D8.2 Intermediate Report on Dissemination & Communication

Date: 30-06-2019

Multiscale Modelling and Characterization to Optimize the Manufacturing Processes of Organic Electronics Materials and Devices (CORNET) Grand Agreement: 760949



| Project co-funded by the European Commission within Horizon 2020 Research and Innovation Programme | | | | |
|--|---|---|--|--|
| | Dissemination Level | | | |
| PU | Public | Х | | |
| PP | Restricted to other programme participants (including the Commission Service | | | |
| RE | Restricted to a group specified by the consortium (including the Commission Services) | | | |
| CO | Confidential, only for members of the consortium (excluding the Commission Services) | | | |



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| Consisting of Coordinator: | Aristotle University of Thessaloniki (AUTh) | Greece |
|----------------------------|---|-------------|
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| | University of Ioannina | Greece |
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| | Fluxim | Switzerland |
| | Aixtron SE (AIXTRON) | Germany |
| | National Physical Laboratory | UK |
| | Organic Electronic Technologies Private Company IKE (OET) | Greece |
| | Centro Ricerche FIAT SCPA (CRF) | Italy |
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| | Hellenic Organic & Printed Electronics Association | Greece |

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1. Introduction



CORNET is an ambitious project which will create an effective Open Innovation Environment (OIE) combining world-class expert academic, research and industrial entities from 6 countries in multiscale (nano- to macroscale) characterization and modeling to link the Organic/Large Area Electronic (OLAE) materials nano-structure with the macroscopic functionality of devices (Organic Photovoltaics–OPVs, Perovskite PVs–PPVs, Organic Light Emitting Diodes–OLEDs) and to optimize their fabrication processes by R2R printing and gas transport (OVPD) technologies.

The CORNET OIE will establish strong links with existing European clusters, industrial associations, and European networks and it will strongly increase the OLAE speed of materials/device development. CORNET will develop a sustainable Database with standard & industrially accepted protocols for material & device characterization, modelling and manufacturing, which will be linked with existing databases, and will be established as a central European platform through a credible Business Plan (BP) and strategy.

An essential part of the project activities and a prerequisite in order to achieve the impacts, it is the dissemination and communication of the activities, solutions and results and to the increase of the visibility of the project to academic, research, and most importantly, to the industrial stakeholders, in regional, national, European and global levels. The dissemination and communication of the project results has been performed through the realization of presentations in international events, submission of publications, and connections with European networks, clusters and associations to establish communication channels.

In the following, we provide an overview of the project dissemination activities during the first 18 months of the project.

2. Dissemination Strategy

2.1. Tools for Dissemination and Communication

The achievement of the CORNET impacts will be realized through an effective dissemination strategy of the project results. The strong commitment of the project partners ensures dissemination activities that will be adjusted to the real market needs and towards a wide target group of potential customers. Also, the dissemination strategy will take into account all the IPR & Confidentiality Issues.



Fig. 1 Dissemination tools and approaches that are followed by the project partners.

2.2. International Conferences

The project targets a list of international events (conferences, exhibitions, etc), which is shown below (nonexhaustive list). Most of these events are precursors for the dissemination and communication of the project results, and for the connection with industrial, academic and research communities. The following table shows some of the main international scientific conferences, workshops and exhibitions to which the CORNET partners will attend during the course of the project. This list is continuously updated by the partners based on new events in which the partners will participate in order to disseminate and communicate the results and innovations of CORNET.

| Event | Place | Type of Event | Targeted Audience |
|--|--------------------------------------|--|---|
| NANOTEXNOLOGY | Thessaloniki, Greece | Int. Conference & Exhibition | Scientific community, Research, Industry |
| ISFOE | Thessaloniki, Greece | Int. Symposium on OEs | Scientific community, Research, Industry |
| NN | Thessaloniki, Greece | Int. Conference on Nanosciences & Nanotechnologies | Scientific community, Research, Industry |
| LOPE-C | Munich, Germany | Int. Conference & Exhibition | Industry |
| IDTechEx Printed Electronics Europe | Berlin, Germany | Int. Conference & Exhibition | Industry, Research |
| E-MRS | (Strasbourg, Nice, Lille), France | Scientific Conference& Exhibition | Scientific community, Research, Industry |
| MRS | Boston, USA | Scientific Conference& Exhibition | Scientific community, Research, Industry |
| IDTechEx Printed Electronics USA | Santa Clara, USA | Int. Conference & Exhibition | Industry, Research |
| ICFPE | China | Scientific Conference& Exhibition | Scientific community, Research, Industry |
| | | | |

Table 1. Targeted International Conferences for dissemination of CORNET (list constantly populated)

2.3. Networks & Associations

Exploitation of the existing networks and members of CORNET consortium aim to foster further collaborations, exchange knowledge, and raise awareness among a large group of stakeholders and players in the digital manufacturing of Organic and Printed Electronics, covering actors from the industry as well as SMEs.

The enrichment of these collaborations from stakeholders which belong to several fields such as Public bodies, European Commission representatives, press and media organizations, academic and research institutions and other related EU projects will lead to the promotion of the CORNET project and results, while identified potential collaboration opportunities may occur.

In this framework of CORNET, the partners have established strong connections with EMCC (European Mentoring & Coaching Council) as well as EMMC (European Materials Modelling Council) in order to provide information about the projects' objectives communicate on the results, impacts and the evolution of the project, but also to participate in activities that EMCC and EMMC organize in order to interact with relevant entities. These are described in detail in the following.

Moreover, the CORNET has participated to the EFFRA (European Factories of the Future Research Association (EFFRA), and the project is registered to the EFFRA Innovation Portal to increase the visibility of the project and its activities in the industrial communities.

3. Dissemination & Communication Activities during the Reporting Period 1

This section describes the dissemination and communication activities of the CORNET project partners during the Reporting Period 1 (1 Jan 2018 - 30 June 2019), along with the details on the actions performed, the benefit to the project visibility and impact.

3.1. Organization of Events

The partners organized the following international events:

NANOTEXNOLOGY 2018, 30 June – 7 July, Thessaloniki, Greece

Partners involved in the organization of the NANOTEXNOLOGY 2018 multi-event that took place at Thessaloniki, Greece at 30 June-7 July 2018. The CORNET Project Coordinator (AUTh) is the organizer of these event since 2003 (where it started as an International Workshop on Nanosciences and Nanotechnologies) and which currently has been expanded as the largest technology, networking and matchmaking annual event in Europe with more than 800 participants every year from more than 60 countries. As it has been described in detail in the CORNET Description of Action (DoA) the NANOTEXNOLOGY event will be the main vehicle for the dissemination and exploitation of the project results.

NANOTEXNOLOGY 2018 included the premier and internationally established events:

- International Conference on Nanosciences & Nanotechnologies (NN18) 3-6 July
- International Symposium on Flexible Organic Electronics (ISFOE18) 2-5 July
- International Workshop on 3D Printing, 3D Bioprinting, Digital & Additive Manufacturing (I3D18) 2-6 July
- International Summer Schools "N&N, OE & Nanomedicine" (ISSON18) 30 June-7 July
- NANOTEXNOLOGY EXPO 2018, 2-6 July
- Business Forum, 3-5 July
- Matchmaking Event, 4 July

In addition, in NANOTEXNOLOGY 2018 the following Special Workshops have been organized:

- Workshop on EU Projects on Nanotechnologies & Advanced materials for OPVs and Perovskites
- HOPE-A IAPE Joint Workshop on Organic Electronics
- Workshop on Computational Modelling
- New Business Development & Commercialization Workshop



Fig. 3. Announcement of the NANOTEXNOLOGY 2018 multi-event





Fig. 4. Announcement of the ISFOE18





Fig. 6. Announcement of the I3D18

Within the NANOTEXNOLOGY 2018, the CORNET project has co-organized and supported the following Workshops:

HOPE-A – IAPE Joint Workshop on Organic & Printed Electronics

HOPE-A - IAPE Joint Workshop on OEs

HOPE-A together with IAPE - Industrial Alliance of Printed Electronics of China - organized a Joint Workshop on Organic Electronics at the 11th International Symposium on Flexible Organic Electronics, bringing forward the cooperation between the two Associations. The topic of this Joint Workshop is to promote networking, twinning, joint ventures and business between members of HOPE-A and IAPE and their associated partners in order to foster the creation of partnerships, B2B and collaborations through bi-lateral and/or under EU H2020 programmes between Greece and China. The Workshop highlighted the technological and entrepreneurial activities of HOPE-A and IAPE members in Greece and China and the attendees were informed on the scope of CORNET, the philosophy of the OIE Platform and Database, and how the IAPE network can be utilized for CORNET dissemination purposes.



Fig. 2. Participants of the HOPE-A – IAPE Joint Workshop on Organic & Printed Electronics. These include the CORNET partners AUTh, HOPE-A, and OET.

More Details:

https://www.nanotexnology.com/2018/index.php/workshops-isfoe18/79-isfoe-category/320-hope-a-iape-joint-workshop-on-organic-electronics

Workshop on OPVs and Perovskite PVs



The Workshop on Organic and Large Area Electronic (OLAE) Materials will reveal, discuss and contribute to solve the fundamental issues on the synthesis and thin film fabrication of novel organic semiconductors (as conjugated polymers, evaporated small molecules or solution processed small molecules) and electrode materials, efficient charge transfer mechanisms, optimization & control of morphology.

Workshop topics include:

- Printable nanomaterials for Organic Electronics
- Polymer Organic Semiconductors
- Conjugated polymers, copolymers, oligomers
- Non-fullerene acceptors
- Small Molecule Organic Semiconductors
- Novel organic/inorganic and hybrid materials
- Fullerenes, and Carbon Nanotubes in Organic Electronics
- Transparent Electrodes (organic, printable, inorganic, oxides)
- Non-transparent Electrodes & dielectrics
- Barrier Materials and Encapsulation Methods
- Organic-hybrid interfaces: characterization and application
- Synthesis & functionalization of OE nanomaterials

Workshop International Organizing Committee

Prof. Ravi Silva, University of Surrey, UK

Prof. Georges Hadziioannou, LCPO, University of Bordeaux 1, Bordeaux, France
Prof. Sabine Ludwigs, University of Stuttgart, IPOC - Functional Polymers, Germany
Prof. Ioannis Kallitsis, Department of Chemistry, University of Patras, Greece
Dr. Sabine Amberg-Schwab, Fraunhofer-Institute for Silicate Research ISC, Germany
Dr. Argiris Laskarakis, LTFN, Aristotle University of Thessaloniki, Greece

The following images show some highlights from the presentations of the CORNET partners.



Fig. 7. R. Silva, University of Surrey, giving the Opening Keynote presentation at NANOTEXNOLOGY 2018



Fig. 8. E. Lidorikis, University of Ioannina, Oral presentation at ISFOE18 in Thessaloniki



Fig. 9. M. Neukom, Fluxim, Oral presentation at ISFOE18 during NANOTEXNOLOGY 2018 event

More details:

https://www.nanotexnology.com/2018/index.php/workshops-isfoe18/79-isfoe-category/114-workshop-on-organic-large-area-electronic-olae-materials

Workshop on OPVs and Perovskite PVs



The Workshop on OPVs and Perovskites PVs will reveal, discuss and contribute to solving of all aspects covering the synthesis, thin film fabrication of new organic semiconductor (conjugated polymers, evaporated small molecules or solution processed small molecules) and electrode materials, efficient charge transfer

mechanisms, optimization & control of blend morphology, device architectures, lifetime and stability, and mass manufacturing.

The OPVs and Perovskite PVs Workshop topics include:

- Polymer & Small Molecule Organic Semiconductors
- Organic/inorganic and hybrid materials and systems
- Perovskite PVs
- Perovskite Materials & Novel Device Concepts
- Perovskite Fabrication techniques (Vacuum, Printing)
- Synthesis of novel nanomaterials for OPVs
- Novel device architectures (e.g. single, tandem)
- Morphology & Interfaces characterization and control
- Influence of nano-morphology on device physics
- Device Stability & Lifetime
- Plasmonic OPVs
- Charge transport and microstructure relationships
- Device Modelling, Simulations & Computational Methods
- High efficiency approaches in vacuum and printing technologies
- Novel fabrication by lab- and large area processes (e.g. Printing, Vacuum, Patterning)
- Thin film monitoring and optimization of processes
- Large Scale Manufacturing & Applications

Workshop International Organizing Committee

- Prof. Gerrit Boschloo, Department of Chemistry, Uppsala Univeristy, Sweden
- Dr. Konstantinos Fostiropoulos, Helmholtz-Zentrum Berlin, Germany
- Dr. Markus Schraber, Linz Institute for Organic Solar Cells, Johannes Kepler University Linz, Austria
- Prof. Vladimir Dyakonov, University of Würzburg, Germany
- Dr. Bertrand Fillon, IPC, France
- Dr. Jörg Ackermann, Centre Interdisciplinaire de Nanoscience de Marseille (CINaM), France



Fig. 10. M. Sharber, Linz Institute of Organic Solar Cells, Austria "Non-fullerene acceptor – a new material class for highly efficient solar cells"



Fig. 11. G.E. Morse, Merch, Chemicals Ltd., UK "Non-fullerence acceptors for Organic Photovoltaics"

More details:

https://www.nanotexnology.com/2018/index.php/workshops-isfoe18/79-isfoe-category/274-workshop-onopvs-and-perovskite-pvs

1st International Conference on 3D Printing, 3D Bioprinting, Digital & Additive Manufacturing (I3D18)

This Workshop focuses on the cutting edge advances on 3D Printing, 3D Bioprinting, Digital and Additive Manufacturing approaches for Flexible Organic and Printed Electronics, Healthcare, Wearables, Automotive, etc. and for the fabrication of novel nanomaterials in advanced device architectures.

https://www.nanotexnology.com/2018/index.php/i3d18

Topics:

- 3D Printing
- 3D Printing, Materials, Functionalities and Architectures
- 2D to 3D Printing (inkjet, screen, gravure, etc.)
- 3D Bioprinting (Structure, size, mechanical properties, etc.)
- Cell Printing Technologies (Ink-jet, Hydrogel, Laser assisted, etc) and Cell Survival issues
- Bioinks
- Additive Manufacturing
- Roll-to-roll printing processes
- Ultra Fast Pulsed Laser processing in materials and OEs (OLED, OPV, OTFTs, RFID), batteries, sensors, healthcare, smart textiles, etc)
- Ultra Fast Pulsed Laser nanoprocessing (metallic films, nanoparticles, nanowires, CNT, graphene, quantum dots, etc)
- Ultra Fast Pulsed Lasers in photonics & electronics (packaging, optical interconnects, waveguides in stretchable materials, light management layers)
- Ultra Fast Pulsed Laser tools integration (R2R, large area scanning, registration, diagnostics, hybrid laser, printing)
- Laser two photon polymerization and Laser sintering
- Digital Manufacturing and Nanomanufacturing
- Processes, Manufacturing & Applications
- Gas Transport Processes (OVPD, PVPD, CVD)
- Vacuum Processes (Evaporation, sputtering, etc.)
- Pilot Lines for Manufacturing of Organic Electronics, Healthcare, Bioprinting
- In-Line Metrology for Characterization and Process Control
- Thin Film Metrology and Optimization of Processes

Workshop International Organizing Committee

Prof. Zheng Cui, Printable Electronics Research Center, Suzhou Institute of Nanotech, Chinese Academy of Sciences, China

Prof. Dr. rer. nat. Reinhard R. Baumann, TU Chemnitz, Germany

Dr. Peter Baumann, Apeva, Germany

Prof. Emmanuel Giannelis, Cornell University, USA

Dr. Jacques Kools, Encapsulix, France

Dr. Nello Li Pira, C.R.F. S.C.p.A, Italy

Prof. Stergios Logothetidis, Nanotechnology Lab LTFN, AUTh, Greece

Prof. Yiannis Misirlis, University of Patras, Greece

Prof. Aylin Sendemir-Urkmez, Ege University, Turkey



Fig. 12. Dr. Nello Li Pira, C.R.F. S.C.p.A, Italy

12th International Summer Schools "N&N, OE & Nanomedicine" (ISSON18)

CORNET has also co-supported the 12th International Summer Schools "N&N, OE & Nanomedicine" (ISSON18) 30 June-7 July 2018, Thessaloniki, Greece. The ISSON Summer Schools give the opportunity to young researchers and early-career scientists and engineers to participate in a series of lectures on the emerging fields of Nanosciences & Nanotechnologies. The participants in ISSON18 included 110 students from 28 countries, and 65 Poster presentations from the students.



Fig.13. Announcement of the ISSON18

Within ISSON18, representatives from AUTh has performed lectures in fields relevant to CORNET and they have presented part of the project activities to the students.

- **Prof. Stergios Logothetidis,** Nanotechnology Lab LTFN, AUTh, Greece Nanotechnology and Applications
- **Dr. Christoforos Gravalidis**, Nanotechnology Lab LTFN, AUTh, Greece *From Lab to Pilot Manufacturing of Organic Electronics Devices*
- **Dr. Argiris Laskarakis**, Nanotechnology Lab LTFN, AUTh, Greece Intelligent Nanomanufacturing of Organic Electronics & In-Line Metrology for Quality Control
- **Prof. Yvan Bonnassieux**, LPCIM, Ecole Polytechnique CNRS, Paris, France *Organic electronic device from semi-conductor physic to compact model*
- **Prof. Eleftherios Lidorikis**, Dept. of Materials Science & Eng., University of Ioannina, Greece *Modeling organic photovoltaics: optical considerations*
- **Mr. Martin Neukom**, Fluxim, Switzerland Understanding solar cells: Modelling and characterization including live-demo of Fluxim's research tools Setfos and Paios



Fig. 14. Photo from the ISSON18



Fig. 15. M. Neukom (FLuxim) shows the PAIOS platform to the ISSON18 students

9th Workshop – Flexible & Printed Electronics Industry: Targeting the Digital Transformation 22 October 2018, Athens, Greece

CORNET has co-organized the 9th Workshop – Flexible & Printed Electronics Industry: Targeting the Digital Transformation that took place at Athens, Greece at 22 October 2018.

The Workshop brought together Top-class Scientists, Engineers, Key Industrial Players, End-Users, Entrepreneurs, Investors, Policy Makers and Representatives from the National and EU Authorities to discuss, network and establish the Strategy and Policy for boosting the rapidly evolving Flexible & Printed Electronics multi-Billion Industry in Green Energy, Lighting, Electronics, Automotive, Smart Buildings, Greenhouses, Intelligent Packaging, Wearables, IoT, etc. and its role in the Digital Transformation of the Industry.

Topics discussed include:

- The Flexible & Printed Electronics Sector and Activities
- Manufacturing and Processes of Flexible Organic & Printed Electronics
- Printed Organic Electronics and Automation in Factories of the Future
- Tools for the Digital Transformation of the Industry
- Energy and Lighting for Smart Buildings, Automotive, Greenhouses, Healthcare, etc.
- Sensors, Biosensors in Electronics, Smart Textiles, Wearables, Internet of Things (IoT)
- Intelligent and Smart Packaging
- Clusters and Associations in Flexible & Printed Electronics Worldwide
- Flexible & Printed Electronics Entrepreneurial activities
- Funding & Commercialization Opportunities

The Workshop brought together more than 50 companies, 20 universities and 120 top Stakeholders from Greece and from abroad (Spain, Turkey, Italy, Germany, Luxembourg) representing a wide range of fields to which Flexible and Printed Electronics provide added value and ground-breaking applications, i.e. Energy, Lighting, Electronics, the Automotive Industry and Transports, Intelligent Packaging, Smart Textiles, Healthcare, Sensors and Biosensors, Wearables and IoT.

During this event, the CORNET partners have discussed with significant number of representatives from industries and SMEs about the activities of the project and planned future collaborative activities in order to enable the adoption of the project innovations in the field of closed-loop manufacturing of advanced materials for applications in OEs as well as for other consumer applications.



Fig. 16. Announcement of the 9th Workshop – Flexible & Printed Electronics Industry: Targeting the Digital Transformation



Flexible & Printed Electronics Industry

(Targeting the Digital Transformation)

Monday 22 October 2018, Divani Caravel Hotel, Athens, Greece

Organized by:

Attn HOPE-A

FPEs Revolutionize Energy, Lighting, Displays, Electronics, Transportation, Greenhouses, Buildings, Bioelectronics, Healthcare, Smart Textiles, Wearables, IoT, Intelligent Packaging, Signage, Security, etc, Being the most Green Technologies and Creating a several 100B€ Market. (www.ltfn.gr/9ws)

| 20:00 | VIP Meeting 21 October 2018 | | | | |
|----------------------------|---|--|--|--|--|
| | PROGRA | M 22 October 2018 | | | |
| 08:00 - 20:00 | Registration Posters Exhibitors | | | | |
| 09:00 - 09:20 | Welcome & Introduction by the Workshon's Chairman Prof. S Logothetidis | | | | |
| | Welcome by the Director of the Office of th | e Minister of Digital Policy & Telecommunication. Mr | . P. Skoutas | | |
| ession 1: | FPEs: Current Status, Markets & Benefits for | Sustainable Growth (Chairs: Prof. J. Kallitsis, S. Logot | hetidis) | | |
| 09:20 - 09:50 | Intelligent Manufacturing of Flexible & Printed Electronics Industry to Boost Digital Transformation | Prof. S. Logothetidis, Nanotechnology Lab LTFN & HOPE-A, Greece | ltto | | |
| 09:50 - 10:10 | Active Materials for Printed Organic Electronics | Prof. J. Kallitsis, University of Patras, Greece | | | |
| ession 2: | FPEs International Collaborations (Chair: Dr. | A. Laskarakis, D. Mantis) | | | |
| 10:10 - 10:25 | HOPE-A: Connecting the Greek Industrial Stakeholders | Ms. F. Logothetidi, HOPE-A, Greece | HOPE-A | | |
| 10:25 - 10:40 | Bringing the Factory of the Future (SmartLine) and Open Innovation Environment (CORNET) in FPEs | Dr. A. Laskarakis, LTFN/COPE-H, AUTh, Greece | (tth) | | |
| 10:40 - 10:55 | Hellenic Photonics Cluster: Facing the future with collaboration | Dr. E. Hontzopoulos, HPhos & Prime Laser Technology S.A., Greece | >HPhos | | |
| 10:55 - 11:10 | ΣΥΒΙΠΥΣ Activities to promote Packaging & Materials | Mr. D. Mantis, Association of Greek Manufacturers of Packaging & Materials | | | |
| 1:10-11:30 | Networking Break, Posters, Exhibitors | | | | |
| | Salutation from the Deputy Minister of Environm | ment & Energy, Mr. S. Famellos | | | |
| ession 3: | Energy and Lighting for Automotive, Building | s, GreenHouses (Chairs: Dr. N. Kechagias, N. Li Pira) | | | |
| 11:40 - 12:00 | Large Area OEs for Energy Production & Lighting in Automotive, Buildings and Greenhouses | Dr. E. Pechlivani, OE-Technologies, Greece | et | | |
| 12:00 - 12:20 | OPVs, OLEDs and Sensors for the Car of the Future | Dr. Nello Li Pira, Centro Ricerche Fiat, S.C.p.A, Italy | FCA | | |
| 12:20 - 12:40 | Upscaling of High Performance C.Polymers for OPV Modules | Dr. C. Chochos, Advent Technologies, Greece | Advent | | |
| 12:40 - 13:00 | Flexible and Printed Electronics in Transport & Mobility Applications | Dr. E. Bekiaris, Hellenic Institute of Transport, CERTH, Greece | and and a second | | |
| ession 4: | Upscaling FPEs Manufacturing and 3D Printir | ng (Chairs: Dr. N. Meyer, Dr. A. Laskarakis) | | | |
| 13:00 - 13:20 | Industrial Manufacturing of FPElectronic Devices | Mr. E. Mekeridis, OE-Technologies, Greece | a toet | | |
| 13:20 - 13:40 | Upscaling R2R-processes towards production | Dr. N. Meyer, Coatema Coating Machinery GmbH, Germany | Costerns' | | |
| 3:40 - 15:00 | Lunch, Networking, Posters, Exhibitors | | | | |
| ession 5: | Intelligent Packaging & Retail (Chairs: Mr. E. | Mekeridis, Dr. A. Laskarakis) | | | |
| 15:00 - 15:15 | Applications of Smart Packaging | Dr. L. Tourasanidis, A. Hatzopoulos S.A., Greece | hatzopoulos | | |
| 15:15 - 15:30 | Large area nanostructured surfaces for Security Applications | Mr. Th. Tachtsidis, Nanotypos, Greece | Renctypos | | |
| 15:30 - 15:45 | Manufacturing Flexible & Printed RFIDs and Sensors for IoP | Mr. S. Fachouri, OE-Technologies, Greece | a toet | | |
| 15:45 - 15:55 | Nanotechnology in Packaging: The Marketing Approach | Mr. G. Triantafyllou, AllPack Hellas, Greece | alloack | | |
| ession 6 | Healhtrare IoT Mearables & Smart Textiles | (Chair: Dr. F. Pechlivani) | Chiptoten | | |
| 15:55 - 16:10 | Nanomedicine Applications, Biosensors & 3D Bioprinting | Dr. V. Karagkiozaki, BL Nanobiomed, Greece | El Nane(Biomer | | |
| 16:10 - 16:20 | Applications and prospects of FPEs to Electronics | Mr. Ch. Giordamlis, PRISMA Electronics, Greece | Prisma | | |
| 16:20 - 16:30 | Applications to Smart Textiles & Wearables | Mr. P. Kitsikopoulos, ELVE, Greece | EL | | |
| 16:30 - 16:40 | FPEs Industrial Applications and Standards | Dr. S. Vasilakos, Dr Silvia Pavlidou, MIRTEC S.A., Greece | BETAM | | |
| 6:40 – 17:45 ession 7: | Networking Break, Posters, Exhibitors Funding & Commercialization (Chair: Prof. S. | Logothetidis) | | | |
| 17:45 - 18:00 | Digital Transformation of European Industry & DIHs | Ms. A. Tasigiorgou, External expert of the European Commission on the Catalogue of DIHs | | | |
| 18:00 - 18:15 | Starting up with Metavallon VC | Ms. K. Kanteraki, Metavallon VC, Greece | METAVALLON | | |
| ession 8: 18:15 - 19:00 | Start Ups Competition for the Year Award (C Pitches from Start-Ups (5 min each) (OET, Nanotypos, Prisma, | hairs: Dr. N. Meyer, Prof. J. Kallitsis, Ms. K. Kanteraki) Advent, BL,) | | | |
| 19:00 - 19:30 | Award & Main Points | PA | | | |
| 19:30 - 20:00 | Closing Remarks - End of Workshop | | 8 | | |
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| | | NOE SOUTH insider.gr ** energypre | SS | | |

Fig.17. Program of the 9th Workshop



S. Logothetidis AUTh, Greece LTFN/AUTH activities



A. Laskarakis AUTh, Greece Presentation including information on the CORNET Project



Fig. 18. Prof. S. Logothetidis (CORNET Coordinator) discussing with Dr. N. LiPira (CORNET partner CRF) with the Deputy Minister for Environment & Energy Mr. S. Famellos



Fig. 19. Exhibition Booth of the CORNET partner OET



Fig. 20. Dr. E. Pechlivani (CORNET partner OET)



Fig. 21. Dr. N. LiPira (CORNET partner CRF)



Fig. 22. Mr. S. Fachouri (CORNET partner OET)

International Conference on Simulation of Organic Electronics and Photovoltaics, 4-6 September 2018, Switzerland



SimOEP'18 International Conference on Simulation of Organic Electronics and Photovoltaics 2018

Fluxim co-organized the International Conference on Simulation of Organic Electronics and Photovoltaics, SimOEP 2018, in September 4 - 6, 2018, Switzerland. SimOEP Conference focussed on simulations of Organic and Perovskite materials. Fluxim's R&D products were presented at several Workshops that took place. The conference had about 60 scientist that attended the event.

SID Display Week, 12 – 15 May 2019, San Jose, California

In parallel at the SID display week in San Jose, California, Fluxim organized two Training Workshops covering their research tools. A total of 25 persons attended the two events.

NANOTEXNOLOGY 2019, 29 June – 6 July 2019, Thessaloniki, Greece

CORNET co-organizes in 2019 the NANOTEXNOLOGY 2019 multi-event that will take place at Thessaloniki, Greece at 29 June-6 July 2019. This includes the following events:

- International Conference on Nanosciences & Nanotechnologies (NN19) 2-5 July
- International Symposium on Flexible Organic Electronics (ISFOE19) 1-4 July
- International Workshop on 3D Printing, 3D Bioprinting, Digital & Additive Manufacturing (I3D19) 1-5 July
- International Summer Schools "N&N, OE & Nanomedicine" (ISSON19) 29 June-6 July
- NANOTEXNOLOGY EXPO 2019, 1-5 July
- Business Forum, 2-4 July
- Matchmaking Event, 3 July
- Special Workshops:
 - Workshop on Open Innovation and Standardization for materials characterization, materials modeling and materials process and manufacturing
 - Women in Nano Science & Technology
 - o EU-USA
 - Special Workshop on EU Projects
 - $\circ~$ Workshop on In-line & Real-time Metrology and Quality Control for Nano-Manufacturing
 - $\circ~$ Workshop on Computational Modeling of Materials, Devices & Processes
 - $\circ~$ New Business Development & Commercialization Workshop



Fig. 23. Announcement of the NANOTEXNOLOGY 2019 multi-event

Workshop on Organic & Large Area Electronic (OLAE) Materials

| OLAE Materials | | | | | | | |
|----------------|--|--|--|--|--|--|--|
|----------------|--|--|--|--|--|--|--|

The Workshop on Organic and Large Area Electronic (OLAE) Materials will reveal, discuss and contribute to solve the fundamental issues on the synthesis and thin film fabrication of novel organic semiconductors (as conjugated polymers, evaporated small molecules or solution processed small molecules) and electrode materials, efficient charge transfer mechanisms, optimization & control of morphology.

Workshop topics include:

- Printable nanomaterials for Organic Electronics
- Polymer Organic Semiconductors
- Conjugated polymers, copolymers, oligomers
- Non-fullerene acceptors
- Small Molecule Organic Semiconductors
- Novel organic/inorganic and hybrid materials
- Fullerenes, and Carbon Nanotubes in Organic Electronics
- Transparent Electrodes (organic, printable, inorganic, oxides)
- Non-transparent Electrodes & dielectrics
- Barrier Materials and Encapsulation Methods
- Organic-hybrid interfaces: characterization and application
- Synthesis & functionalization of OE nanomaterials

Workshop International Organizing Committee (tentative)

Prof. Ravi Silva, University of Surrey, UK

Prof. Georges Hadziioannou, LCPO, University of Bordeaux 1, Bordeaux, France
Prof. Sabine Ludwigs, University of Stuttgart, IPOC - Functional Polymers, Germany
Prof. Ioannis Kallitsis, Department of Chemistry, University of Patras, Greece
Dr. Sabine Amberg-Schwab, Fraunhofer-Institute for Silicate Research ISC, Germany
Dr. Argiris Laskarakis, LTFN, Aristotle University of Thessaloniki, Greece

Workshop on OPVs and Perovskite PVs

OPVs & Perovskite PVs

Organic Photovoltaics (OPVs) is an emerging technology that will revolutionize the generation of electricity by renewable sources. The OPVs have many advantages, such as low cost, ease in process and conformability to curved surfaces, that make them attractive for numerous mass-market application areas. The enormous effort in the science and technology of OPVs led to many achievements in terms of device efficiencies. Several research groups & companies have announced very high device efficiencies. However, in order for OPVs to be implemented for mass production, there are still open issues to be overcome, as the lower efficiency values and shorter lifetimes in comparison to other PV technologies (e.g. inorganic PVs).

Also, Perovskite PVs are an emerging field and rapidly expanding field which will revolutionize PV technology and applications since it combines simple and low-cost manufacturing methods with high device efficiencies (above 15%). These PVs have enormous commercial potential for implementation to consumer applications for the market in the near future.

The Workshop on OPVs and Perovskites PVs will reveal, discuss and contribute to solving of all aspects covering the synthesis, thin film fabrication of new organic semiconductor (conjugated polymers, evaporated small molecules or solution processed small molecules) and electrode materials, efficient charge transfer mechanisms, optimization & control of blend morphology, device architectures, lifetime and stability, and mass manufacturing.

Workshop on OLEDs, OTFTs & Sensors



This Workshop will explore the cutting edge innovations in the development and fabrication of Organic Light Emitting Diodes (OLED), Organic Thin Film Transistors (OTFTs) and Sensor devices, by state-of-the-art methods (wet chemical, printing, vacuum). These flexible devices have the potential to revolutionize Electronics, Energy generation, Lighting and Visualization of Information by integration to complex shapes, providing intelligence to numerous devices and applications.

This Workshop will provide a deep understanding of the fundamental aspects of the fabrication of OLEDs, OTFTs and Sensors, their optimization in terms of performance, efficiency and lifetime, whereas it will explore the technical challenges of their integration in existing and future products (e.g. Wearables, Automotive, Consumer Products, Agriculture, Healthcare, etc).

Workshop on Smart Textiles, Wearables & Internet of Things Smart Textiles, Wearables & Internet of Things

Smart textiles and intelligent clothing are firmly established elements in today's electronic world. It is commonly understood, that this particular application field is important for the future of both industries: Textiles and Electronics. The rise of Smart Textile and Wearables represents a significant opportunity for manufacturers of advanced OE materials and devices to implement their innovations in textiles for fashion, architecture, sports, medical, protection, and safety. Succeeding in this highly multidisciplinary field, is the challenge research and industry is facing equally.

The Workshop on Smart Textiles, Wearable Technologies and Internet of Things (IoT) will give an overview on the current developments in the field of Smart Textiles and Wearables with a particular focus on the application of Organic Electronics in Textiles for fashion, architecture, automotives, medical textiles, special-purpose textiles, protection, etc. Furthermore, the various components like actuators, sensors, connections, energy storage and generation, as well as communication will be addressed. Top-notch research in materials and technologies for achieving the components' functions will be presented, by addressing the different components per application area.

Workshop on Graphene and Related Materials, Processes & Applications (common in ISFOE19 and NN19)

Graphene & 2D Materials

The aim of this Workshop is to explore the state-of-the-art topics of graphene (synthesis, characterization, transfer and integration, properties, applications, etc.). The workshop will bring together leading experts and young researchers involved in the structural and physical properties of graphene and other related 2D materials, in the growth of graphene onto metallic substrates, in graphene transfer and doping, in graphene-based device fabrication, and in theoretical investigations of the properties of graphene.

Workshop on Biosensors and Bioelectronics



This Workshop will focus on the latest advances in the areas of biosensors, bioactuators and bioelectronics from bench to bedside. Fundamentals on biosensor design and manufacturing will be covered and translated into clinical applications. In addition, the Workshop will cover the latest advances in biosensors and bioelectronics and related sectors such as mobile and digital health expert systems and distributed diagnostics, and will provide an interdisciplinary workshop for researchers, engineers, clinicians, educators and people from industry to present and discuss the most recent trends and practical challenges encountered in the field of Biosensors and Bioelectronics. This Workshop will run in parallel with the NN19 NANOMEDICINE Workshop and the NN19 Biosensors and Bioelectronics Workshop.

In addition, in NANOTEXNOLOGY 2019 the following Special Workshops have been organized:

Workshop on Open Innovation and Standardization for materials characterization, materials modelling and materials process and manufacturing (co-organized by CORNET)



Europe embraced Open Innovation in characterization and modelling by supporting the implementation of cutting edge research in selected topics that cover Organic Electronics, Microwave Microscopy and advanced nano-architectured and bio-inspired hard/soft interfaces.



Fig. 24. Open Innovation Triangle: Basic Idea of CORNET project

The combined efforts to promote and progress in state-of-the-art Scientific and Research fields requires the compatibility with internationally accepted roadmaps and frameworks, towards the development of future standards. During the Workshop a series of Invited talks, Oral and Poster presentations will be given by representatives from currently running EC R&D projects such as **CORNET, OYSTER, MMAMA** in that cover different aspects of Open Innovation for materials characterization & modeling (ranging from the atomic to the macro-scale or multiscale) applied on a broad range of subjects and applications.

The Workshop topics include:

- Open Innovation for multiscale modeling of materials
- Open Innovation for multiscale characterization of materials
- Modeling Data Analysis (MODA)
- Process and Manufacturing
- Standardization needs in the manufacturing sector
- Industry needs on Open Innovation approaches
- Business Models and Sustainability for Open Innovation Databases

Women in Nano Science & Technology

EU



The target of this Workshop is to highlight and advance the role and recognition of women working in cutting edge fields of Nano Science and Technology, and to promote their significant role in progress in these fields that will transform our lives in the future.

The topics of this Special Workshop cover all areas of Nanotechnologies and Organic Electronics.

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|---|-------------|
| | |
| EU-USA Workshop | |
| "Sustainable NanoFabrication & NanoManufacturing" during NANOTEXNOLOGY 2019, Friday July 5, 2019 | |
| Abstracts accepted until June 3rd! | |
| | |
| | |
| | mptexpology |

The USA and EU academics, researchers, policy makers, industrial stakeholders and entrepreneurs will present, elaborate and discuss their ideas and current activities in Nano-Fabrication and Factory of the Future and seek opportunities and channels to establish links and research collaboration in the fields of Nanotechnology, Advanced Materials, Nanofabrication, Nano-manufacturing and Factory of the Future through EU H2020 and NSF Calls. This Workshop aims to create a sustainable framework of synergies for common success and growth between EU and USA.

Special Workshop on EU Projects



Representatives from EU funded R&D Projects will present in NANOTEXNOLOGY 2019 their latest advances and provide information on the cutting-edge R&D activities in European and International level in Nanotechnologies, Organic Electronics and Nanomedicine. These Oral presentations will be part of NANOTEXNOLOGY 2019 program, while all the EU Projects will also be presented in a dedicated Poster Session within this Special Workshop.

NANOTEXNOLOGY 2019 EU Projects (alphabetically):

3DNANO - Traceable 3D nanometrology

APOLLON - Printed OLEDS for intelligent, efficient & tunable solid-state lighting devices in large scale **APOLO** - SmArt Designed Full Printed Flexible RObust Efficient Organic HaLide PerOvskite solar cells **CORNET** - Multiscale Modelling and Characterization to optimize the Manufacturing processes of Organic Electronics materials and devices

FORMILK - Innovative technology for the detection of enzyme activity in milk

GREENSENSE - Sustainable, Wireless, Autonomous Nanocellulose-based Quantitative DoA Biosensing Platform

MATUROLIFE - Metallisation of Textiles to make Urban living for Older people more Independent Fashionable

MMAMA - Microwave Microscopy for Advanced and Efficient Materials Analysis and Production **NANOCOMMONS** - The European Nanotechnology Community Informatics Platform: Bridging data and disciplinary gaps for industry and regulators

NANOGENTOOLS - Developing and implementation of a new generation of nanosafety assessment tools **OYSTER** - Open characterization and modelling environment to drive innovation in advanced nanoarchitectured and bio-inspired hard/soft interfaces

PHOTOKIPIA - Semitransparent Organic and Printed Photovoltaics for Energy Efficient Mediterranean Greenhouses

R2R-BIOFLUIDICS - Large scale micro-and nanofabrication technologies for bioanalytical devices based on R2R imprinting

SMARTLINE - Smart In-line metrology and control for boosting the yield and quality of high-volume manufacturing of Organic electronics

SUPERPV - CoSt redUction and enhanced PERformance of PV systems

Workshop on In-line & Real-time Metrology and Quality Control for Nano-Manufacturing

Workshop on In-line & Real-time Metrology and Quality Control

The objective of the Workshop is the reveal the huge potentiality of in-line and real-time metrology methods (tools, measurement/analysis methodologies, protocols, integration concepts) to revolutionize the digital manufacturing of advanced materials, devices, components, processes and products based on Organic & Printed Electronics.

The Workshop topics include:

- In-line/In-situ/Real-Time characterization tools and methodologies
- Non-destructive metrology methods and tools
- Novel Instruments and Improvements
- Optical, Electrical, Structural, Visual characterization
- Characterization protocols and standards
- Modeling and analysis approaches
- Integration concepts in pilot and production lines
- Defect inspection from nano- to macro-
- Thin film monitoring and optimization of processes
- Feedback, Quality Control and Automation
- In-line Process in Roll-to-Roll, Vacuum and Gas Transport
- Manufacturing & Applications

Workshop on Computational Modeling of Materials, Devices & Processes



This Workshop will explore state-of-the-art methodologies and approaches for the modelling and optimization of materials, the material's behavior and/or nano-device manufacturing processes, as well as multiscale computational approaches that can play a key role towards the further advancement of the corresponding technologies and enable the manufacturing and characterization of breakthrough devices and systems.

The Workshop includes (but are not limited to) Theoretical and Computational approaches to the following topics:

- Computational materials design and discovery
- High-throughput methods for materials characterization
- Machine learning applications for materials
- Material properties and processes at the nano-scale
- Diffusion and film growth
- Photonics, plasmonics, phononics and electronics
- Strongly correlated electron systems, magnetism and spintronics
- Multiscale modeling of devices and processes
- Graphene and related 2D materials
- Inorganic & Hybrid halide perovskites
- Organic materials and properties
- Organic electronic devices
- Charge-transfer & exciton dynamics at hetero-interfaces

New Business Development & Commercialization Workshop

New Business Development & Commercialization

The Workshop on New Business Development & Commercialization aims at fostering actions on the exploitation and commercialization of scientific and research innovations on Nanotechnologies, Organic Electronics, Photonics, Advanced Materials, Nanomedicine, Nano-manufacturing, 3D Printing, Wearables, IoT as well as at other related topics. It will serve as a forum and bringing together Scientists, Engineers, University Technology Managers, Industrial and SME Professionals, Technology Transfer Professionals, Policy Makers, Innovation, Entrepreneurship, Innovation and Regional Development Specialists, Business Government and Regional Representatives, Venture Capitals, Development Banks from all over the world where exchange of information and provision of access to the latest developments in Market Approaches and Business Opportunities will be discussed. On that basis is created an excellent opportunity to promote OIE of CORNET project.

3.2. Presentations & Participations in International Events

During the first 18 months of the project, the partners have achieved a strong track record in the participation and presentation of results relevant to the project in numerous international events (Conferences, Workshops, etc.).

| Event | Presentation | Туре | Audience | Partner |
|---|---|---|---|--------------|
| Prinse'18 Conference on Printed Electronic 30/01/18 – 1/02/18, Oulu | "When materials meet Electronics: novel rontiers in multifunctional components in automotive" L. Belforte | Oral presentation | Scientific & Research Community, Industry | CRF |
| Emerging Technologies, 24-26/01/18 Shanghai, China | R2R Manufacturing Processes for Full Printed Organic Photovoltaics E.M Pechlivani, S. Logothetidis, A. Laskarakis, V. Matskos | Oral | Scientific Community, Research, Industry, Investors, Customers | OET, AUTh |
| LOPE-C 2018 | Participation to the Exhibition. Demonstrators for OE devices on flexible substrates | Exhibition | Industry, Research Policy Makers | AUTh |
| LOPE-C 2018 | Participation to the Exhibition. Demonstrators for OE devices on flexible substrates | Exhibition | Industry, Research Policy Makers | OET |
| IEC TC119 Printed Electronics committee meeting 15/03/18 | Printed Electronics committee meeting | Oral | Scientific & Research Community | NPL |
| Stability of Emerging Photovoltaics from Fundamental to Applications (SEPV) 20-23/02/18 Barcelona, Spain | Oral presentation & exhibition | Oral presentation & Exhibition | Scientific & Research Community, Industry | FLUXIM |
| IDTechEx 2018 Printed Electronics Europe 11-12/04/18, Berlin, Germany | Revolutionizing Roll-to-Roll Manufacturing of fully Printed Organic Electronics with in- line Metrology and Control in Automatic decision-making Process E.M Pechlivani | Oral | Industry, Investors, Customers | OET |
| IDTechEx 2018 Printed Electronics Europe 11-12/04/18, Berlin, Germany | Participation to the Exhibition. Demonstrators for OE devices on flexible substrates | Booth | Industry, Investors, Customers | OET |
| IDTechEx 2018 Printed Electronics Europe11-12/04/18, Berlin, Germany | Participation to the Exhibition. Demonstrators for OE devices on flexible substrates | Booth | Industry, Investors, Customers | AUTh |
| LIMS Conference 16/05/18 Frascati, Italy | Oral presentation M.M Dugand | Oral presentation | Scientific & Research Community, Industry | CRF |
| Luce Imaging Microscopia Spettri 17-19/05/18 ENEA | CRF activities in Organic Electronics Marie Marguerite Dugand | Invited | Research, Industry, | CRF |

| CPES 2018 22-24/05/2018 Toronto, Canada | Intelligent Nanomanufacturing of Flexible Organic Electronic Devices: Towards the Industry 4.0 S. Logothetidis | Invited | Scientific & Research Community, Industry | AUTh |
|---|---|---|--|--------------|
| I-Zone at SID Display Week 20-25/05/18 Los Angeles, USA | Participation to the Exhibition | Exhibition | Scientific & Research Community, Industry | FLUXIM |
| EMRS 2018 18/06/18 Strasbourg, France | Fabrication and study of white-light OLEDs based on novel copolymers with blue, yellow and red chromophores M. Gioti, D. Kokkinos, K. Stavrou, K. Simitzi, A. K. Andreopoulou, J. K. Kallitsis, S. Logothetidis | Oral | Scientific & Research Community, Industry | AUTh |
| EMRS 2018 18/06/18 Strasbourg, France | Solution processed large-area flexible OTFTs using slot-die printed organic dielectric films C. Koutsiaki , T. Kaimakamis , C. Kamaraki, K. Stavrou , A. Papamichail , C.Gravalidis , S. Fachouri , S. Logothetidis | Oral | Scientific & Research Community, Industry | AUTh, OET |
| EMRS 2018 19/06/18 Strasbourg, France | Manufacturing and characterization of tailored color polymer OLED derived from blue, green, yellow and red polymer emitter blend D. Kokkinos, M. Gioti , K. Stavrou, E. Mekeridis , S. Logothetidis | Oral | Scientific & Research Community, Industry | AUTh, OET |
| EMRS 2018 21/06/18 Strasbourg, France | Characterization of polymeric thin films for OLED applications by spectroscopic ellipsometry M. Gioti, Th. Bouloumis | Oral | Scientific & Research Community, Industry | AUTh |
| International conference on organic electronics (ICOE) 18-22/6/18 Bordeaux, France | Oral presentation, Poster & Exhibition | Oral presentation & Exhibition | Scientific & Research Community, Industry | FLUXIM |
| Intersolar Europe 2018 20-22/6/18 Munich, Germany | Participation to the Exhibition. Demonstrators for OE devices on flexible substrates | Booth | Industry, Investors, Customers | OET AUTh |
| NANOTEXNOLOGY 2018 Conference 4/7/18 Thessaloniki, Greece | "Customization and integration of materials into novel components for the car of the future" N. Li Pira | Oral presentation | Scientific & Research Community, Industry | CRF |
| NANOTEXNOLOGY 2018 EXPO 30/6-7/7/18, Thessaloniki, Greece | Participation to the Exhibition. Demonstrators for OE devices on flexible substrates | Booth | Industry, Investors, Customers | AUTh |
| NANOTEXNOLOGY 2018 EXPO 30/6-7/7/18, Thessaloniki, Greece | Participation to the Exhibition. Demonstrators for OE devices on flexible substrates | Booth | Industry, Investors, Customers | OET |
| NANOTEXNOLOGY 2018 EXPO 30/6-7/7/18, Thessaloniki, Greece | Participation to the Exhibition. | Booth | Scientific & Research Community, Industry | HOPE-A |

| NANOTEXNOLOGY 2018 EXPO 30/6-7/7/18, Thessaloniki, Greece | Participation to the Exhibition | Booth | Scientific & Research Community, Industry | UOI |
|--|--|--------|--|--------------|
| ISFOE18 2-5/07/18 Thessaloniki, Greece | 'EU Projects on Nanotechnologies & Advanced materials for OPVs and Perovskites' Ms. Foivi Logothetidi | Oral | Scientific & Research Community, Industry | HOPE-A |
| ISFOE18 2-5/07/18 Thessaloniki, Greece | Solution processable white-light OLEDs based on novel copolymers with blue, yellow and red chromophores M. Gioti, K. Stavrou, D. Kokkinos,K. Simitzi, A. K. Andreopoulou, J. K. Kallitsis, S. Logothetidis | Oral | Scientific & Research Community, Industry | AUTh, OET |
| ISFOE18 2-5/07/18 Thessaloniki, Greece | OET Enabling Fully Printed Organic Photovoltaic and OLED Technology for Mass Market Entry V. Matskos | Oral | Scientific & Research Community, Industry | OET |
| ISFOE18 2-5/07/18 Thessaloniki, Greece | Novel methodology based on Spectroscopic Ellipsometry for In-Line and Real-Time quality control of Roll-to-Roll printed Perovskite films A. Zachariadis, C.Kamaraki, C.Kapnopoulos, A.Galatsopoulos, E.Mekeridis, A.Laskarakis, S.Logothetidis | Oral | Scientific & Research Community, Industry | AUTh, OET |
| ISFOE18 2-5/07/18 Thessaloniki, Greece | In-Line Real-Time Spectroscopic Ellipsometry for quality control of Roll-to-Roll printed nanomaterials for Organic Photovoltaics A.Zachariadis, C. Kapnopoulos, E. Mekeridis, A. Laskarakis, S. Logothetidis | Oral | Scientific & Research Community, Industry | AUTh, OET |
| ISFOE18 2-5/07/18 Thessaloniki, Greece | Installing Organic Photovoltaics on Greenhouse Roofs: Effects on Plant Growth and on the Operation of the Facility C. Zisis, S. Tsimikli, A. Laskarakis, E. Mekeridis, E. M Pechlivani, C.Gravalidis, M. Chatzidis, V. Matskos and S. Logothetidis | Oral | Scientific & Research Community, Industry | AUTh, OET |
| ISFOE18 2-5/07/18 Thessaloniki, Greece | Toward slot-die coating of flexible and large- area organic-light emitting diodes in ambient conditions K.Stavrou, M.Gioti, C.Koutsiaki, C.Kamaraki, E.Koutsounanos, D. Kokkinos, S. Logothetidis | Oral | Scientific & Research Community, Industry | AUTh, OET |
| ISFOE18 2-5/07/18 Thessaloniki, Greece | The influence of PC ₆₀ BM layer on device performance in printed perovskite solar cells C.Kamaraki, A.Zachariadis, A.Galatsopoulos, C.Koutsiaki, K.Stavrou, C.Kapnopoulos, E.Mekeridis, S.Kassavetis, C.Gravalidis, A.Laskarakis, S.Logothetidis | Poster | Scientific & Research Community, Industry | AUTh, OET |
| ISFOE18 2-5/07/18 Thessaloniki, Greece | Investigation of the optical properties of OVPD and VTE deposited thin films for Organic Photovoltaics (OPVs) V. Foris, A. Papamichail, A. Zachariadis, A. Laskarakis, A. Logothetidis | Poster | Scientific & Research Community, Industry | AUTh |
| ISFOE18 2-5/07/18 Thessaloniki, Greece | First-Principles DFT study on the adsorption of PC₀₀BM on Ag surface A. Stamateri, S. Logothetidis | Poster | Scientific & Research Community, Industry | AUTh |

| ISFOE18 2-5/07/18 Thessaloniki, Greece | Comparable study on the properties of PBDB-T and ITIC thin films Z.Kyroudis, A.Zachariadis, C.Kapnopoulos,C.Kamaraki, K.Stavrou,E.Mekeridis, C.Gravalidis, A.Laskarakis, S.Logothetidis | Poster | Scientific & Research Community, Industry | AUTh, OET |
|--|---|--|--|--------------|
| ISFOE18 2-5/07/18 Thessaloniki, Greece | Multi-scale high-resolution mapping of printed photovoltaics | Oral presentation | Scientific & Research Community, Industry | NPL |
| ISFOE 1-6/7/18 Thessaloniki, Greece | Oral presentation, workshop & exhibition | Oral presentation , workshop & exhibition | Scientific & Research Community, Industry | FLUXIM |
| ISFOE 1-6/7/18 Thessaloniki, Greece | Oral presentation | Oral presentation | Scientific & Research Community, Industry | UOI |
| NN18 3-6/07/18 Thessaloniki, Greece | Commercialization of Fully R2R Printed Organic Photovoltaics for Eco-Friendly Power Generation: Towards Industry 4.0 E.M Pechlivani | Invited | Scientific & Research Community, Industry | OET |
| I3D18 3-6/07/18 Thessaloniki, Greece | OET hits 7.4% New World Record Efficiency for Single Structure Fully Printed Organic Photovoltaic by Roll to Roll Processes E. Mekeridis, S. Tsimikli, A. Zachariadis, E.M. Pechlivani, A. Laskarakis, C. Kapnopoulos, S. Logothetidis, V. Matskos | Oral | Scientific & Research Community, Industry | AUTh, OET |
| I3D18 3-6/07/18 Thessaloniki, Greece | Color- Tailored Polymer OLEDs: Manufacturing and Characterization M. Gioti, D. Kokkinos, K. Stavrou, S. Kassavetis, E. Mekeridis, E.M. Pechlivani, S. Logothetidis | Oral | Scientific & Research Community, Industry | AUTh, OET |
| I3D18 3-6/07/18 Thessaloniki, Greece | Customization and integration of materials into novel components for the car of the future N. Li Pira | Invited | Scientific & Research Community, Industry | CRF |
| I3D18 3-6/07/18 Thessaloniki, Greece | Intelligent Nanomanufacturing of Flexible Organic Electronic Devices A. Laskarakis | Invited | Scientific & Research Community, Industry | AUTh |
| ISSON18 1-6/7/2018 Thessaloniki, Greece | Lecture on OPV modeling | Oral | Scientific & Research Community | UOI |
| International Conference on Science and Technology of Synthetic Metals (ICSM) 1-6/7/18 Busan, South Korea | Oral presentation & exhibition | Oral presentation & exhibition | Scientific & Research Community, Industry | FLUXIM |
| International Conference on Simulation of Organic Electronics | Organization and several oral contribution & workshops | Oral presentation & Workshops | Scientific & Research Community, Industry | FLUXIM |

| and Photovoltaics (SimOEP'18) 4-6/9/18 Winterthur, Switzerland | | | | |
|--|---|--|--|----------------|
| «Knowledge through Measurement» The XXII World Congress of the International Measurement Confederation IMEKO2018 6/9/18 Belfast | "Data fusion for organic electronic material parameters" | Oral presentation | Scientific & Research Community, Industry | NPL |
| 2018 International Conference on the Science and Technology of Emissive Displays and Lighting (EL2018) 11-13/9/18 Tokyo, Japan | Oral presentation & exhibition | Oral presentation & exhibition | Scientific & Research Community, Industry | FLUXIM |
| Integrated Photovoltaic Technical Conference – From Advanced Materials and Technologies to Multiscale Integration and Usages 2018 IPVTC-2018, 12-14/9/18 Cassis, France | Intelligent Nanomanufacturing of fully printed Flexible Organic Electronic Devices S. Logothetidis | Invited | Scientific & Research Community, Industry | AUTh HOPE-A |
| ICFPE2018 25-28/09/18 Changzhou, China | Intelligent Nanomanufacturing of Flexible Organic Electronic Devices: Towards the Industry 4.0 S. Logothetidis, A. Laskarakis, E. Mekeridis, C. Kapnopoulos, E. M. Pechlivani, V. Matskos | Invited Oral | Scientific & Research Community, Industry | OET, AUTh |
| ICFPE2018 25-28/09/18 Changzhou, China | Tailored Fully Printed OPVs and OLEDs for Mass Market Entry: Towards Industry 4.0 V. Matskos Organic Electronic Technologies P.C. Thessaloniki, Greece | Invited Oral | Scientific & Research Community, Industry | OET |
| 4th International Conference on Perovskite Solar Cells and Optoelectronics (PSCO) 30/92/10/18 Lausanne, Switzerland | Poster presentation & exhibition | Poster presentation & exhibition | Scientific & Research Community, Industry | FLUXIM |

| 1 st Workshop Nano – Greece-Turkey 1/10/18 Istanbul, Turkey | Research activities and facilities of Aristotle University of Thessaloniki for OEs S. Logothetidis | Oral | Scientific & Research Community, Industry | AUTh |
|--|--|--------------------------------------|--|--------|
| 1 st Workshop Nano – Greece-Turkey 1/10/18 Istanbul, Turkey | LTFN Activities in Intelligent Nanomanufacturing of OPVs & OLEDs A. Laskarakis | Oral | Scientific & Research Community, Industry | AUTh |
| SYSKEVASIA 2018, 12-15/10/18 Athens, Greece | Participation to the Exhibition. | Booth | Scientific & Research Community, Industry | HOPE-A |
| International Summit on Organic and Hybrid Photovoltaics Stability (ISOS) 21-25/10/18 Suzhou, China | Oral presentation & exhibition | Oral presentation & exhibition | Scientific & Research Community, Industry | FLUXIM |
| 9 TH Workshop On Flexible & Printed Electronics Industry: "Targeting the Digital Transformation" 22/10/18 Athens. Greece | Oral presentation & exhibition | Oral presentation & exhibition | Scientific & Research Community, Industry | AUTH |
| 9 TH Workshop On Flexible & Printed Electronics Industry: "Targeting the Digital Transformation" 22/10/18 Athens. Greece | Oral presentation & exhibition | Oral presentation & exhibition | Scientific & Research Community, Industry | OET |
| 9 TH Workshop On Flexible & Printed Electronics Industry: "Targeting the Digital Transformation" 22/10/18 Athens, Greece | Oral presentation & exhibition | Oral presentation & exhibition | Scientific & Research Community, Industry | HOPE-A |
| 9 [™] Workshop On Flexible & Printed Electronics Industry: "Targeting the Digital Transformation" 22/10/18 Athens, Greece | Oral presentation & exhibition | Oral presentation & exhibition | Scientific & Research Community, Industry | UOI |
| 9 [™] Workshop On Flexible & Printed Electronics Industry: | "OPVs, OLEDs and Sensors for the Car of the Future" N. Li Pira | Oral presentation | Scientific & Research Community, Industry | CRF |

| "Targeting the Digital Transformation" 22/10/18 Athens, Greece | | | | |
|---|---|--------------------------------------|---|-------------------------|
| 2 nd Plenary Meeting of IEC TC 124 Wearable Electronics and devices Manchester,UK | Meeting | Oral presentation | Scientific & Research Community | NPL |
| 43th Steering Committee Meeting of VAMAS, Berlin, Germany | Committee Meeting | Oral presentation | Scientific & Research Community | NPL |
| NanoGe fall meeting 2226/10/18 Malaga, Spain | Invited presentation | Invited | Scientific & Research Community | FLUXIM |
| European Materials Characterisation Council (EMCC) 29/10/18 Vienna, Messe | "New challenges for advanced materials characterisation in Europe - beyond H2020" Nello Li Pira | Oral presentation | Scientific & Research Community, Industry | CRF |
| Industrial Technologies 2018, 29-31/10/18 Vienna Austria | Participation to the Exhibition. Demonstrators for OE devices on flexible substrates | Booth | Industry, Investors, Customers | AUTh, OET, HOPE-A |
| IDTEchEx Printed Electronics USA 2018, 14-15/11/18, Santa Clara, USA | Intelligent Nanomanufacturing of Flexible Organic Electronic Devices: Towards the Industry 4.0 S. Logothetidis, A. Laskarakis, E. Mekeridis, C. Kapnopoulos, E. M. Pechlivani, V. Matskos | Oral | Scientific & Research Community, Industry | AUTh, OET |
| IDTEchEx Printed Electronics USA 2018, 14- 15/11/2018, Santa Clara, USA | Exhibition Booth | Booth | Scientific& Research Community, Industry, Customers | USUR |
| 44 th Steering Committee Meeting of VAMAS, Boulder, USA | Steering Committee Meeting | Oral | Scientific& Research Community | NPL |
| 7th Korea-EU NanoWorkshop 12/11/18 Seoul, S. Korea | LTFN Activities in Intelligent Nanomanufacturing of OPVs & OLEDs A. Laskarakis | Invited | Scientific & Research Community, Industry | AUTh |
| IDTEchEx Printed Electronics USA 2018, 14-15/11/18, Santa Clara, USA | Participation to the Exhibition with booth | Exhibition | Scientific & Research Community, Industry | AUTh, OET |
| Organic & Printed Electronics Conference for the Middle-East and North Africa, January 29-30/1/19, Dubai, UAE | «Customized Flexible And Printed Organic Photovoltaic Panels» E. M. Pechlivani | Oral presentation & exhibition | Scientific & Research Community, Industry | OET |

| Trade Fair Dedicated to Industry 4.0., Testing and Measurement, Robotics, Innovative Technologies, 13-15/2/19 Turin, Italy | Participation to the Exhibition | Exhibition,P oster presentation | Scientific & Research Community, Industry | CRF |
|---|---|---------------------------------------|--|------------------------|
| INTERFACES in ORGANIC and HYBRID THIN-FILM OPTOELECTRONICS (INFORM) 5-7/3/19 Valencia, Spain | Oral presentation & exhibition | Oral presentation & exhibition | Scientific & Research Community, Industry | FLUXIM |
| LOPEC Exhibition and Conference 19-21/3/19 Munich, Germany | Participation to the Exhibition | Booth | Scientific & Research Community, Industry | AUTH, OET HOPE-A |
| International Conference on Display Technology (ICDT) 26-29/3/19 Kunshan, China | 3 oral presentations & exhibition | Oral presentation & exhibition | Scientific & Research Community, Industry | FLUXIM |
| "IDTechEx Europe" 10-11/4/19 Berlin, Germany | Participation to the Exhibition | Booth | Scientific & Research Community, Industry | HOPE-A |
| IDTEchEX Show 10/4/19 Berlin, Germany | "Electronic Integration With Materials Into Novel Components For The Car Of The Future" Nello Li Pira | Oral presentation | Scientific & Research Community, Industry | CRF |
| MRS Spring Meeting& Exhibit 22-26/4/19 Phoenix,Arizona | Bandara et al, Efficient Defect Removal and Passivation of Pb-Sn Mixed Perovskites reaching Fill Factors of 83% | Presentation | Scientific & Research Community, Industry | SURREY |
| International Conference on Hybrid and Organic Photovoltaics (HOPV) 12-15/5/19 Rome, Italy | Oral & poster presentation | Oral & poster presentation | Scientific & Research Community, Industry | FLUXIM |
| Intersolar Europe 15-17/5/19 Munich, Germany | Participation to the Exhibition | Booth | Scientific & Research Community, Industry | AUTH, OET, |
| Display week of the Society for Information Display (SID) 13-17/5/19 San Jose, USA | 1 oral & 2 poster presentations | Oral presentation & exhibition | Scientific & Research Community, Industry | FLUXIM |

| 8th International Conference on Spectroscopic Ellipsometry 26-31/5/19 Barcelona, Spain | In-line Spectroscopic Ellipsometry for quality control of digital nanomanufacturing processes for Organic Electronic Devices Stergios Logothetidis, Argiris Laskarakis, Alexandros Zachariadis | Invited | Scientific & Research Community, Industry | AUTh HOPE-A |
|---|--|--------------------------------------|--|------------------------|
| EMRS 2019 27-31/5/19 Nice, France | Short pulse laser patterning processes for manufacturing of organic photovoltaics C. Kapnopoulos, E. Mekeridis, A. Zachariadis, P. Prodromidis, A. Laskarakis, C. Gravalidis, S. Logothetidis | Oral presentation | Scientific & Research Community, Industry | AUTh, OET |
| EUPVSEC 2019 «The Perovskite Based Photovoltaics» 9/2019 Marseille, France | In Situ Metrology for Degradation Studies of Perovskite Solar Cells | Oral presentation | Scientific & Research Community, Industry | NPL |
| NANOTEXNOLOGY 2019 30/6-6/7/19 Thessaloniki,Greece | Oral Presenations, Exhibitions | Oral presentation & exhibition | Scientific & Research Community, Industry | AUTh, OET HOPE-A |
| NANOTEXNOLOGY 2019 30/6-6/7/19 Thessaloniki,Greece | Oral Presenations | Oral presentation | Scientific & Research Community, Industry | UOI |

In the following, some highlights from the dissemination and communication activities performed by the CORNET partners are shown.

3.2.1. AUTh

Printable Flexible Wearable Electronic Symposium (CPES 2018), 22-25/05/2018, Toronto, Canada

Prof. S. Logothetidis from AUTh has been invited by the organizers to participate for an Invited Presentation at the Printable Flexible Wearable Electronic Symposium (CPES 2018), 22-25/05/2018, Toronto, Canada, and the title of his presentation was: Intelligent Nanomanufacturing of Flexible Organic Electronic Devices: Towards the Industry 4.0. The coordinator discussed with representatives from academic, research and industrial communities on the prospects of in-line metrology tools and methodologies and for future collaborations for the transfer of these innovations in the market. The benefit of this participation is that it facilitated the creation of connections between the partners and the relevant stakeholders from Academia, Research and Industry from Canada and USA. These stakeholders are interested for the innovations and results and open links are maintained, which are expected to further increase the impact of the project activities.

NANOTEXNOLOGY 2018 EXPO, 30/6-7/7/2018, Thessaloniki, Greece

AUTh has participated at the NANOTEXNOLOGY EXPO 2018, 2-6 July to promote its activities within the CORNET project.



Fig. 25. Participation of AUTh at the NANOTEXNOLGOY 2018 EXPO (photo shows the project Coordinator Prof. S. Logothetidis explaining the AUTh activities on OEs to the Alternate Minister for Research and Innovation Mr. C. Fotakis.

9th International Conference on Flexible and Printed Electronics – ICFPE

AUTh has participated at the 9th International Conference on Flexible and Printed Electronics, Grand Metropark Universal Dinosaur Town Hotel in Changzhou, China, September 25-28, 2018. Dr. A. Laskarakis presented an oral presentation with title: Intelligent Nanomanufacturing of Flexible Organic Electronic Devices: Towards the Industry 4.0 to the high number of participants to the ICFPE2018, which include representatives from Universities from China, Korea, Japan, Singapore, as well as from other Asian countries. Furthermore, the majority of the participants to the event came from the Industrial communities of China. Dr. A. Laskarakis had several discussions with these representatives and exchanged views and prospects about the implementation of in-line metrology and control tools for manufacturing of a huge variety of novel thin films and products by solution-based processes in sheet-to-sheet and roll-to-roll configurations. These views are expected to strongly benefit the project since they will provide new ideas on how to implement and integrate metrology tools for the quality control of various materials in different manufacturing configurations.

Moreover, Dr. A. Laskarakis has discussed with representatives from the Industrial Association for Organic Electronics of China (IAPE), and the Korean Association of Organic & Printed Electronics (KOPEA) and strengthen the links between these associations with the LTFN and opened the way for future collaborations with the partners. Another benefit of this participation/presentation to ICFPE2018 was the commitment of the Asian colleagues to participate to the events to be organized by the project to network directly with the partners and establish bilateral industrial collaborations.

Finally, in this event, Dr. A. Laskarakis met with representatives from OE-Association and discussed future activities in the fields of Organic & Printed Electronics.



Fig. 26. Participation and presentation by AUTh (A. Laskarakis) at the ICFPE 2018

7th Korean –EU Nanoworkshop, 12 November 2018 , Seoul, S. Korea

AUTh has been invited by EC (in communication with the CORNET PO), and participated to the 7th Korea-EU NanoWorkshop that took place at Seoul, S. Korea at 12 November 2018, where Dr. A. Laskarakis presented an invited presentation with title: Intelligent In-line Optical Metrology for the optimization of manufacturing of Flexible Organic Electronic Devices. With this presentation, he described the AUTh activities in the manufacturing of OEs and he presented the activities related to the development of in-line metrology tools for the optimization of OE device fabrication. Also, he discussed with representatives from KOPEA (Korean Association for Organic Electronics) for establishment of collaborations (also within the HOPE-A, <u>www.hope-a.com</u>, with which there is a singed Momerandum of Understanding-MoU).

Finally, a roadmap was discussed for collaboration in relevant activities on flexible OEs with the Korean stakeholders and to network with EU entities with expertise in OEs.



Fig. 27. Participation to the 7th EuKorea-EU NanoWorkshop

1st Workshop Nano – Greece-Turkey 1/10/2018 Istanbul, Turkey

AUTh has participated to the 1st Workshop Nano – Greece-Turkey 1/10/2018 Istanbul, Turkey and presented the activities of AUTh in Organic and Printed Electronics. The participants presented the CORNET project activities and targets as well as the prospects for further collaboration with the experts from Sabanci University (SUNUM) to commonly promote the field of OEs by the use of novel materials and device concepts.



Fig. 28. Group photo from the Workshop at SUNUM

Industrial Technologies 2018, 29-31/10/2018, Vienna, Austria

AUTh has participated to the **Industrial Technologies** and presented the activities of AUTh in Organic and Printed Electronics at the exhibition booth. Several discussions with the event participants took place and several contacts and plans for further collaboration, which will benefit the CORNET project were established.



Fig. 29. Exhibition booth at the Industrial Technologies 2018

IDTEchEx Printed Electronics USA 2018, 14-15/11/2018, Santa Clara, USA

AUTh together with OET have participated at the IDTEchEx Printed Electronics USA 2018. Prof. S. Logothetidis made an oral presentation for the innovations related to CORNET regarding the robust, non-destructive, ultra-fast and in-line Precision Metrology (optical, electrical, structural, etc) and the large experimentation data analytics for the quality control of large area printable & flexible & printable OE devices and the ultra-fast digital feedback to the pilot and production lines for the closed loop manufacturing of OE devices with tailored performance and high production yield.

Prof. S. Logothetidis had several discussions with representatives from industrial communities from USA, Canada, Europe and Asia and exchanged views and prospects about the implementation of in-line metrology and control tools for the digital nanomanufacturing of advanced products based on Organic Electronics. These discussions will benefit the CORNET project since they create new links for the industrial adoption of the project results to different materials for manufacturing of mass-market products.

Also, the innovations of the project were demonstrated by an exhibition booth at this event.



Fig. 30. Exhibition booth at the event and CORNET Coordinator Prof. S. Logothetidis

3.2.2. UOI

NANOTEXNOLOGY 2018 ISFOE18, 1-6/7/2018, Thessaloniki, Greece

UOI participated in ISFOE18 during the NANOTEXNOLOGY2018 event where it was given a presentation on modeling work by UOI representative Prof.E.Lidorikis.



Fig.31. Presentation on modeling work by Prof.E.Lidorikis representative of UOI

3.2.3. FLUXIM

Fluxim has attended several Conferences and also participated in Exhibitions, which are presented in the following table.

| Conference | Contribution | Date and location |
|--|--|--------------------------------------|
| Stability of Emerging Photovoltaics from Fundamental to Applications (SEPV) | Oral presentation & Exhibition | 2023.2.18 in Barcelona, Spain |
| I-Zone at SID Display Week | Exhibition | 2025.5.18 in Los Angeles, USA |
| International conference on organic electronics (ICOE) | Oral presentation, Poster & Exhibition | 1822.6.18 in Bordeaux, France |
| International Conference on Science and Technology of Synthetic Metals (ICSM) | Oral presentation & exhibition | 16.7.18 in Busan, South Korea |
| International Symposium on Flexible Organic Electronics (ISFOE) | Oral presentation, workshop & exhibition | 16.7.18 in Thessaloniki, Greece |
| International Conference on Simulation of Organic Electronics and Photovoltaics (SimOEP'18) | Organization and several oral contribution & workshops | 46.9.18 in Winterthur, Switzerland |
| 2018 International Conference on the Science and Technology of Emissive Displays and Lighting (EL2018) | Oral presentation & exhibition | 1113.9.18 in Tokyo, Japan |
| 4th International Conference on Perovskite Solar Cells and Optoelectronics (PSCO) | Poster presentation & exhibition | 30.92.10.18 in Lausanne, Switzerland |
| NanoGe fall meeting | Invited presentation | 2226.10.18 in Malaga, Spain |

Table 3. Fluxim Targeted Conference Attendance and Contribution

| International Summit on Organic and Hybrid Photovoltaics Stability (ISOS) | Oral presentation & exhibition | 2125.10.18 in Suzhou, China |
|--|------------------------------------|-----------------------------|
| INTERFACES in ORGANIC and HYBRID THIN- FILM OPTOELECTRONICS (INFORM) | Oral presentation & exhibition | 57.3.19 in Valencia, Spain |
| International Conference on Display Technology (ICDT) | 3 oral presentations & exhibition | 2629.3.19 in Kunshan, China |
| Display week of the Society for Information Display (SID) | 1 oral & 2 poster presentations | 1317.5.19 in San Jose, USA |
| International Conference on Hybrid and Organic Photovoltaics (HOPV) | Oral & poster presentation | 1215.5.19 in Rome, Italy |

3.2.4. NPL

o IMEKO2018 in Belfast

NPL attended IMEKO2018 in Belfast to present a simple demonstrator of data fusion. The associated paper, "Data fusion for organic electronic material parameters", was published in the proceedings.

o IEC TC119 Printed Electronics

NPL attended the IEC TC119 Printed Electronics committee meeting (15/03/18) which was co-located with the LOPEC conference. The meeting was used to discuss existing best practice that can be brought to the CORNET consortium and which areas that require further harmonization. NPL also used the opportunity for networking with key stakeholders and attended the LOPEC tradeshow (14/03/18)

o 2nd Plenary Meeting of IEC TC 124 Wearable Electronics and devices in Manchester

NPL attended the 2nd Plenary Meeting of IEC TC 124 Wearable Electronics and devices in Manchester, UK and became a member of the mirror standardization committee in the UK. During that meeting NPL opened contact and shared information about the project aims with the convector of CEN TC248 WG31 Smart Textiles.

$\circ~$ 43th Steering Committee Meeting of VAMAS

NPL attended the 43th Steering Committee Meeting of VAMAS, held in Berlin, Germany, where NPL explained the aims of CORNET and proposed a new work item to establish a roadmap of measurement standards for printed electronics that should be published in collaboration with CORNET.

• ISFOE2018 in Thessaloniki

NPL presented talk during ISFOE2018, Thessaloniki, entitles "Multi-scale high-resolution mapping of printed photovoltaics" to disseminate characterization methods for printed solar cells that are being used in the CORNET project.

o In Situ Metrology for Degradation Studies of Perovskite Solar Cells" to EUPVSEC 2019 conference

NPL and University of Surrey prepared and submitted an abstract entitle "In Situ Metrology for Degradation Studies of Perovskite Solar Cells" to EUPVSEC 2019 conference that will take place in Marseille, in September 2019. It has been accepted as an oral presentation in the Perovskite Based Photovoltaics" Session (3CO.6.3).

$\circ~$ 44 th Steering Committee Meeting of VAMAS, held in Boulder, USA

NPL attended the 44th Steering Committee Meeting of VAMAS, held in Boulder, USA, where NPL presented the progress of CORNET standardisation activities in collaboration with VAMAS TWA36 and disseminated information about the OIE platform and database.



Fig.32. Dissemination of OIE Platform through clustering activities with VAMAS

o Questionnaire in Standardization- Dissemination activities

NPL has created a questionnaire, in collaboration with HOPE-A, to consult with stakeholders about requirements for standardization in printed electronics. We disseminated initially to a selected small group (16 participants) from industry, RTO, SME and academia to get feedback on the format and types of questions. An updated version will be prepared and disseminated to a larger global audience.

| NF | 7. Wh | at do y | CORNET I | al areas for | the de | VAMAS | Printed First for Ministry & Stretchuld Bestgework Weine Stretchuld Bestgework (Stretchuld Bestgework) Standardination Requirements for Printed Electronics Deterministry and the State and Stretchuld Bestgework State and Stretchuld Bestgework (Stretchuld Bestgework) State and Stretchuld Bestgework (Stretchuld Bestgework) State and Stretchuld |
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| | н | • | Photovoltaics | 8. Sec | ond le | vel: What in particular is criti | Terther Informative Dis Termanias Castina (Date, VARARI: TNA. IN) |
| | | . • | Light Emitting Diodes | Please | rank | your responses in order of imj | |
| | Η | \$ | Thin Film Transistors | H | \$ | Materials | |
| | # | • | Display not LED/OLED | Ħ. | \$ | Processing and Manufacturing | |
| | # | • | Batteries | Ħ | ٥ | Characterisation of nanomaterials | State of the second sec |
| | 11 | \$ | Smart Cards | H | \$ | Stability testing of devices | The data with the interface and personality, the Materian Physical Laboratory is completent with 10 factors late Armsche Regulation [12] Theorem I for example and the interface of a state of the first property of this servey. |
| | - | \$ | Sensors | Щ. | \$ | Characterisation | |
| | 18 | • | Smart textiles | H | • | Modelling of material and devices | |
| | | | 0 of 15 assessment | 1 | \$ | End of Life and Recycling | |
| | | | | H | • | Printability | |
| | | | | 11 | • | Manufacturing under vacuum methods | |

Fig. 33. Screenshot of the Questionnaire created by NPL in collaboration with HOPE-A

3.2.5. OET

OET has participated in Conferences and Exhibitions for the dissemination of the project activities and for networking with other entities over the whole value chain. Also, exhibition booths were used for the promotion of the project and distribution of information material (e.g. leaflets, brochures).

In more detail, the presentations of the partners with acknowledgements in CORNET include the following:

1. Smarter Intersolar 2018, June 20-22, 2018 at Messe München, Germany

OET participated in the event of EM-Power 2018 presented by Mr. V.Matskos and Product developer Mrs. S.Tsimikli



Fig. 34. Mr. V.Matskos and Product developer Mrs. S.Tsimikli at the OET exhibition

In this exhibition OET using as a canvas a FIAT 500L vehicle illustration integrated on a constructed car's roof by plexiglass assembled with five OPV panels. The integrated smart roof based on the specifications defined between OET and CRF.

2. IDTechEx Show! Emerging Technologies Unleashed, 14-15 November 2018, Santa Clara, CA, USA

OET by C.Varlamis successfully participated the IDTechEx Show in Santa Clara, CA, where the latest market news and applications were presented in the emerging technologies of Printed Electronics, 3D Printing, Electric Vehicles, Energy Storage, Graphene, Internet of Things, Sensors and Wearables.



Fig. 35. OET's presence at the IDTechEx Show! USA 2018 event

OET targets at this event to inform the visitors for the latest results of CORNET and establish industrial collaborations with USA partners. Also, to present energy OPV & lighting OLED solutions and technologies for an intelligent, sustainable and cost-effective energy and light supply, connect with international stakeholders across the world's most influential markets.

3. Organic & Printed Electronics Conference for the Middle-East and North Africa, held on January 29-30, at the Grand Hyatt, Dubai, UAE

OET successfully participated the 1st Organic & Printed Electronics Conference for the Middle-East and North Africa, held on January 29-30, at the Grand Hyatt, Dubai, UAE. Dr. Ria Pechlivani delivered OET's presentation entitled "Customized Flexible And Printed Organic Photovoltaic Panels" while attendees had the opportunity to visit OET's booth, showing great interest and taking the time to engage in fruitful conversations. All these efforts were of great value in order to provide awareness on all these new technologies across a constantly evolving environment which is the Arab world.



Fig. 36. OET's booth and presentation as visited by UAE government officials

4. INTERSOLAR EUROPE 2019, 15/5-17/5/2019, MUNICH, GERMANY

AUTh together with OET particiapated in the Intersolar Europe Exhibition that took place in Munich , on 15-17/7/2019. At the exhibition booth were made several discussions with the participants and exhibitors, which will benefit the CORNET project dissemination.



Fig. 37. Exhibition booth at the Intersolar Europe Exhibition and Mr. D.Dimitriou Business Developer of OET

3.2.6. CRF

The Trade Fair Dedicated to Industry 4.0, Testing and Measurment, Robotics, Innovative Technologies, 13-15 February, Turin, Italy

During 2019 CRF has attended with its own stand the international faire Automation & Testing (<u>https://www.aetevent.com</u>) that took place in Turin during 13th -15th of February. The faire was focused on innovative technologies with the aim of bringing the excellence of applied research to processes and production, and understanding in practice what are the "paths" to increase skills and be more competitive on the market. In the stand CRF has delivered to the participants the CORNET flyers and shown some demonstrators of OLED and OPV kindly provided by OET.





Fig.38. CRF at The Trade Fair Dedicated to Industry 4.0, Testing and Measurement, Robotics , Innovative Technologies

CRF has attended conferences in printed electronic sector as invited speaker. In the talks given during those presentations, CRF has described briefly the activities and the aims of Cornet project with a special focus on the automotive applications. These presentations had a significant impact on tier-1, tier-2, SMEs, automotive suppliers and designers as it was shown how OE devices can be integrated in a real component and which technological developments were achieved. Other conferences were related to the topics of advanced characterization of materials and emerging technologies for electronic.

| Conference | Contribution | Date and location |
|--|--------------------------------------|--------------------------------|
| Prinse'18 Conference on Printed Electronic : "When materials meet Electronics: novel frontiers in multifunctional components in automotive" | Oral presentation; L. Belforte | 30.1.18 – 1.2.18, Oulu |
| NANOTEXNOLOGY 2018 conference: "Customization and integration of materials into novel components for the car of the future" | Oral presentation; N. Li Pira | 4.7.18 in Thessaloniki, Greece |
| Workshop On Flexible & Printed Electronics Industry: "OPVs, OLEDs and Sensors for the Car of the Future" | Oral presentation; N. Li Pira | 22.10.18 in Athens, Greece |
| European Materials Characterisation Council (EMCC): "New challenges for advanced | Oral presentation; | 29.10.2018 in ???? |

Table 4. List of Conferences CRF attended

| materials characterisation in Europe - beyond H2020" | Nello Li Pira | |
|---|--|----------------------------|
| LIMS Conference | Oral presentation, M.M Dugand | 16.5.18 in Frascati |
| IDTEchEX Berlin 10/4/19 "Electronic Integration With Materials Into Novel Components For The Car Of The Future" | Oral presentation, Nello Li Pira | 10.4.19 in Berlin, Germany |

3.2.7 HOPE-A

NANOTEXNOLOGY 2018, 30 June -07 July 2018, Thessaloniki, Greece

At the multi-event NANOTEXNOLOGY 2018, which took place 30 June – 7 July 2018 in Thessaloniki, Greece. HOPE-A was an Exhibitor at the EXPO18, where there were Cornet Brochures distributed and relevant dissemination activities realized. There was a prearranged meeting with KoPEA - Korea Printed Electronics Association, where it was discussed how KoPEA could support the dissemination of Cornet's Open Innovation Environment Platform and Database. HOPE-A also gave a talk in the framework of the 11th International Symposium on Flexible Organic Electronics at the Workshop on 'EU Projects on Nanotechnologies & Advanced materials for OPVs and Perovskites' about Cornet to relevant stakeholders and end-users highlighting Cornet innovations and objectives



Fig. 39. Representative of HOPE-A gives a CORNET presentation

SYSKEVASIA 2018, 12-15 October 2018, Athens, Greece

HOPE-A took part in SYSKEVASIA 2018, 12-15 October 2018 in Athens, Greece, and presented its members' activities on Organic & Printed Electronics and how they are applied in the Packaging sector. HOPE-A distributed the Cornet brochure to the Exhibitors related with Cornet's fields of interest and informed them on the development of the Open Innovation Platform & Database and their needed contribution, as well as the benefit the OIE holds for them as End-Users.



Fig. 40. CORNET brochure distribution and information on OIE activity at HOPE-As booth

Industrial Technologies 2018: "Innovative industries for smart growth ", 29-31 October 2018, Vienna

HOPE-A participated as an Exhibitor in 'Industrial Technologies 2018 - Innovative industries for smart growth', in Vienna, which took place 29 – 31 October 2018. Dissemination activities concerning Cornet were realized to relevant stakeholders and end-users, by a Cornet Poster at the Booth and by the distribution of Cornet brochures.



Fig. 41. At the booth of HOPE-A

LOPEC Exhibition and Conference: Driving the Future of Printed Electronics, 19 – 21 March 2019, Messe, Munich

At "LOPEC Exhibition and Conference : Driving the Future of Printed Electronics", which took place on March 19-21, 2019 at Messe, Munich, HOPE-A participated and presented CORNET innovations and objectives. The poster with the logo of CORNET posted on booth, presenting a short description of the CORNET OIE.



Fig. 42. Poster at HOPE-As booth presenting a short description of the CORNET OIE

IDTechEx Europe, 10-11 April 2019, Berlin

HOPE-A participated as an Exhibitor in "IDTechEx Europe" in Berlin, which took place on 10 and 11 April 2019. A CORNET Poster placed at the booth in order to attract relevant stakeholders who informed in detail about its activities and significance. Also, CORNET brochures distributed for dissemination purposes.



Fig. 43. At HOPE-As booth during dissemination activities

Co organization of up coming events NANOTEXNOLOGY 2019 29 June-6 July 2019

HOPE-A involved in the organization of the NANOTEXNOLOGY 2019 multi-event that will take place at Thessaloniki, Greece at 29 June-6 July 2019. The CORNET Project Coordinator (AUTh) is the organizer of these event since 2003 (where it started as an International Workshop on Nanosciences and Nanotechnologies) and which currently has been expanded as the largest technology, networking and matchmaking annual event in Europe with more than 800 participants every year from more than 60 countries. NANOTEXNOLOGY event will be the main vehicle for the dissemination and exploitation of the project results.

HOPE-As' scope is to exploit the great amount of visitors and exhibitors in order to disseminate CORNETS OIE by distributing CORNETS brochures and prearranging face to face meetings with relevant stakeholders and end- users.

3.3. Scientific Publications

During the Reporting Period 1, there are 3 manuscripts submitted (and currently under review) by the partner University of Surrey (USUR).

These are the following:

1)Title: Extraction of Tin(IV) Dopants through Anti-Solvent Engineering Enabling Tin Based Perovskite Solar Cells with High Charge Carrier Mobilities

Authors: R.M. Indrachapa Bandara^{*}, K.D.G. Imalka Jayawardena^{*}, Stephanie O. Adeyemo, Steven J. Hinder, Joel A. Smith, Hashini M. Thirimanne, Nicholas C. Wong, Faisal M. Amin, Ben G. Freestone, Andrew J. Parnell, David G. Lidzey, Hannah Joyce, Radu A. Sporea, S. Ravi P. Silva

Journal: Nature Communications.

2) Title: Lead-tin mixed perovskite photovoltaics with fill factor of 83% approaching the Shockley-Queisser limit

Authors: R K.D.G.I. Jayawardena,* R.M.I.Bandara,* M. Monti, E. Butler-Caddle, T. Pichler, H. Shiozawa, Z. Wang, S.J.Hinder, M.G.Masteghin, M. Patel, H.M.Thirimanne, W. Zhang, J. Lloyd-Hughes, R.A. Sporea, S.R.P.Silva

Journal: Science Advances

3) Title: Energy Scavenging and Powering e-skin Functional Devices Authors: R.D.I.G. Dharmasena, K.D.G.I. Jayawardena, Z. Saadi, X. Yao, R.M.I. Bandara, Y. Zhao, S.R.P. Silva Journal: Proceedings of the IEEE

4) The CORNET project was mentioned in the acknowledgements of the ICDT and SID display week (see above) paper "Quantitative Analysis of Charge Transport in Single-Carrier Devices and OLEDs Combining DC and AC Data". The ICDT conference proceedings will be published by Wiley Online.

5) Bandara et al, Tin(IV) Dopant Removal through Anti-Solvent Engineering Enabling Tin Based Perovskite Solar Cells with High Charge Carrier Mobilities

Authors : J. Mater. Chem C.

6) The Fluxim employees' contribution on publications related to their CORNET activities presented on the following table:

| Title | Author(s) | Reference data |
|--|--|---|
| Opto-electronic characterization of third-generation solar cells | Martin Neukom, Simon Züfle, Sandra Jenatsch & Beat Ruhstaller | Science and Technology of Advanced Materials, 19:1, 291- 316 (2018), <u>https://doi.org/10.1080/1468699</u> <u>6.2018.1442091</u> |
| Design of perovskite/crystalline- silicon monolithic tandem solar cells | S. Altazin, L. Stepanova, J. Werner, B. Niesen, C. Ballif, and B. Ruhstaller | Optics Express Vol. 26, Issue 10, pp. A579-A590 (2018), <u>https://doi.org/10.1364/OE.26.0</u> <u>0A579</u> |
| Stability of organic solar cells with PCDTBT donor polymer: An interlaboratory study | L. Ciammaruchi et al., | J. Mater. Res., Vol. 33, Issue 13, pp. 1909-1924 (2018), <u>https://doi.org/10.1557/jmr.2018</u> .163 |
| Quantitative analysis of charge transport in intrinsic and doped organic semiconductors combining steady-state and frequency-domain data | S. Jenatsch, S. Altazin, PA. Will, M. T. Neukom, E. Knapp, S. Züfle, S. Lenk, S. Reineke, and B. Ruhstaller | Journal of Applied Physics 124, 105501 (2018), <u>https://doi.org/10.1063/1.50444</u> <u>94</u> |
| Refined drift-diffusion model for the simulation of charge transport across layer interfaces in organic semiconductor devices | S. Altazin, C. Kirsch, E. Knapp, A. Stous, and B. Ruhstaller | Journal of Applied Physics 124, 135501 (2018), <u>https://doi.org/10.1063/1.50432</u> <u>45</u> |
| Analysis of the bias-dependent split emission zone in phosphorescent OLEDs | Markus Regnat, Kurt P. Pernstich, Simon Züfle, and Beat Ruhstaller | ACS Appl. Mater. Interfaces, 2018, 10 (37), <u>https://pubs.acs.org/doi/10.1021</u> /acsami.8b09595 |
| Influence of the bias-dependent emission zone on exciton quenching and OLED efficiency | Markus Regnat, Kurt P. Pernstich, and Beat Ruhstaller | Org. Electr., Vol. 70, p. 219-226 (2019), <u>https://doi.org/10.1016/j.orgel.20</u> 19 04 027 |

Table 5. Fluxim employees' contribution on publications related to their CORNET activities.

OET has contributed to publications in relevant fields to CORNET. These are the following:

- 1. Efficient flexible printed perovskite solar cells based on lead acetate precursor, C. Kamaraki, et al., Solar Energy, 176, (2018) 406-411
- 2. C. Zisis, E. M. Pechlivani, et al., Materials Today: Proceedings, Submit. Jul. 2018 (2019)

3.4. Collaborations with other Projects

CORNET project presents includes relevant objectives and activities with other projects. In this basis there are many profitable effects of the connection with them such as:

• Development of common understanding of potential synergies in the relevant fields through bi-lateral discussions with CORNET partners

• Exchange of technical information in order to identify the common areas of R&D for which both CORNET and other projects have interest and mutual benefit

- Organization of joint events preferably in parallel with other conferences in areas of mutual interest
- Common participation in conferences/workshops in order to inform the wider scientific community about the key outputs and planned activities of the projects

CORNET – Smartline

During the 1st Reporting Period, the consortium identified the H2020 EU project Smartline (http://www.smartline-project.eu).

The activities of SmartLine in the development of novel in-line metrology tools and methodologies for the manufacturing of OE devices are complemented by the activities of CORNET, which are focused on the development of an Open Innovation Environment for the optimization of the manufacturing for OPVs, OLEDs and PPVs by R2R and OVPD processes. CORNET is coordinated by AUTh (SmartLine coordinator), and the consortium includes some of the SmartLine partners (OET, CRF, AIXTRON). This opens the way for the acceleration of the activities of SmartLine in the fabrication of OPV and OLED devices of specific efficiency and lifetime values. The results from the samples fabricated in SmartLine can be correlated with information from complementary modelling and characterization that will be performed by the CORNET partners, which will establish specific correlations between the process parameters and the final properties of the OE devices. The information from the SmartLine metrology tools will play a major role since it will provide in-depth information of the potential variations of the optical, electrical, structural properties of the materials and devices during their manufacturing.

Also, within the 1st reporting period, the 2 projects have co-organized specific events, such as the 9th Workshop – Flexible & Printed Electronics Industry: Targeting the Digital Transformation that took place at Athens, Greece at 22 October 2018.

APEVA has done networking with the H2020 FOF-08-2017 SmartLine 2017-2020 project on the development of protocols for characterization and modelling. As part of this the use for manufacturing of OE devices has been investigated. CORNET also benefits from the experience from the FP7 Smartonics 2013-16 project on OE materials and device architectures. In addition, the OVPD pilot line built in the FP7 Smartonics 2013-16 project is a key tool for the work in CORNET. This tool is a basis for the process development and in-line characterization of materials for OE devices. These networking activities are ongoing and expected to make significant contributions to the CORNET targets. As the project progresses, it is expected that results will be used for training & education in OVPD Technology.

3.5. Participations in Networks, Clusters and Associations

3.5.1. AUTh

CORNET partners interacted with relevant committees such as EMMC in order to establish connection with associated H2020 projects OYSTER & MMAMA through the use of redirecting links. Also, further discussion was made on the potential dissemination of the OIE Platform and Database.

During the 1st reporting period, AUTh has discussed with representatives from the OYSTER & MMAMA projects to harmonize the activities between the 3 OIE projects ("sister projects") in order for all projects to benefit with best-practice approaches for the development of Open Innovation Environments (in different fields, but with a similar approach).

A series of telephone conferences have been performed by the 3 OIE project coordinators together with the EC Project Officer Dr. Jorge COSTA DANTAS FARIA at the following dates: 17 September 2018, 14 January 2019 and 4 April 2019. The points discussed include:

- Concept for each project; Needs, targets, objectives and main approach
- Approach for each project on the establishment of the OIE
- Interellations between the project partners and the outside stakeholders
- Database development, structure, description and specifications of populated data
- OIE Platform; framework, concept and organization of operation within CORNET and beyond
- Communication Tools
- Publication routes, common (co-organized) events
- Characterization Data (CHADA) for the representation of the measured data, which is based on semantic footing and open (interoperability) standards
- Development of CHADA for other characterization activities within the CORNET, MMAMA nad OYSTER projects
- Collaboration for the common organization of international events. The partners agreed to coorganize a Special Workshop on Open Innovation and Standardization for materials characterization, materials modeling and materials process and manufacturing (<u>https://www.nanotexnology.com/index.php/workshop-on-open-innovation-and-standardizationisfoe</u>) at the NANOTEXNOLOGY 2019 event.
- Collaboration for the upcoming Euronanoforum 2019 (June 2019) as well as for the European Innovation Days (September 2019)

Finally, the CORNET partners have participated in the events of the EMMC and EMCC, as in the case of the Industrial Technologies 2018 (Vienna) where a specific Workshop took place with title: New challenges for advanced materials characterisation in Europe - beyond H2020. In this workshop, it was discussed with the EMCC Operational Management Board the routes for collaboration between CORNET and EMCC.

3.5.2. FLUXIM

FLUXIM AG is a member of Swiss Photonics (<u>https://www.swissphotonics.net/home</u>), the National Thematic Network (NTN) for Photonics in Switzerland. More than 200 companies and experts in the field are contributing to this association, which encourages collaboration between industry and academia, and knowledge dissemination through periodic scientific meetings and workshops.

FLUXIM is also contributing to different professional networks interested in OLEDs and solar cells on LinkedIn. Discussions are initiated monthly to update the members of the groups "OLED and OLED displays", "Organic Electronic Association", and "Perovskite Solar Cell (PSC)" on the company activity. Current and previous collaborators of FLUXIM are also members of SPIE, the International Society for Optics and Photonics.

3.5.3. OET

1.9th Workshop on Flexible & Printed Electronics Industry (Targeting the Digital Transformation), 22nd of October 2018 in Divani Caravel Hotel in Athens

During the event, OET presented its innovative products and services as well as the new trends in the Organic and Printed Electronics industry. OET had the chance to present its latest activities and on the OPVs/OLEDs Large Area Production, their applications in Automotive, Lighting, Wearables and Smart/Intelligent Packaging Solutions for OE's Manufacturing. Among the latest updates in the OEs Field, OET has contacted distinguished guests from the business, scientific and political sector, as well as national and public authority's representatives.

OET's presentations during the event where "Large Area OEs for Energy Production & Lighting in Automotive, Buildings and Greenhouses" by Dr. E. Pechlivani, "Industrial Manufacturing of Flexible & Printed Electronic Devices" by Mr. E. Mekeridis and "Manufacturing Flexible & Printed RFIDs and Sensors for IoT" by Mr. S. Fachouri.

In the networking sessions, the Workshop's attendees shared their experiences, concerns and aspirations in order to find common ways of work towards the commercialization of this rapidly evolving field.



Fig.44. Greek Dep. Minister of Environment & Energy, Mr. S. Famellos visiting OET's display of products and activities

2.LoI agreement with CEA for new project

During the ICT 2018 event in Vienna on 4-6 December 2018, OET discussed and came to an agreement with CEA towards OET's participation as a third party in the SmartEs2 call "DT-ICT-01: Smart Anything Everywhere στην Area 3: Flexible and Wearable Electronics".

3.LOPEC 2018, 15th March 2018, Messe Munich, Germany

OET's dissemination strategy has targeted to establish industrial collaborations in order to enable on recent future the widespread adoption of protocols, and OIE Platform and Database by the academic, research and industrial communities.



Fig. 45. OET at LOPEC 2018

4. Electronica 2018, 14-15 November 2018, Munich, Germany

OET successfully participated the Electronica 2018 Event & Expo, on a two-day opportunity.

Mr. Salim Fachouri gave a presentation showcasing the company's profile and ongoing activities, entitled "Flexible OPVs for Low Energy Consumption Electronics", whereas the following day presented the latest CORNET results with many opportunities for networking by visiting many interesting booths throughout the expo. OET's dissemination strategy has targeted to establish industrial collaborations in order to enable on recent future the widespread adoption of protocols, and OIE Database and Platform by the academic, research and industrial communities.

5.ICT 2018: Imagine Digital-Connect Europe, Smart Anything Everywhere, 4-6 December 2018, Vienna, Austria

This research and innovation event focused on the European Union's priorities concerning the digital transformation of society and industry. It presented an opportunity for the people involved in this transformation to share their experience and vision of Europe in the digital age. OET target was to network with other European Clusters, Associations and H2020 Projects by promoting CORNET's objectives and recent results.

Dr. Ria Pechlivani had the opportunity to network and present OET's new project idea on Flexible and Wearable Electronics based on Printed Organic Electronic devises and get the necessary information on open and upcoming calls, focused on selected H2020 at ICT and DT-ICT calls.

3.5.4. HOPE-A

HOPE-A pursues to spread the establishment of CORNETS OIE, emphasizing on its benefits and innovation impacts. HOPE-A connected the CORNET OIE Platform to a huge number of European Industries and SMEs (>300 entities) and connections to OE Saxony, COPT.NRW, AFELIM, and JAPEC. CORNET has received Letters of Intent (LOI) from several entities to connect in OIE.

HOPE-A identified potential collaboration opportunities with EU Clusters, Standardization Bodies, materials suppliers, OEs manufacturers and experts in value chains to attract new users and potential new customers in order to promote the CORNET project and results, while helping to develop synergies between related initiatives in order to expand the project's area of multiscale modelling and characterization to optimize the manufacturing processes of OE materials.

- The OIE Platform includes specific measures to promote networking between the CORNET partners and external entities, to increase the visibility of the CORNET partners innovations and achievements and to exploit the advantages of the OIE for the optimization of materials and devices for the manufacturing of reliable Organic Electronic
- Co- operation with "Nano-Net" set a significant path for the connection of CORNET OIE with Stakeholder's and members that include more than 570 entities worldwide from both research and industrial area.

Also, several activities were took place as Clustering activities is concerned:

- ISFOE18, 2 July 2018, Thessaloniki, Greece. CORNET presentation where made at the 'Workshop on EU Projects on Nanotechnologies & Advanced materials for OPVs and Perovskites' that HOPE-A co organized with Nanotechnology Lab LTFN
- 9th Workshop on Flexible & Printed Electronics Industry (Targeting the Digital

Transformation), 22 October 2018, Athens, Greece. Plethora of relevant Stakeholders were invited to promote networking and dissemination of CORNET innovations.

 Joint Workshop with IAPE, 2 July 2018, Thessaloniki, Greece. The purpose was the promotion of networking with CORNET related Stakeholders



Fig. 46. Announcement of the joint Workshop with IAPE on NANOTEXNOLOGY site

- MoU with KoPEA: MoU with Korea Printed Electronics Association signed 6th July 2018. By this HOPE-As network widens as well as dissemination power regarding CORNET. The expected result is that more Stakeholders and End-users will contribute and benefit from this.
- New Members: New member from Greece "DK Marketing" who operates in the field of International Marketing & Sales providing breakthrough Marketing, Communication and Promotional solutions.

3.6. Public Website

The public website of CORNET has the scope to promote the mission and goals of the project and to inform the society on its activities and achievements. Prior to the development phase, a study of similar projects' websites has been conducted as a benchmark for ideas in the selection of the type of information to be highlighted, the website's presentation and its organization. The CORNET official domain address is the http://www.CORNET-project.eu/.



The CORNET partners have announced the project and its activities in their corporate websites. These are included in the following list:

| | Table 6. CORN | IET links to partnei | rs' corporate website |
|--|---------------|----------------------|-----------------------|
|--|---------------|----------------------|-----------------------|

| Partner | CORNET links to corporate website |
|---------|---|
| OET | http://oe-technologies.com/index.php/news/ |
| | http://oe-technologies.com/index.php/category/news/events/ |
| | http://oe-technologies.com/index.php/category/news/press/ |
| AUTh | http://ltfn.physics.auth.gr/index.php/research/r-d-projects/active-projects |
| HOPE-A | http://www.hope-a.com/index.php/projects/hope-a-in-cornet |
| Fluxim | https://www.fluxim.com/research-projects |

3.7. Public Media

3.7.1. Public Announcement and Articles

CORNET partners are active on LinkedIn, Facebook and Twitter. Newest research articles, workshops and product improvements are posted regularly to interact with the community. Through these networks, it is possible to incorporate social media plugins that enable sharing and interaction. These actions help CORNET partners to build project awareness, increase feedback and create connection with potential investors or relevant stakeholders.

- Press release
 - https://cordis.europa.eu/news/rcn/129999_en.html?WT.mc_id=exp
- Magazines
 - <u>https://nano-magazine.com/news/2018/6/5/researchers-hit-new-efficiency-landmark-for-single-junction-opv-</u>
 - cells?fbclid=IwAR3f0Y0pzuL477MOhT8AqQdTRKiyhtOg3Qm2xmk7J66wSYvEJJRl7OqXvNo
 - <u>https://www.pv-magazine.com/2018/06/05/greek-researchers-hit-new-efficiency-landmark-for-single-junction-opv-cells/</u>
 - <u>http://www.osadirect.com/news/article/2205/oet-researchers-achieve-74-efficiency-for-single-structure-fully-printed-organic-photovoltaic-a-new-world-record/?fbclid=lwAR3dJS4UoaprJNzkSIg9lnQSldiF4ZuLWPuTprgWbwMJzHFG6UDYq1EPEHk</u>

HOPE-A is responsible for the operation of CORNETs Social media pages , i.e. Facebook , Twitter and LinkedIn. Its role is to provide updates on the Social Media pages, reporting of new achievements and reproducing interesting topics related to CORNET.

In detail:

Facebook: Weekly posts (>10 posts in a week) describing activities of CORNETs members in order to communicate the objectives of the project and socializing photographs of events and exhibitions that CORNET is advertised in.

Twitter: CORNET has around 100 followers and made >50 tweets that gained a great interaction. Tweets relevant to Organic Electronics and topics of Material Characterization also made resulting the emerging exchange of knowledge with many followers.

Additionally, HOPE-A in collaboration with AUTH supports CORNETs website, by publishing information about projects' news and development.



Fig. 47. Current view of the database area for dissemination activities

"Statcounter" (Web Traffic Analysis Tool implemented) used in order to locate CORNETs website general activity and statistics such as visits, page views, returning visits, visitors' maps.

The chart below gives the expected results:

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Fig.48. Website Statistics

3.7.2. CORNET Brochure

The CORNET brochure has prepared from the partners for dissemination purposes through distribution to interested entities and individuals. Also it is digitally available in the CORNET website for download and use (News & Media/Media Kit)



www.cornet-project.eu

Fig.49. CORNET brochure

3.7.3. CORNET Public Presentation

AUTh in collaboration with HOPE-A prepared the public presentation for the CORNET Project, which has been uploaded at the CORNET website's secured area, in the downloads path, in order to be used from the partners (in both PRD and PPT format). The public presentation slides are presented in the following figure.



Multiscale Modelling and Characterization to Optimize the Manufacturing Processes of Organic Electronics Materials and Devices (CORNET)





3.8. Internal Communication Activities

Several internal communication activities were realized among the CORNET partners in order to establish a strong connection, partnership but also to create an effective canal for discussion of the project advancement. Some of the main communication activities that took place are the following:

Monthly R&D meetings to discuss measurements and simulation activities of CORNET and other projects.

Frequent teleconference meetings between partners, but also in person meetings:

26-01-2018 ,CORNET Kick-Off Meeting

CORNET Kick-Off Meeting took place on Friday 26th of January 2018 in Brussels .



Fig.51. CORNET Kick-Off Meeting

13-03-2018, CORNET 2nd Technical Meeting

The CORNET 2nd Technical Meeting was held on 13 March 2018 at Messe Munich, where the contortium participated and discussed on the project objectives.



Fig.52. CORNET 2nd Technical Meeting

23-24-04-2019, Technical meeting in Thessaloniki

A technical meeting was held in Thessaloniki among OET, ANSYS Granta and AUTH in 23-24, April 2019 at COPE-H facilities.



Fig.53. OET, ANSYS Granta and AUTH

13-14-04-2019, CORNET Technical Meeting in Ioannina, Greece

Technical meeting hosted by the University of Ioannina in 13 and 14 April 2019 with a primary focus on CORNET's modeling activities.



Fig.54. UOI, AUTh,OET and HOPE-A at CORNET Technical Meeting

05-05-2019, CORNET Technical Meeting in Torino, Italy

At the CORNET Technical Meeting in Torino, Italy on May 5th, 2019, hosted by CRF. Subjects such as OPVs and OLEDs where discussed and samples where measured in CRF's facilities, as they are increasingly included in the automotive industry, within standards and prototypes. It was a fruitful event and a guided tour of CRF's facilities took place as well.



Fig.55. OET and AUTH at CRF's facilities

4. Statistics

In the following figure, there is an overview of the 1st Reporting period of the CORNET dissemination and communication activities that took place on behalf of all partners.



Fig. 56. CORNET dissemination and communication statistics

5. Conclusions

This deliverable features the CORNET dissemination activities and communication strategy for the 1^{st} Reporting Period (1 January 2018 – 30 June 2019) of the project. In this deliverable is given a detailed description of the activities, both internally and externally with the scope of increasing the project's visibility and its research output.

The partners were very active in the dissemination of the project activities and its results by organization and participation in international events (conferences, workshops, exhibitions, etc.) as well as on the connections with stakeholders from the academic, research and mainly industrial communities, networks, associations, other projects and clusters. A very active visibility in social media is also evident.