

EUPOC 2019

COMO (ITALY), 12-16 May 2019

ELECTROSPUN NANOFIBERS FOR SKIN-CONTACT APPLICATIONSOZLEM I. KALAOGLU-ALTAN¹, BAHAREH AZIMI², SERENA DANTI², KAREN DE CLERCK¹¹*Department of Materials, Textiles and Chemical Technology, University of Ghent, Tech Lane Science Park 70A, 9052 Zwijnaarde (Belgium) – Email: Karen.DeClerck@UGent.be*²*Department of Civil and Industrial Engineering, University of Pisa, Largo L. Lazzarino 2, 56122 Pisa (Italy)***Abstract**

Electrospun nanofibers are ideal for producing materials in contact with the skin as a result of their unique properties such as high surface area, porosity, physical resemblance to the extracellular matrix, compositional diversity and functionalizability. The high pore-interconnectivity allows cell respiration, nutrient and antimicrobial transfer as well as controlled release of active ingredients while high surface area permits high loading of active agent and the fibrillar structure promotes cellular activities. Electropinning is a versatile and low-cost method for producing nanofibers based on the use of electrical forces which can lead to structures with variable density based on suspensions of different materials and even to core shells.

The skin is the largest tissue in the human body and is moreover the first natural barrier against external factors. Therefore, personal care/sanitary, cosmetic and biomedical products which are in direct contact with the skin represent an important material market. To date, these materials are produced from conventional fossil-based polymers which have difficult end-of-life management. Another disadvantage of these conventional plastic materials is that they can cause skin irritations, inflammations, and even intolerances when in contact with the skin.

In the PolyBioskin project various bio-based polymer materials are considered for a range of skin-contact applications in order to enhance their compatibility with the skin, enable biodegradability and reduce their environmental footprint, and provide necessary properties such as solubility, antibacterial activity, and mechanical strength. Within this project, three different products are targeted: a biodegradable baby diaper containing an antimicrobial bio-based topsheet and a bio-based superabsorbent layer; facial beauty masks made from bio-based and biodegradable polymers and impregnated with molecules beneficial for the skin; and nano-structured highly skin-compatible non-woven textiles for wound dressings. Materials with a bio-based carbon content above 90 % such as engineered biopolymers like polylactic acid (PLA) and polyhydroxyalkanoates (PHAs), as well as the naturally available chitin have been selected for the project.

In PolyBioSkin, films, fibres, and non-woven textiles based on innovative biomaterials and responding to the specific requirements of each target application will be produced, with the aim to fabricate prototypes.



Figure 1. Diapers, facial beauty masks, and wound dressings in the European Waste Hierarchy

Acknowledgements

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**Europolymer Conference 2019
(EUPOC 2019)**

***Electrospinning and Related Techniques:
From Design to Production of Advanced
Polymer Materials and Devices***

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THE EUROPOLYMER CONFERENCES

Starting from 1998, EPF has decided to organize a series of Europolymer Conferences (EUPOCs) on topics of actual scientific and industrial interest. The scientific program consists of invited lectures, oral communications and posters. Ample space is given to free discussions, favoured by the informal style of the Conference. The titles of recent EUPOCs are:

Polymers in Nanoscience and Nanotechnology

(EUPOC 2005), 29 May – 3 June, 2005

Branched Macromolecular Structures

(EUPOC 2006), 7 – 12 May, 2006

From Polymer Structure and Rheology to Process Modeling

(EUPOC 2007), 27 May – 1 June, 2007

Advanced Polymeric Materials for the Energy Resources Exploitation

(EUPOC 2008), 1 – 5 June, 2008

“Click”-Methods in Polymer and Materials Science

(EUPOC 2009), 31 May – 4 June, 2009

Hierarchically Structured Polymers

(EUPOC 2010), 30 May – 4 June, 2010

Biobased Polymers and Related Biomaterials

(EUPOC 2011), 29 May – 3 June, 2011

Porous Polymer-based Systems: From Design to Application

(EUPOC 2012), 3 – 7 June, 2012

Polymers & Ionic Liquids

(EUPOC 2013), 1 – 5 September, 2013

Precision Polymers

(EUPOC 2014), 25 – 29 May, 2014

Conducting Polymeric Materials

(EUPOC 2015), 24 – 28 May, 2015

Block Copolymers for Nanotechnology Applications

(EUPOC 2016), 22 – 26 May, 2016

Polymers and Additive Manufacturing: From Fundamentals to Applications

(EUPOC 2017), 21 – 25 May, 2017

Biomimetic Polymers by Rational Design, Imprinting and Conjugation

(EUPOC 2018), 20 – 24 May, 2018

SCOPE & OBJECTIVES

Electrospinning is an electrostatic spinning technique that can be used to produce submicron fibers from (bio)polymer solutions or composite formulations. Such nanofibers have been shown to possess unique properties that distinguish them from non-woven fibers produced by other techniques, e.g. melt blowing or wet spinning. First, the electrohydrodynamic process involved results in a high orientation of polymers within the fibers, thus displaying improved mechanical properties. Second, during the fiber spinning, the solvent is rapidly evaporated, thus allowing for the production of fibers potentially composed of polymer blends that would typically phase separate if spun with other processes. Third, the nanoscopic dimensions of the fibers lead to very high specific surface areas compared to their volume, in addition to high porosity with interconnected voids. Due to their peculiar characteristics, the use of electrospun polymer and composite 3-D scaffolds and devices is currently being exploited in miscellaneous area, including tissue engineering drug delivery, energy storage and nanotechnology.

The objective of this Conference is to bring together the various disparate communities that work on electrospun polymer-based materials. These communities include those working on the development of fibrous materials for filtration, catalysis, energy, nanotechnology, drug delivery, and tissue engineering applications. The Conference will present topics with similar underlying themes that originate in a variety of research areas with very different perspectives.

The Conference will include sessions on the design of novel electrospun (nano)fibrous polymer and composite materials, on their characterization and properties, and on their application in various fields. This will be one of the rare occasions that a conference focuses upon the wide spectrum of topics related to electrospun polymer research and development.

TOPICS

- ❖ Principles of electrospinning and related electro-hydrodynamic techniques (electro-spraying...). Effect of high electric fields in the behaviour of polymer and composite formulations. Miscibility and segregation of polymers and composite formulations
- ❖ Chemical structure, morphology and orientation rules in electrospinning and related techniques.
- ❖ Random and oriented fibers. Control of process parameters. Application of templates for specific orientation and interactions of fibers and loaded systems
- ❖ Advanced applications in energy and transport.
- ❖ Contribution to new approaches in nanomaterials and nanodevices.
- ❖ Developments in the biomedical and pharmaceutical field. New methodologies for the fabrication of drug delivery systems, 3D cell supports and tissue engineering scaffolds.
- ❖ Design and fabrication of new equipments for advanced applications.
- ❖ Future prospects of electrospinning and related techniques in the field of polymer and composite materials.



VENUE

The Conference is held at the Teatro Sociale di Como located in via Vincenzo Bellini 3, 22100 Como, Italy






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EUPOC 2019 — ELECTROSPINNING AND RELATED TECHNIQUES: FROM DESIGN TO PRODUCTION OF
ADVANCED POLYMER MATERIALS AND DEVICES
COMO (ITALY), 12-16 MAY 2019

Conference Program Overview

Sunday, 12 May 2019		
17:00-19:30		Registration
20:00-22:00		Welcome Party


Conference Program Overview (contd.)

Monday, 13 May 2019 (morning)		
8:00-8:30		Registration
8:30-8:45		Opening
Session A: Electrospinning and Biomedical Applications Chair: J. San Roman		
8:45-9:15	IL1	P. Wieringa
9:15-9:45	IL2	M. L. Focarete
9:45-10:00	OC1	M. Cirstea
10:00-10:15	OC2	M. Moeller
10:15-10:30	OC3	B. Azimi
10:30-11:00		Coffee Break
Session A: Electrospinning and Biomedical Applications Chair: D. Comoretto		
11:00-11:30	IL3	D. Maniglio
11:30-12:00	IL4	J. L. García-Fernández
12:00-12:15	OC4	M. Simonet
12:15-12:30	OC5	J. R. Dias
12:30-12:45	OC6	I. Bonadies
12:45-13:00	OC7	G. Amokrane
13:00-14:30		Lunch
14:30-15:30		Poster Session, P1-P21

IL = Invited Lecture (25 min + 5 min discussion)

OC = Oral Communication (12 min + 3 min discussion)

Conference Program Overview (contd.)

Monday, 13 May 2019 (afternoon)		
<i>Session B: Electrospinning and Nanotechnology</i>		
<i>Chair: J. L. Garcia-Fernandez</i>		
15:30-16:00	IL5	A. Greiner
16:00-16:15	OC8	M. Brunelli
16:15-16:30	OC9	A. Macagnano
16:30-16:45	OC10	M. Kurečić
16:45-17:00	OC11	(G. Lanzara) WITHDRAWN
17:00-17:30		Coffee Break
17:30-17:45	OC12	C. Gotti
17:45-18:00	OC13	F. Bossard
18:00-18:15	OC14	C. Prieto
18:15-18:30	OC15	H. J. Yoo

IL = Invited Lecture (25 min + 5 min discussion)

OC = Oral Communication (12 min + 3 min discussion)



Conference Program Overview (contd.)

Tuesday, 14 May 2019 (morning)		
8:30-9:00		Registration
Session C: Electrospinning for Functional Materials Chair: D. Maniglio		
9:00-9:30	IL6	Y. Xia
9:30-9:45	OC16	C. Ceccone
9:45-10:00	OC17	H. Mondésert
10:00-10:15	OC18	A. Dodero
10:15-10:30	OC19	E. Dzierzkowska
10:30-11:00		Coffee Break
Session C: Electrospinning for Functional Materials Chair: J.-K. Kim		
11:00-11:30	IL7	K. De Clerck
11:30-11:45	OC20	G. Fortunato
11:45-12:00	OC21	M. E. Fragalà
12:00-12:15	OC22	E. Garcia-Verdugo
12:15-12:30	OC23	A. Ivanoska-Dacicj
12:30-14:30		Lunch
14:30-15:30		Poster Session, P1-P21

IL = Invited Lecture (25 min + 5 min discussion)

OC = Oral Communication (12 min + 3 min discussion)



Conference Program Overview (contd.)

Tuesday, 14 May 2019 (afternoon)		
<i>Session C: Electrospinning for Functional Materials</i>		
<i>Chair: A. Greiner</i>		
15:30-16:00	IL8	J. M. Lagaron
16:00-16:15	OC24	P. Kianfar
16:15-16:30	OC25	J. Knapczyk-Korczak
16:30-17:00		Coffee Break
17:00-17:15	OC26	B. Akinalan Balik
17:15-17:30	OC27	M. Pardo-Figurez
17:30-17:45	OC28	G. Ognibene
20:00-22:30		Social Dinner

IL = Invited Lecture (25 min + 5 min discussion)

OC = Oral Communication (12 min + 3 min discussion)


Conference Program Overview (contd.)

Wednesday, 15 May 2019 (morning)		
<i>Session D: Electrospinning and Energy Applications</i>		
<i>Chair: D. Grande</i>		
9:00-9:30	IL9	S. Cavaliere
9:30-9:45	OC29	S. G. King
9:45-10:00	OC30	Y. Seo
10:00-10:15	OC31	A. Zucchelli
10:15-10:30	OC32	R. Koekoekx
10:30-11:00		Coffee Break
<i>Session D: Electrospinning and Energy Applications</i>		
<i>Chair: G. Schlatter</i>		
11:00-11:30	IL10	J.-K. Kim
11:30-11:45	OC33	V. Stolojan
11:45-12:00	OC34	U. Stachewicz
12:00-12:15	OC35	V. Vassiljeva
12:15-12:30	OC36	A. V. Subbotin
13:00-14:30		Lunch

IL = Invited Lecture (25 min + 5 min discussion)

OC = Oral Communication (12 min + 3 min discussion)



Conference Program Overview (contd.)

Wednesday, 15 May 2019 (afternoon)		
<i>Session E: Electrospinning and Environmental Applications</i> <i>Chair: M. L. Focarete</i>		
14:30-15:00	IL11	L. Persano
15:00-15:15	OC37	I. Otsuka
15:15-15:30	OC38	C. Bertarelli
15:30-16:00		Coffee Break
<i>Session E: Electrospinning and Environmental Applications</i> <i>Chair: L. Persano</i>		
16:00-16:15	OC39	E. Maccaferri
16:15-16:30	OC40	A. Vitale
16:30-16:45	OC41	(I. Zuburtikudis) WITHDRAWN
16:45-17:00	OC42	N. R. Demarquette

IL = Invited Lecture (25 min + 5 min discussion)

OC = Oral Communication (12 min + 3 min discussion)

Conference Program Overview (contd.)

Thursday, 16 May 2019 (morning)		
<i>Session F: Electrospinning and Related Techniques</i>		
<i>Chair: S. Cavaliere</i>		
9:00-9:30	IL12	G. Schlatter
9:30-9:45	OC43	A. Komisarczyk
9:45-10:00	OC44	V. G. Kulichikhin
10:00-10:15	OC45	T. Pivec
10:15-10:30	OC46	N. A. Zavrzhnykh
10:30-11:00		Coffee Break
11:00-11:15	OC47	A. Sensini
11:15-11:30	OC48	D. Grande
11:30-11:45	OC49	A. E. Chiriateva
11:45-12:00		Closing Session

IL = Invited Lecture (25 min + 5 min discussion)

OC = Oral Communication (12 min + 3 min discussion)

Conference Program

Sunday, 12 May 2019

17:00-19:30 Registration

20:00-22:00 Welcome Party

Monday, 13 May 2019

08:00-08:30 Registration

08:30-08:45 Opening

Session A: Electrospinning and Biomedical Applications

Chair: J. San Roman

- 08:45-09:15 **IL1** **P.A. Wieringa**
Design and serendipity: creating fibrous microniches for biological applications
- 09:15-09:45 **IL2** **M.L. Focarete**
Functional electrospun polymeric fibers: from nanohybrid to bioactive nanomaterials
- 09:45-10:00 **OC1** **M. Cirstea**
The next step: translating electrospinning biomaterials research into a medical device
- 10:00-10:15 **OC2** P. Jain, A. Nishiguchi, S. Singh, **M. Moeller**
Basement membrane mimics of biofunctionalized nanofibers for a bipolar-cultured human primary alveolar-capillary barrier model
- 10:15-10:30 **OC3** **B. Azimi**, M. S. S. Bafoi, M. Latifi, A. Lazzeri, S. Danti
ZnO-loaded piezoelectric fiber meshes for tissue engineering applications
- 10:30-11:00 Coffee Break

Session A: Electrospinning and Biomedical Applications

Chair: D. Comoretto

- 11:00-11:30 **IL3** **D. Maniglio**
Multilayer electrospinning approach for vascular applications
- 11:30-12:00 **IL4** **L. García-Fernández**, J. San Román
Use of non-conductive templates in the electrospinning process and their applications
- 12:00-12:15 **OC4** **M. Simonet**, J. Heikooop
Electrospinning for regenerative medicine; challenges and solutions to bring products to the market
- 12:15-12:30 **OC5** **J. R. Dias**, A. F. Alves, N. M.F. Alves
Electrospun structures as a key tool to mimic the native skin ECM
- 12:30-12:45 **OC6** **I. Bonadies**, G. Dal Poggetto, R. Yulina, P. Laurienzo
Chitosan based multicomponent nanofibers for drug delivery
- 12:45-13:00 **OC7** **G. Amokrane**, V. Humblot, E. Jubeli, N. Yagoubi, S. Ramtani, V. Migoneey, C. Falentin-Daudré
Influence of the covalent grafting of bioactive polymers onto PCL fibre scaffolds: surface characterization, intrinsic properties investigation and *in vitro* biological response

13:00-14:30 Lunch

14:30-15:30 **Poster Session: P1-P21**

Session B: Electrospinning and Nanotechnology
Chair: L. García-Fernández

- 15:30-16:00 **IL5** **A. Greiner**
Functional polymer sponges from short electrospun fibers
- 16:00-16:15 **OC8** **M. Brunelli**, R. M. Rossi, G. Fortunato
Enhanced piezo response of PVDFhfp/PDMS core sheath fibres for sensors applications
- 16:15-16:30 **OC9** **A. Macagnano**, J. Avossa, E. Zampetti, R. Paolesse, G. Scarascia Mugnozza, C. Di Natale, F. De Cesare
Porphyrin, graphene and polymers: smart combinations for selective nanofibrous chemosensors for gas and VOCs
- 16:30-16:45 **OC10** **M. Kurečić**, S. Hribernik, A. Ojstršek, T. Pivec, M. Božič, K. S. Kleinschek
Electrospun composite 3D structures: polysaccharides combined with active substances for versatile applications
- 16:45-17:00 **OC11** **G. Lanzara**, K. C. Chinnam, A. Casalotti, E. Bemporad
Characterization of piezoelectric nanocomposite nanofibers fabricated via far field electrospinning
WITHDRAWN
- 17:00-17:30 Coffee Break
- 17:30-17:45 **OC12** A. Sensini, **C. Gotti**, M. L. Focarete, C. Gualandi, A. Kao, G. Tozzi, L. Cristofolini, A. Zucchelli
Morphologically bio-inspired hierarchical nylon 6,6 electrospun structures for soft-robotics applications
- 17:45-18:00 **OC13** **F. Bossard**, H. Mondesert, D. Favier
Mechanical behavior of structured electrospun scaffolds dedicated to soft tissue engineering: from experimental characterization to simulation
- 18:00-18:15 **OC14** **C. Prieto**, J. D. Escobar, M. Pardo-Figuerez, J. Maria Lagaròn
Microencapsulation of bioactives by an innovative high-throughput technique based on electrospaying
- 18:15-18:30 **OC15** **H.J. Yoo**, B. E. Kwak, D. H. Kim
Needleless electrospinning for the large production of polymer nanofibers with wing structured spinnerets

Tuesday, 14 May 2019

08:30-9:00 Registration

Session C: Electrospinning for Functional Materials
Chair: D. Maniglio

- 09:00-09:30 **IL6** **Y. Xia**
Electrospun nanofibers at work for biomedical research
- 09:30-09:45 **OC16** **C. Cecone**, F Caldera, F. Trotta, A. Anceschi, P. Bracco, M. Zanetti
Electrospun PMDA/cyclodextrin nanosponges as precursor for novel carbon materials
- 09:45-10:00 **OC17** **H. Mondésert**, F. Bossard, D. Favier
Elaboration of honeycomb micropatterned fibrous scaffolds by electrospinning with anisotropic mechanical properties for soft tissue engineering
- 10:00-10:15 **OC18** **A. Dodero**, M. Alloisio, M. Pozzolini, S. Scarfi, S. Vicini, M. Castellano
Nanofibrous electrospun sodium alginate membranes loaded with zinc oxide nanoparticles
- 10:15-10:30 **OC19** **E. Dzierzkowska**, E. Menaszek, M. Nocuń, B. Kolesińska, E. Stodolak-Zych
Effect of carbon nanofibers surface modification with biomolecules on structural properties and cellular response
- 10:30-11:00 Coffee Break

Session C: Electrospinning for Functional Materials
Chair: J.-K. Kim

- 11:00-11:30 **IL7** E. Schoolaert, E. Loccufier, L. Daelemans, **K. De Clerck**
From sensors to composites: showing the immense versatility of solvent electrospun nanofibres
- 11:30-11:45 **OC20** **G. Fortunato**, L. Weidenbacher, A. G. Guex, M. Rottmar, K. Maniura, R. M. Rossi
Tailoring nanofiber surface and mechanical properties for cell-laden hybrid membranes mimicking the native blood barrier
- 11:45-12:00 **OC21** **M. E. Fragalà**, G. Ognibene, G. Cicala
Functional applications of hybrid polymeric/inorganic electrospun mats
- 12:00-12:15 **OC22** **E. Garcia-Verdugo**, D. Valverde, R. Porcar, B. Altava, M. I. Burguete, S. V. Luis
Hierarchically structured polymeric ionic liquid membranes obtained by electrospinning
- 12:15-12:30 **OC23** **A. Ivanoska-Dacicj**, G. Bogoeva-Gaceva, A. Krumme, C. Scalera, V. Stojkovski, I. Gjorgoski, T. Ristoski, I. Gjurovski
Polyurethane/graphene oxide scaffolds for soft tissue engineering application: obtainment, characterization and *in vivo* behavior assessment

12:30-14:30 Lunch

14:30-15:30 **Poster Session: P1 – P21**

Session C: Electrospinning for Functional Materials
Chair: A. Greiner

15:30-16:00 **IL8** K. Figueroa-Lopez, A. Cherpinski, B. Melendez, M. Pardo-Figuerez, C. Prieto, S. Torres-Giner, **J. M. Lagaron**
Biopapers, a novel barrier and active electrospun fiber based materials concept

16:00-16:15 **OC24** **P. Kianfar**, A. Vitale, S. Dalle Vacche, R. Bongiovanni
Preparation of photo-crosslinked chitosan/poly(ethylene oxide) nanofibrous mats

16:00-16:15 **OC25** **J. Knapczyk-Korczak**, D. P. Ura, J.P. Chiverton, U. Stachewicz
Controlling wetting and mechanical properties of electrospun polymer fiber composites

16:30-17:00 Coffee Break

17:00-17:15 **OC26** **B. Akinalan Balik**, S. Argin, S. Torres-Giner, J. M. Lagaron
Development of electrospun pectin-based films for food packaging applications

17:15-17:30 **OC27** **M. Pardo-Figuerez**, J. Lasprilla-Botero, C. Prieto, S. Torres-Giner, J. M. Lagaron
Superhydrophobic coatings based on annealed electrospun fibers and electrospayed nanostructured particles for easy emptying packaging applications

17:30-17:45 **OC28** **G. Ognibene**, M. E. Fragalà, A. Di Stefano, G. Li Volti, G. Cicala
Electrospun nanofibers as cells scaffold with antibacterial properties

20:00-22:30 Social Dinner

Wednesday, 15 May 2019

Session D: Electrospinning and Energy Applications
Chair: D. Grande

- 09:00-09:30 **IL9** **S. Cavaliere**, S. Giancola, M. Zaton, M. Dupont, D. Jones, J. Roziere
Electrospun fibres for proton exchange membrane fuel cell and water electrolysis applications
- 09:30-09:45 **OC29** **S. G. King**, S. Ravi P. Silva, V. Stolojan
Highly conductive aligned carbon nanotube sheets and wires
- 09:45-10:00 **OC30** H. Lee, H. Kim, **Y. Seo**
Pure piezoelectricity generation by a flexible nanogenerator based on lead zirconate titanate nanofibers
- 10:00-10:15 **OC31** T. M. Brugo, D. Cocchi, **A. Zucchelli**, F. Grolli, G. Selleri, M. Speranza, D. Fabiani, E. Maccaferri, L. Mazzocchetti, L. Giorgini, I. Falco, A. Marrani
Piezoelectric nanofibrous MAT for self-sensing composite materials
- 10:15-10:30 **OC32** **R. Koekoekx**, N. K. Zawacka, G. van den Mooter, Z. Hens, C. Clasen
Embedding quantum dots in block copolymer particles by electrospraying
- 10:30-11:00 Coffee Break

Session D: Electrospinning and Energy Applications
Chair: G. Schlatter

- 11:00-11:30 **IL10** J. Cui, **J.-K. Kim**
Surface modification of electrospun porous carbon nanofibers as hosts for stable Li metal anodes
- 11:30-11:45 **OC33** M. Forouharshad, S. G. King, P. Kunovski, **V. Stolojan**
Electrospun PVDF with enhanced b for energy harvesting textiles
- 11:45-12:00 **OC34** **U. Stachewicz**
Surface properties of electrospun polymer fibers controlled with voltage polarities
- 12:00-12:15 **OC35** **V. Vassiljeva**, E. Tarasova, S. Malmberg, I. Krasnou, M. Viirsalu, A. Krumme
Electrospun electrodes for supercapacitors
- 12:15-12:30 **OC36** **A. V. Subbotin**, V. G. Kulichikhin
Electrospinning regimes and orientation of polymer chains
- 13:00-14:30 Lunch

Session E: Electrospinning and Environmental Applications
Chair: M. L. Focarete

- 14:30-15:00 **IL11** A. Camposeo, D. Pisignano, **L. Persano**
Electrospinning as additive manufacturing technology for photonics and electronics
- 15:00-15:15 **OC37** **I. Otsuka**, C. J. Barrett
Electrospinning of a photo-responsive cellulose derivative: towards smart nano/microfibrous materials
- 15:15-15:30 **OC38** **C. Bertarelli**, R. Castagna, S. Donini, E. Parisini
Biohybrid nanofibrous membrane for chemical filtration of nonsteroidal anti-inflammatory drugs
- 15:30-16:00 Coffee Break

Session E: Electrospinning and Environmental Applications
Chair: L. Persano

- 16:00-16:15 **OC39** **E. Maccaferri**, L. Mazzocchetti, T. Benelli, A. Zucchelli, L. Giorgini
NBR-based electrospun rubbery nanofibers: production and characterization
- 16:15-16:30 **OC40** **A. Vitale**, M. Quaglio, G. Massaglia, A. Chiodoni, R. Bongiovanni
Electrospinning and photo-crosslinking of rubber nanofiber membranes
- 16:30-16:45 **OC41** E. Svinterikos, **I. Zuburtikudis**, M. Al Marzouqi
Producing high-added value products from waste and renewable resources through electrospinning: carbon nanofibers from lignin and recycled PET
WITHDRAWN
- 16:45-17:00 **OC42** E. Rezabeigi, **N. R. Demarquette**
Obtention of porous electrospun polymer fibers

Thursday, 16 May 2019

Session F: Electrospinning and Related Techniques

Chair: S. Cavaliere

- 09:00-09:30 **IL12** **G. Schlatter**, F. Flaig, M. Liang, A. Hébraud
2D and 3D controlled deposition of electrospun nanofibers: from the mechanisms to the applications
- 09:30-09:45 **OC43** I. Krucińska, **A. Komisarczyk**, J. Drobniak, B. Żywicka
Application of electrospinning of biodegradable polymers for design of implantable materials
- 09:45-10:00 **OC44** **V. G. Kulichikhin**, A. V. Subbotin, I.Y. Skvortsov, A. Y. Malkin
Electrospinning and mechanotropic spinning: similarities and differences
- 10:00-10:15 **OC45** **T. Pivec**, M. Kurečić, T. Maver, U. Maver, P. Gašparič, B. Kaker, A. Bratuša, S. Hribernik, K. S. Kleinschek
Bio-based mats with included medical plant extracts produced by needle-free electrospinning for wound healing application
- 10:15-10:30 **OC46** **N.A. Zavrzhnykh**, I.P. Dobrovolskaya, V. E. Yudin
Porous matrices based nanofibers of polylactide for vascular surgery
- 10:30-11:00 Coffee Break
- 11:00-11:15 **OC47** **A. Sensini**, L. Cristofolini, A. Zucchelli, M. L. Focarete, C. Gualandi, A. De Mori, A. Kao, M. Roldo, G. Blunn, G. Tozzi
Hierarchical electrospun bioinspired scaffolds can modify fibroblasts morphology in static and dynamic culture
- 11:15-11:30 **OC48** **D. Grande**, H. Rodríguez-Tobias, G. Morales
Electro-hydrodynamic techniques for fine-tuning antibacterial and UV-shielding properties of electrospun scaffolds based on biodegradable polyesters and ZnO nanoparticles
- 11:30-11:45 **OC49** **A. E. Chiriateva**, G. V. Vaganov, V. E. Yudin, V. M. Svetlichnyi, L. A. Myagkova, E. M. Ivan'kova, E. N. Popova, V. Y. Elokhovskii
Electrospun polyimide nonwoven materials from aqueous solutions of polyamic acid salts
- 11:45-12:00 Closing Session

POSTER SESSION

Monday, 13 May 2019
&
Tuesday, 14 May 2019

- P1 **S. Anand**, T. Stoppe, S. Danti, L. Moroni, C. Mota
Influence of geometry over the vibro-acoustic response of human tympanic membrane
- P2 **B. Azimi**, C. Ricci, T. Macchi, F. Pratesi, M.-B. Coltelli, S. Danti
Electrospun scaffolds based on polyhydroxyalkanoates for skin regeneration
- P3 **P. Bruni**, F. Maroni, A. Tartaglia, M. Locatelli, F. Croce
Study of the kinetic release of an active compound from electrospun polymeric membranes
- P4 **A. E. Chiriateva**, G. V. Vaganov, V. E. Yudin, V.M. Svetlichnyi, L. A. Myagkova, E. M. Ivan'kova, N. V. Smirnova
Development of electrospun polyimide nano- and microfibers for medical application
- P5 **H.-A Christ**, H. Menzel
Electrospinning of highly modified chitosan – towards selective support matrices for biomolecules
- P6 **L. Dabašinskaite**, E. Krugly
Polycaprolactone scaffold surface modification for cell growth using ozonation
- P7 O. I. Kalaoglu-Altan, B. Azimi, S. Danti, **K. De Clerck**
Electrospun nanofibers for skin-contact applications
- P8 C. Gualandi, **M. L. Focarete**, G. Fornaia, M. Raisch, D. Genovese, N. Zaccheroni, S. B. Schmidt, M. Sommer
Mechanochromic nanofibers for the development of stress/strain sensors
- P9 **D- Grande**, J. R. López Muñoz, G. Morales, F. J. Enríquez-Medrano
Electrospun fibers from poly(methyl methacrylate-co-methacrylic acid) loaded with zinc oxide nanoparticles: towards functional devices for anticancer therapy
- P10 **D. Grande**, V. Langlois, E. Renard
Functional biodegradable electrospun scaffolds meant for tissue engineering: physical vs. chemical functionalization
- P11 V. Padilla, H. Rodríguez, **G. Morales**, A. Ledezma, K. Lozano, C. Rodríguez, R. Gilkerson, **D. Grande**
Antibacterial bioactive fibrous mats based on poly(D-L-lactic acid), zinc oxide and hydroxyapatite manufactured by centrifugal spinning (forcespinning®)

- P12 **C. Işık**, M- Teke
Cellulose acetate/polyvinylpyrrolidone electrospun nanofibers: fabrication and characterization
- P13 **E. Mázl Chánová**, H. Beneš, J. Svoboda, P. Knotek, Y. Yang
Synergic effect of composite polyester nanofibers with carbon-based nanofillers and mechanical stimulation on stem cells' osteo-differentiation
- P14 **A. Neira-Carrillo**, F. E. Sepùkveda, N. Butto, J. L. Arias, M. Yazdani-Pedram
Effect of topography and pores of polycaprolactone (PCL) electrospun meshes template on in vitro calcium carbonate (CaCO₃) crystallization through gas-diffusion technique
- P15 **D. Pawcenis**, D. Chlebda, R. J. Jędrzejczyk, M. Leśniak. M. Sitarz, J. Łojewska
Electrospun nanofibers of modified cellulose with silver nanoparticles
- P16 **D. N. Poshina**, A. A. Sukhova, Y. A. Skorik
Modeling chitosan lactate electrospinning parameters using response surface methodology
- P17 **D. N. Poshina**, V. A. Petrova, D. D. Chernyakov, A. S. Golovkin, Y. A. Skorik
Bilayered electrospun chitosan-hyaluronan material for tissue engineering
- P18 **A. Rubin Pedrazzo**, C. Cecone, S. Morandi, M. Manzoli, M. Zanetti, P. Bracco
Influence of the polymer solution on both morphology and microstructure of nanosized SnO₂ prepared by electrospinning
- P19 **A. C. Trindade**, A. P. C. Almeida, J. Oliveira, J. P. Canejo, S. N. Fernandes, J.-O. Fossum, M. H. Godinho
Patterned non-woven cellulosic membranes for recovery of oil microdroplets
- P20 **S. Vicini**, M. Castellano, A. Doderò, V. Caratto, M. Alloisio
Alginate with silver nanoparticles electrospun membranes for biomedical applications
- P21 **C. Cecone**, M. Zanetti. P. Bracco. F. Caldera, F. Trotta
Fibrous mats from electrospun PMDA/cyclodextrin polymer as DEET controlled release system

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