

# From hidden shear-elasticity to opto and thermo-elasticity in confinedpolymer meltsand 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

08:50	OPENING S	ESSION: D. ACIERNO and A. D'AMORE	
09:00	OPENING LECTURE - Luigi Nicolais Materias srl	From research to business	ē
09:30	INVITED LECTURE - <b>C. Jana Sadhan</b> University of Akron, USA	High Surface Area Polymeric Template Materials: Design and Applications	Chairman: A. D'Amore
10:00	Cristian Rodriguez-Tinoco Université Libre de Bruxelles, Belgium	Dynamics of MAPLE deposited polymer thin-films	airman: /
10:15	E. Ramakers-van Dorp Bonn-Rhein-Sieg University of Applied Sciences, Germany	Thermal lag in polymeric samples during measurement of viscoelastic properties with a DMA	ਠ
10:30	I. Nikolaos Sigalas Eindhoven University of Technology, The Netherland	MOLECULAR MODELLING OF STRETCH-INDUCED CRYSTALLIZATION IN POLYPROPYLENE LAYERS	
10:45		COFFEE BREAK	
11:15	INVITED LECTURE - Simone Napolitano Université Libre de Bruxelles, Belgium	Equilibration mechanisms mediated by slow liquid dynamics	
11:45	Nicolas Delpouve Université de Rouen Normandie, France	Physical aging of an epoxy resin for civil engineering applications from fast scanning calorimetry investigations	losi
12:00	Romain Delannoy Ecole Nationale Supérieure d'Arts et Métierse, France	Macromolecular mobility changes induced by thermal ageing of epoxyamine polymer networks	. Cangia
12:15	Davide Perin University of Trento Italy	EFFECT OF THE TEMPERATURE AND OF THE DRAWING CONDITIONS ON THE FRACTURE PROPERTIES OF THERMOPLASTIC STARCH FILMS FOR PACKAGING APPLICATIONS	Chairman: D. Cangialosi
12:30	Marcin Zemla Cracow University of Technology, Poland	Bio-based rigid polyurethane foams with reduced flammability	Cha
12:45	<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	
13:00		LUNCH	
15:00	Ana Nioac de Salles Fraunhofer Institute ICT, Germany	Life Cycle Assessment for collaborative robot-assisted composite parts manufacturing using a work effort unit approach	
15:15	Alexis Cherri CNRS, France	PEKK Powders for Selective Laser Sintering: crystallization and process window	-
15:30	Irina Nyrkova CNRS, France	Towards light-driven self-propelling nano-machines: optimizing their construction and composition	A. Lazzeri
15:45	<b>Catalin-Stefan Negrea</b> Polytehnica University of Bucharest, Romania	Survey on the advantages of metal 3D printing using laser sintering compared to traditional metal manufacturing methods	Chairman: A.
16:00	Antonella Patti University of Catania, Italy	The Understanding the Processing Window of Virgin and Recycled Biobased Filaments for 3D Printing Applications	ָ
16:15	Camille Loyer  Arts et Metiers Insitute of Technology,  France	Embrittlement of poly(butylene terephthalate) induced by injection molding process	
16:30		COFFEE BREAK	
17:00	<b>Niccolò Giani</b> University of Bologna Italy	A NEW BIOCOMPOSITE MATERIAL BASED ON WHEAT WASTE AND SUITABLE FOR 3D PRINTING APPLICATIONS	
17:15	<b>Gabriel Jiga</b> Polytehnica University of Bucharest, Romania	Redesign of a Metallic Component Using Polylactic Acid - PLA by Fused Deposition Modeling - FDM for Durability Increase	chaud
	Silvia Bosia Politecnico di Torino, Italy	SYNTHESIS OF PA12-SIC COMPOSITE POWDERS FOR SELECTIVE LASER SINTERING	Chairman: E. Richaud
17:30			٤
17:30	Arianna Pietrosanto University of Salerno, Italy	Effect of cooling air in the film blowing process on the properties of PLA/PBAT films	Chai

Nano-Composite
Composites
Polymers
Processing

#### Tuesday, 7th September 2021 - Room Pitecusa

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

#### Wednesday, 8th September 2021 - Room Pitecusa

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

	TITLE	AUTHOR
į	Electrospun membranes of poly(butylene succinate) and	Raimondo, Marialuigia
PS01	poly(butylene/2-butyl,2-ethyl-propylene succinate)	
	Characterization of the thermal, structural and mechanical	Chrysafi, louliana
PS02	properties of recycled HDPE	
	Thermal Properties of Graphene Nanoplatelets Reinforced	Tarani, Evangelia
	Crosslinked and Short Chain Branched Polyethylenes for	
PS03	Geothermal Pipe Applications	
	Thermomechanical characterization of E-glass fibre reinforced	Delli, Evangelia
PS04	random polypropylene	
	Novel biobased polyester resins for wood applications:	Vourlias, George
PS05	Morphological, thermal, and chemical characterization	
2000	Thermo-electric Properties of Poly(lactic) Acid filled with	Romano, Vittorio
PS06	Carbon-based Particles: Experimental and Simulation Study	
	Durability of a Soya-Derived Flexible PU Foam for Mattresses:	D'Arienzo, Lucia
PS07	Effects of Different Artificial Aging	
PS08	Floating Microdisks Rotated by Molecular Motors	Nyrkova, Irina
	Electrothermal Actuation and Release of Adhesiveness of	Slobodian, Petr
	Conductive Carbon Nanotube/Epoxy Composites by Joule	
PS09	Heating	
	Environmental Improvement Potential of Flexible Polyurethane	Höhne, Carl-Christoph
	Foam for Aviation Applications - A Case Example Analysis	
PS10		
2011	Rigid polyurethane foams modified with bio-polyols and	Uram, Katarzyna
PS11	cellulose	
	Investigation of curing profile, thermal degradation and	Malletzidou, Lamprini
DC4.2	structural characteristics of a commercial epoxy resin by	
PS12	means of TGA, DSC and FTIR techniques	
DC4.2	Thermal study and structural characterization of Hemp and PF	Kourtidou, Dimitra
PS13	and UF resins for Hemp-Based Panels	
DC1.4	The stickier, the slower: on the nonintuitive relation between	ZIJIAN, Song
PS14	adsorption rate and interfacial interactions	
	Effect of Temperature on Cure Behavior and Physical	Baghad, Abd
PS15	Properties of Autoclaved Carbon Fiber/Epoxy Composite	
P312	Laminates	
PS16	Transport properties of natural and artificial smart fabrics	Esposito Corcione, Carola
F310	impregnated by graphene nanoplatelets.	D #: T: :
PS17	A Critical Evaluation of Mechanical and Fire Performance of	Benelli, Tiziana
F 317	Flax Fiber Epoxy Resin Composites	Mantauri Funnanan
PS18	Optimization of Pyro-gasification of Carbon Fiber Reinforced	Montorsi, Francesco
1310	Polymers (CFRPs) Production of thermoplastic composite filaments for additive	Ciordini Lorio
PS19	·	Giorgini, Loris
. 515	manufacturing using recycled Carbon Fibers  New Concept of Electronically and Protonic Conductive	Maletzko, Annabelle
	Polymer Structures for the Proton Exchange Membrane Water	Maiotzko, Alliabelle
PS20	Electrolysis Produced by Additive Manufacturing	
. 320	Environmental Improvement Potential of Flexible Polyurethane	Höhne, Carl-Christoph
ļ	Foam for Aviation Applications - A Case Example Analysis	Horne, Oan-Onnstopn
PS21	Todam for Aviation Applications - A Gase Example Analysis	
	Continuous ultrasonic welding of thermoplastic composites -	Reichert,Thomas
PS22	LCI Modelling for the Eco-Statement	. ,
	Thermal and dielectric properties of 3D printed parts based on	Romano, Vittorio
PS23	polylactic acid filled with carbon nanostructures	
	Development of PLA/Microcellulose Biocomposite Filaments	Scarfato, Paolo
PS24	for 3D Printing	
PS24	for 3D Printing Viscoelastic behavior of structural epoxy resins loaded with	Raimondo, Marialuigia



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