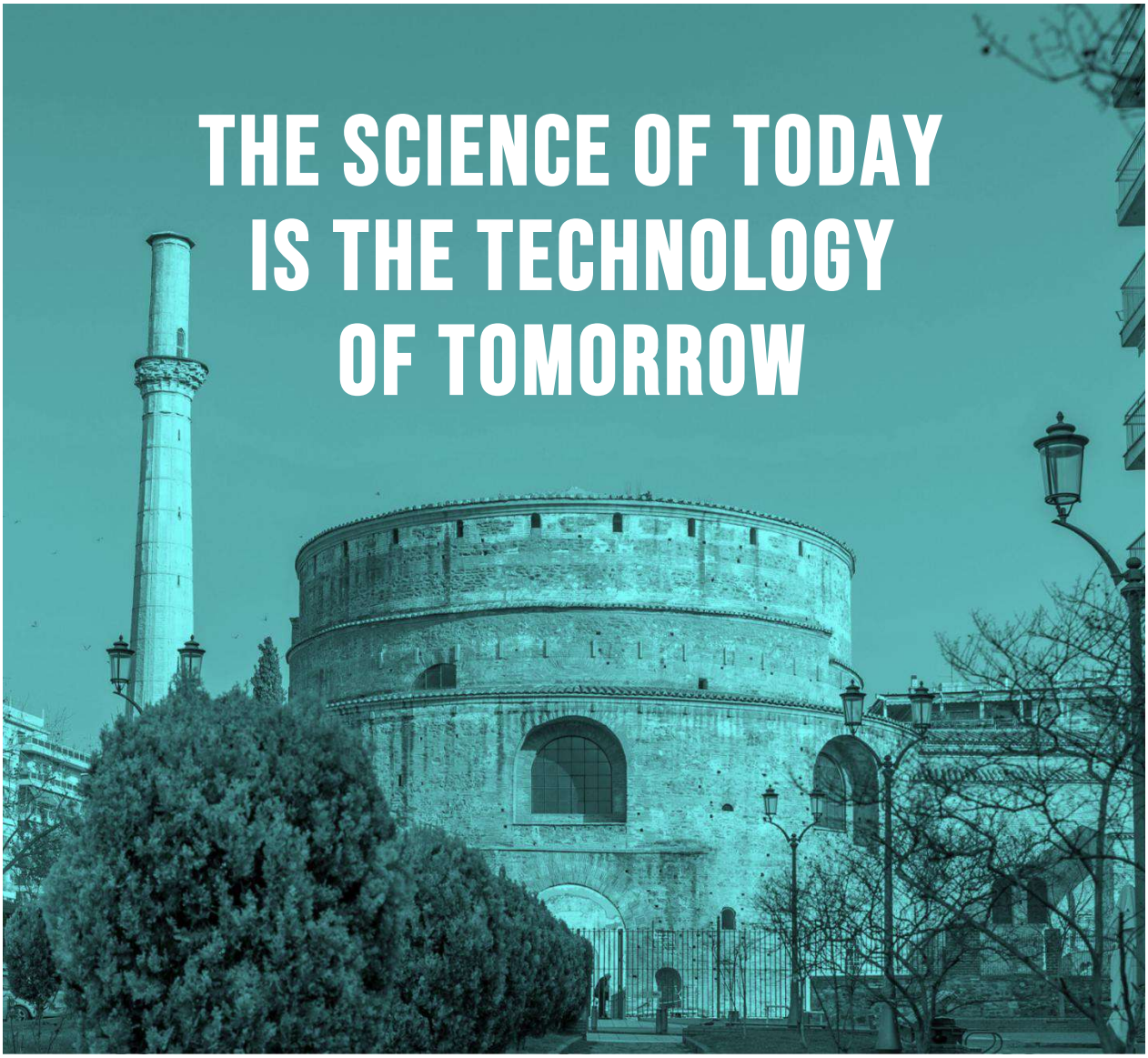
Friendly, beautiful, and with a multitude of cultural attractions, the second-largest city in Greece is located in its northernmost part. For over 2,000 years it has been a crossroads of cultures reflected in its spicy flavours with influences from the East, France, and the Balkans, as well as in its cosmopolitan atmosphere.

The city had and continues to have the opportunity to be reborn and this is the key feature of Thessaloniki. The foggy sunsets, the spice stalls, the taverns in the bazaars, the traces of Byzantium, the grandeur, and the Ottoman era, all survive among the modern constructions covered with street art, define the mixture of historicity and urban culture, and are a trademark of Thessaloniki.

HISTORICAL CENTER

SUSTAINABLE PRINTED ELECTRONICS 2025 | THESSALONIKI

SUSTAINABLE PRINTED ELECTRONICS 2025



Thessaloniki is a city that is easy to walk and enjoy the sights and the excellent food. The area around Thessaloniki is one of the most fertile in Greece, with huge wealth in the production of local products and the sea is an important source of food in Thessaloniki. The city stretches around a coastline arch at the top of Thermaikos Gulf. The main area of interest for visitors is along the coast between the port and the emblematic monument of the city, the White Tower as well as in the area that rises internally parallel to the Roman-Byzantine walls of the city to the Upper Town. Relaxed and deeply historic, the second city is also the gateway to some of the most fascinating places in Northern Greece, but at the same time a remarkable destination in itself.

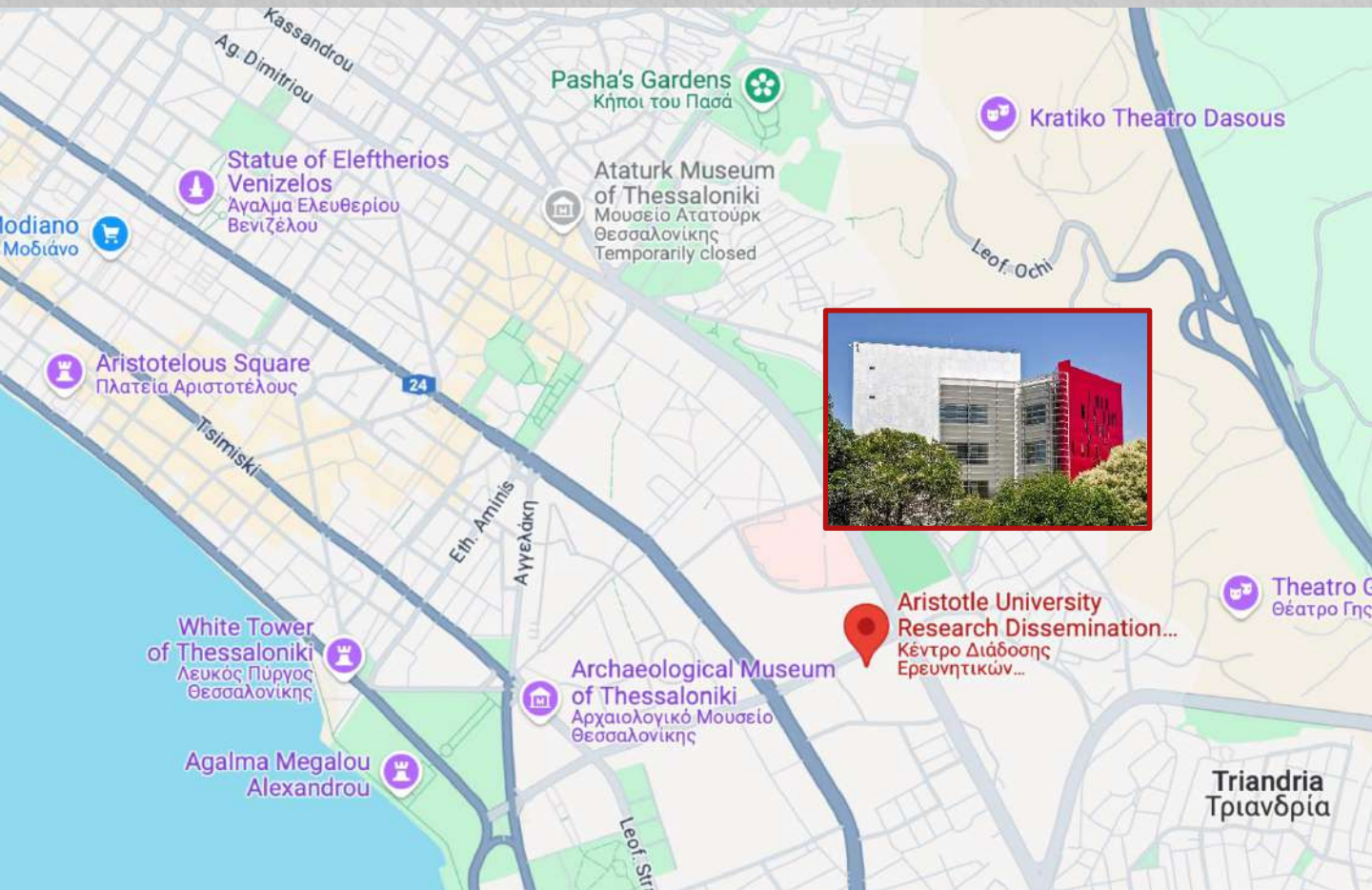
VENUE

The full address of the Research Dissemination Center is:

AUTH Research Committee Research Dissemination Center Aristotle University Campus
3rd Septemvriou str. 54636 Thessaloniki
GREECE

YOUR WAY TO THE RESEARCH DISSEMINATION CENTER

The Research Dissemination Center (http://kedea.rc.auth.gr/documents/kedea_brochure_en.pdf), is a characteristic red building that you cannot miss.



METRO

The nearest metro station is called “PANEPISTIMIO” and it’s a 5’ walking distance.

BUS

The serving line from the airport to the city is **No78**. More info on routes at: http://www.oasth.gr/service/routes_eng.php

TAXI

The easiest way to get there is by taxi, approx. 25-30 Euros from the airport to the University.

TRANSPORTATION

BUS

The Organisation of Urban Transportation of Thessaloniki (OASTH) is one of the largest transport organisations in Greece and provides high-quality services while continually striving to improve them. Pre-printed regular tickets may be purchased at OASTH ticket selling booths, at 1000 points of sale throughout the metropolitan area of Thessaloniki, or at ticket vending machines on-board buses (exluded bus lines 50 CULTURAL ROUTE, 01X & 01N AIRPORT – INTERCITY BUS TERMINAL).

TAXI

There are approximately 2,000 taxis in Thessaloniki. Taxi rankings are available in many parts of the city and at major entry stations such as the Airport, the Railway Station, the Intercity Bus Station ”Macedonia”, the Port, which you will find taxis 24 hours a day.

The color of the taxi in Thessaloniki is dark blue with white sky.

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