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# From hidden shear-elasticity to opto and thermo-elasticity in confined polymer melts and viscous liquids

Laurence Noirez

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# **X INTERNATIONAL CONFERENCE**

## **Times of Polymers (TOP) & Composites**

From Aerospace to Nanotechnology  
**September 5<sup>th</sup> – 9<sup>th</sup> 2021, Ischia – ITALY**

# **PROGRAM**

*CHAired BY*

***Domenico ACIERNO***  
*CRdc Tecnologie scarl Naples*

***Alberto D'AMORE***  
*University of Campania "Luigi Vanvitelli"*

***Luigi GRASSIA***  
*University of Campania "Luigi Vanvitelli"*

***Giuseppe MENSITIERI***  
*University of Naples "Federico II"*

## Monday, 6th September 2021 - Room Pitecusa

<b>08:50</b>			<b>OPENING SESSION: D. ACIERNO and A. D'AMORE</b>		
<b>09:00</b>	OPENING LECTURE - <b>Luigi Nicolais</b> Materias srl	From research to business	Chairman: <b>A. D'Amore</b>		
<b>09:30</b>	INVITED LECTURE - <b>C. Jana Sadhan</b> University of Akron, USA	High Surface Area Polymeric Template Materials: Design and Applications			
<b>10:00</b>	<b>Cristian Rodriguez-Tinoco</b> Université Libre de Bruxelles, Belgium	Dynamics of MAPLE deposited polymer thin-films			
<b>10:15</b>	<b>E. Ramakers-van Dorp</b> Bonn-Rhein-Sieg University of Applied Sciences, Germany	Thermal lag in polymeric samples during measurement of viscoelastic properties with a DMA			
<b>10:30</b>	<b>I. Nikolaos Sigalas</b> Eindhoven University of Technology, The Netherlands	MOLECULAR MODELLING OF STRETCH-INDUCED CRYSTALLIZATION IN POLYPROPYLENE LAYERS			
<b>10:45</b>			<b>COFFEE BREAK</b>		
<b>11:15</b>	INVITED LECTURE - <b>Simone Napolitano</b> Université Libre de Bruxelles, Belgium	Equilibration mechanisms mediated by slow liquid dynamics	Chairman: <b>D. Cangialosi</b>		
<b>11:45</b>	<b>Nicolas Delpouve</b> Université de Rouen Normandie, France	Physical aging of an epoxy resin for civil engineering applications from fast scanning calorimetry investigations			
<b>12:00</b>	<b>Romain Delannoy</b> Ecole Nationale Supérieure d'Arts et Métiers, France	Macromolecular mobility changes induced by thermal ageing of epoxy-amine polymer networks			
<b>12:15</b>	<b>Davide Perin</b> University of Trento Italy	EFFECT OF THE TEMPERATURE AND OF THE DRAWING CONDITIONS ON THE FRACTURE PROPERTIES OF THERMOPLASTIC STARCH FILMS FOR PACKAGING APPLICATIONS			
<b>12:30</b>	<b>Marcin Zemla</b> Cracow University of Technology, Poland	Bio-based rigid polyurethane foams with reduced flammability			
<b>12:45</b>	<b>Stefano Pandini</b> University of Brescia, Italy	Reversible stress-driven and stress-free two-way shape memory effect in a sol-gel crosslinked polycaprolactone			
<b>13:00</b>			<b>LUNCH</b>		
<b>15:00</b>	<b>Ana Nioac de Salles</b> Fraunhofer Institute ICT, Germany	Life Cycle Assessment for collaborative robot-assisted composite parts manufacturing using a work effort unit approach	Chairman: <b>A. Lazzeri</b>		
<b>15:15</b>	<b>Alexis Cherri</b> CNRS, France	PEKK Powders for Selective Laser Sintering: crystallization and process window			
<b>15:30</b>	<b>Irina Nyrkova</b> CNRS, France	Towards light-driven self-propelling nano-machines: optimizing their construction and composition			
<b>15:45</b>	<b>Catalin-Stefan Negrea</b> Polytechnica University of Bucharest, Romania	Survey on the advantages of metal 3D printing using laser sintering compared to traditional metal manufacturing methods			
<b>16:00</b>	<b>Antonella Patti</b> University of Catania, Italy	The Understanding the Processing Window of Virgin and Recycled Bio-based Filaments for 3D Printing Applications			
<b>16:15</b>	<b>Camille Loyer</b> Arts et Metiers Institute of Technology, France	Embrittlement of poly(butylene terephthalate) induced by injection molding process			
<b>16:30</b>			<b>COFFEE BREAK</b>		
<b>17:00</b>	<b>Niccolò Giani</b> University of Bologna Italy	A NEW BIOCOMPOSITE MATERIAL BASED ON WHEAT WASTE AND SUITABLE FOR 3D PRINTING APPLICATIONS	Chairman: <b>E. Richaud</b>		
<b>17:15</b>	<b>Gabriel Jiga</b> Polytechnica University of Bucharest, Romania	Redesign of a Metallic Component Using Polylactic Acid - PLA by Fused Deposition Modeling - FDM for Durability Increase			
<b>17:30</b>	<b>Silvia Bosia</b> Politecnico di Torino, Italy	SYNTHESIS OF PA12-SIC COMPOSITE POWDERS FOR SELECTIVE LASER SINTERING			
<b>17:45</b>	<b>Arianna Pietrosanto</b> University of Salerno, Italy	Effect of cooling air in the film blowing process on the properties of PLA/PBAT films			
<b>18:00</b>	<b>Annalisa Apicella</b> University of Salerno, Italy	Active Coated Films to Decrease Browning Of Minimally-Processed Banana Fruit			

	Nano-Composites
	Composites
	Polymers
	Processing

## Tuesday, 7th September 2021 - Room Pitecusa

09:00	INVITED LECTURE - <b>Daniele Cangialosi</b> Materials Physics Center, Spain	Clear-cut evidence of polymer desorption by fast scanning calorimetry	Chairman: A Lyulin
09:30	<b>Haron Mahmood</b> University of Trento, Italy	Intrinsic self-healing of epoxy/carbon laminates using different forms of healing agents – A comparison	
09:45	<b>Valentina Mazzanti</b> University of Ferrara, Italy	Processing-Properties Correlation for a Rubber Toughened Wood Plastic Composite	
10:00	<b>Laura Mazzocchetti</b> University of Bologna, Italy	A Thermoplastic Elastomeric Nanofibrous Membrane as CFRP Modifier to Boost both Delamination and Damping Performance	
10:15	<b>Dagmar Merinska</b> Tomas Bata University in Zlin, Czech Republic	Preparation of Polymer / Magnetizable Filler Composites	
10:30	<b>COFFEE BREAK</b>		
11:00	INVITED LECTURE - <b>Laurence NOIREZ</b> Université Paris-Saclay, France	From Hidden Shear-Elasticity to Opto- and Thermo-Elasticity in Confined Polymer Melts and Viscous Liquids	M.R. Nobile Session Chairman: A. D'Amore
11:30	<b>Alexander Semenov</b> CNRS - France	Stress Fluctuations in Glass-Forming Systems: Elastic Response and Long-Range Correlations	
11:45	<b>Michael Meurer</b> University of Applied Sciences Bonn-Rhein-Sieg, Germany	RheoTack - a new comprehensive tack test method for adhesives tapes	
12:00	<b>Krzysztof Wilczyński</b> Warsaw University of Technology, Poland	Rheology for Modeling of Extrusion of Wood Plastic Composites	
12:15	<b>Saray Perez Robles</b> University of Campania, Italy	Effect on the thermo-gelation process of the degree and molar substitution of HPMC polymer hydrogels	
12:30	<b>Lorenzo Malagutti</b> University of Ferrara, Italy	A MATLAB – based Software for Estimating Measurement Uncertainties in Capillary Viscometry	
12:45	<b>LUNCH</b>		
15:00	<b>Raffaella Ferraioli</b> University of Salerno, Italy	A preliminary study on recyclability of plastic wastes recovered from urban collection	Chairman: D. Merinska
15:15	<b>Alessandro Sorze</b> University of Trento, Italy	EVALUATION OF THE SALT LEACHING METHOD FOR THE PRODUCTION OF POLYETHYLENE FOAMS FOR THERMAL ENERGY STORAGE APPLICATIONS	
15:30	<b>Salomone Rita</b> University of Salerno Italy	Morphology of microinjection molded iPP parts in controlled conditions	
15:45	<b>Cesare Signorini</b> University of Modena and Reggio Emilia, Italy	Experimental and theoretical investigation of the mechanical properties of PHBH biopolymer for additive manufacturing	
16:00	<b>Gediminas Monastyerckis</b> Kaunas University of Technology, Lithuania	MXene Coated Multifunctional Composites for Aerospace Application	
16:15	<b>Rosalba Liguori</b> University of Salerno, Italy	Polymer Insulator Processing–Organic Transistor Performance Relationship Investigated through Admittance Spectroscopy	
16:30	<b>Mariano Palomba</b> CNR, Italy	Functional Polymeric Coatings for CsI(Tl) Scintillators	
16:45	<b>Krzysztof Polaczek</b> Cracow University of Technology, Poland	Open-cell spray polyurethane foams of low density modified with bio-polyol from used cooking oil	
17:00	<b>Grazia Totaro</b> University of Bologna, Italy	Enzymatic degradation of polyester and polyurethane-based adhesives.	
17:15 18:30	<b>POSTER SESSION AND COFFEE BREAK</b>		

## Wednesday, 8th September 2021 - Room Pitecusa

09:00	<b>INVITED LECTURE - L. Incarnato</b> University of Salerno, Italy	Food Packaging Trends: Innovation, Sustainability and Safety	Chairman: M. Iannone
09:30	<b>Julian Rech</b> Hochschule Bonn-Rhein-Sieg, Germany	Elementary Volume Concept (EVC)	
09:45	<b>Carol Winnifred Rodricks</b> Weizmann Institute of Science, Israel	Polymer beads as interfacial obstacles in fibre composites	
10:00	<b>Corrado Sciacalepore</b> University of Parma, Italy	Novel PBAT-based biocomposites reinforced with bioresorbable phosphate glass micro-particles	
10:15	<b>Laura Simonini</b> University of Trento, Italy	GRAPHENE COATINGS FOR GLASS FIBERS THROUGH TRIBOELECTRIFICATION	
10:30	<b>COFFEE BREAK</b>		
11:00	<b>INVITED LECTURE - Alexey V. Lyulin</b> Eindhoven Univ. Technol, Netherlands	Molecular-Dynamics Modelling of Nafion Membranes	Chairman: L. Noirez
11:30	<b>Camille Gillet</b> Université de Toulouse, France	Chemical behaviour of water absorption in a carbon/epoxy 3D woven composite	
11:45	<b>Oleg Lebedev</b> Russian Academy of Sciences, Russia	Migration of electroconductive carbon nanoparticles in polymer composites melts	
12:00	<b>Daiva Zeleniakienė</b> Kaunas University of Technology, Lithuania	Mechanical Properties of Multifunctional Composites with MXene Nanofillers and Nanolayers	
12:15	<b>Giulia Fredi</b> University of Trento Italy	Furanoate polyesters/poly lactide/reduced graphene oxide nanocomposite films: thermomechanical and gas permeation properties	
12:30	<b>Oleh Shpotyuk</b> Jan Dlugosz University in Czestochowa, Poland	Volumetric nanostructurization in glassy arsenoselenides driven by high-energy mechanical dry- and wet-milling	
12:45	<b>LUNCH</b>		
15:00	<b>INVITED LECTURE - Andrea Lazzeri</b> University of Pisa, Italy	Estimation of the elastic modulus of RAF, MAF and crystal phases for different biopolymers and their blends.	Chairman: A. Semenov
15:30	<b>Emmanuel Richaud</b> Arts et Metiers ParisTech, France	Thermal Degradation of Fluorosilicone Elastomers	
15:45	<b>Sarah Hettal</b> ENSAM / PIMM, France	Radiochemical Ageing of ATH filled Silane-Crosslinked Polyethylene	
16:00	<b>Francesco Galvagnini</b> University of Trento, Italy	Thermo-mechanical behavior of syntactic foams with thermal energy storage/release capability	
16:15	<b>Chiara Pasini</b> University of Brescia, Italy	Bioresorbable Core-shell Scaffolds for Bone Tissue Replacement	
16:30	<b>COFFEE BREAK</b>		
17:00	<b>Fanon JULIENNE</b> PIMM, Arts et Métiers, France	Degradation of PVDF-HFP matrix	Chairman: L. Grassia
17:15	<b>Jacopo Ortolani</b> University of Bologna, Italy	Polyamide nanofibres impregnated with nitrile rubber for enhancing CFRP delamination resistance	
17:30	<b>Gianluca Viscusi</b> University of Salerno Italy	Design and characterization of lightweight green composites obtained from natural resources for high-performance use in transport structures	
17:45	<b>Michele Iannone</b> Alenia, Italy	Algorithms for Flaw Detection by SHM with Static Sensors approach	
18:00	<b>Andrea Dorigato</b> University of Trento, Italy	Thermo-mechanical, fracture and heat storage properties of multifunctional carbon/epoxy laminates	
18:15	<b>CLOSING REMARKS</b>		
20:30	<b>GALA DINNER</b>		

<b>Poster Place</b>	<b>TITLE</b>	<b>AUTHOR</b>
PS01	Electrospun membranes of poly(butylene succinate) and poly(butylene/2-butyl,2-ethyl-propylene succinate)	Raimondo, Marialuigia
PS02	Characterization of the thermal, structural and mechanical properties of recycled HDPE	Chrysafi, Iouliana
PS03	Thermal Properties of Graphene Nanoplatelets Reinforced Crosslinked and Short Chain Branched Polyethylenes for Geothermal Pipe Applications	Tarani, Evangelia
PS04	Thermomechanical characterization of E-glass fibre reinforced random polypropylene	Delli, Evangelia
PS05	Novel biobased polyester resins for wood applications: Morphological, thermal, and chemical characterization	Vourlias, George
PS06	Thermo-electric Properties of Poly(lactic) Acid filled with Carbon-based Particles: Experimental and Simulation Study	Romano, Vittorio
PS07	Durability of a Soya-Derived Flexible PU Foam for Mattresses: Effects of Different Artificial Aging	D'Arienzo, Lucia
PS08	Floating Microdisks Rotated by Molecular Motors	Nyrkova, Irina
PS09	Electrothermal Actuation and Release of Adhesiveness of Conductive Carbon Nanotube/Epoxy Composites by Joule Heating	Slobodian, Petr
PS10	Environmental Improvement Potential of Flexible Polyurethane Foam for Aviation Applications - A Case Example Analysis	Höhne, Carl-Christoph
PS11	Rigid polyurethane foams modified with bio-polyols and cellulose	Uram, Katarzyna
PS12	Investigation of curing profile, thermal degradation and structural characteristics of a commercial epoxy resin by means of TGA, DSC and FTIR techniques	Malletzidou, Lamprini
PS13	Thermal study and structural characterization of Hemp and PF and UF resins for Hemp-Based Panels	Kourtidou, Dimitra
PS14	The stickier, the slower: on the nonintuitive relation between adsorption rate and interfacial interactions	ZIJIAN, Song
PS15	Effect of Temperature on Cure Behavior and Physical Properties of Autoclaved Carbon Fiber/Epoxy Composite Laminates	Baghad, Abd
PS16	Transport properties of natural and artificial smart fabrics impregnated by graphene nanoplatelets.	Esposito Corcione, Carola
PS17	A Critical Evaluation of Mechanical and Fire Performance of Flax Fiber Epoxy Resin Composites	Benelli, Tiziana
PS18	Optimization of Pyro-gasification of Carbon Fiber Reinforced Polymers (CFRPs)	Montorsi, Francesco
PS19	Production of thermoplastic composite filaments for additive manufacturing using recycled Carbon Fibers	Giorgini, Loris
PS20	New Concept of Electronically and Protonic Conductive Polymer Structures for the Proton Exchange Membrane Water Electrolysis Produced by Additive Manufacturing	Maletzko, Annabelle
PS21	Environmental Improvement Potential of Flexible Polyurethane Foam for Aviation Applications - A Case Example Analysis	Höhne, Carl-Christoph
PS22	Continuous ultrasonic welding of thermoplastic composites - LCI Modelling for the Eco-Statement	Reichert, Thomas
PS23	Thermal and dielectric properties of 3D printed parts based on polylactic acid filled with carbon nanostructures	Romano, Vittorio
PS24	Development of PLA/Microcellulose Biocomposite Filaments for 3D Printing	Scarfato, Paolo
PS25	Viscoelastic behavior of structural epoxy resins loaded with different carbon nanostructured forms	Raimondo, Marialuigia



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*materials*

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