

4th International Congress Advances in the Packaging Industry "Sustainability: Products and Processes"



NAPOLI, Italy
November 24-25, 2022
Museo Donnaregina

Congress Chairs
Domenico Acierno
(CRdC Tecnologie President)
Alberto Palaveri
(Giflex President)



FINAL PROGRAM



ORGANIZING SECRETARIAT

mcm
EVENTI E CONGRESSI



www.apicongress.it



ABOUT GIFLEX

GIFLEX is the Association that brings together manufacturers of flexible packaging printed in gravure and flexography, for packaging of food, pharmaceuticals, chemicals and other industrial applications. The Group is integrated into the Confindustria system, through the Associazione Nazionale delle Industrie Grafiche, Cartotecniche e Trasformatrici (National Association of Printing and Paper Processing Industries) and, in Europe, is a member of FPE (Flexible Packaging Europe). Ever since its establishment in 1985, the Group has provided a reference and support to its members, bringing a wide range of services, such as:

- Information on the technical, regulatory and marketing aspects related to flexible packaging
- The creation of technical, economic and statistical documents and studies
- The training of technical and sales staff
- Organizing events of a general nature, such as conferences and congresses, and workshops on specific topics.

Furthermore, through the activity of specialized working groups and coordinated by consultants, experts in the field, Giflex carries out a constant and continuous monitoring and updating of the legal aspects and the environmental issues affecting the production and the application fields of flexible packaging, providing insights and timely assistance to the entire membership base.

AIM OF THE CONGRESS

After the large outcome of the previous editions held in Naples in 2015 and in Milan in 2017 and the virtual edition last year, this **4th International Congress on the "Advances in the Packaging Industry"** will take place on 24 and 25 November 2022 in Napoli. The Congress represents a multidisciplinary forum for all interested in the advances in the field of flexible packaging for food, pharmaceuticals, chemicals and other industrial applications.

Academic and industry experts will cover wide range of topics relevant to innovations and future challenges in packaging technology. The two days Congress will be run on two main sessions related to *Product and Process*.

COMMITTEES

CONGRESS CHAIRS

Domenico Acierno (*CRdC President, Italy*)

Alberto Palaveri (*Giflex President, Italy*)

SCIENTIFIC COMMITTEE

Giovanna Buonocore (*CNR, Italy*)

Andrea Cassinari (*Giflex, Italy*)

Raffaele D'Aniello (*Seda Italy S.p.A.*)

Almerinda Di Benedetto (*University of Naples Federico II, Italy*)

Luciano Di Maio (*University of Salerno, Italy*)

Valeria Di Sarli (*CNR-STEMS, Italy*)

Jean Paul Duquet (*FPE - Flexible Packaging Europe, Germany*)

Alessandra Fazio (*Nestlé, Italy*)

Loredana Incarnato (*University of Salerno, Italy*)

Giuseppe Mensitieri (*University of Naples Federico II, Italy*)

Maria Rosaria Milana (*National Institute of Health, Italy*)

Cristina Nerín (*University of Zaragoza, Spain*)

Fabrizio Sarghini (*University of Naples Federico II, Italy*)

Ciro Sinagra (*Laminazione Sottile, Italy*)

Giorgia Spigno (*Catholic University of Sacred Heart of Milan, Italy*)

Marta Zaccone (*Proplast, Italy*)

CONGRESS MANAGERS

Mario Mensitieri (*Giflex, Italy*)

Marco Nicolais (*Giflex, Italy*)

Italo Vailati (*Giflex, Italy*)



THURSDAY, 24 NOVEMBER 2022

- 09.30 - 10.00 Registrations and welcome coffee
- 10.00 - 10.15 WELCOME ADDRESSES
Domenico Acierno and **Alberto Palaveri** (*Congress Chairs*)

Introduction to the Ethical Packaging Charter Foundation
Alessandra Fazio (*President*)
- 10.15 - 10.45 **KEYNOTE LECTURE**
Moderator: **Domenico Acierno**, *CRdC President, Italy*
Biodegradable polymers and nanobiocomposites for sustainable packaging
Francesco Paolo La Mantia
INSTM and Dept. of Engineering, University of Palermo, Italy
- 10.45 - 13.00 **ORAL PRESENTATIONS**
INNOVATION IN PACKAGING SUPPORTING EU GREEN DEAL - SUSTAINABILITY AND CIRCULAR ECONOMY
Moderator: **Mario Mensitieri**, *Giflex, Italy*
- 10.45 - 11.00 **Design of single-use lacquered aluminium plates. Focus on Life cycle assessment LCA and Risk Assessment for food contact**
Maria De Luca^a, **Ciro Sinagra**^a, **Anthony Wayne Ipock**^a, **Ernesto Romano**^a, **Marco Nicolais**^b
^a*Laminazione Sottile Group, Caserta, Italy*
^b*Contital srl, Caserta, Italy*
- 11.00 - 11.15 **The management of cellulose acetate packaging waste: a multi criteria decision assessment**
Giovanni Gadaleta, **Sabino De Gisi**, **Francesco Todaro**, **Michele Notarnicola**
Politecnico di Bari, Dicatech, Bari, Italy

THURSDAY, 24 NOVEMBER 2022

- 11.15 - 11.30 **BOBST oneBARRIER FibreCycle project. Development of a recyclable mono-material high barrier paper alternative to plastic-based flexible packaging**
Nanni Bertorelli^a, **Nick Copeland**^b
^a*Bobst Italia SpA, Coating & Laminating, San Giorgio Monferrato, Italy*
^b*Bobst Manchester Ltd, Vacuum Metallizing, Manchester, UK*
- 11.30 - 11.45 **GIFLEX: the value story of flexible packaging. Promoting sustainability through advanced design**
Clara Giardina^a, **Erik Ciravegna**^b, **Flaviano Celaschi**^a
^a*Università di Bologna, Advanced Design Unit - Dipartimento di Architettura, Bologna, Italy*
^b*Pontificia Universidad Católica de Chile, School of Design, Santiago de Chile, Chile*
- 11.45 - 12.00 **Evolution of sensory and chemical profile of beer in different packaging solutions**
Giorgia Spigno, **Gianluca Donadini**
Università Cattolica del Sacro Cuore, Department for Sustainable Food Processes, Italy
- 12.00 - 12.15 **A complex productive chain for a (frequently) underestimated packaging. An immersion in the world of flow wrap packaging towards the European Green Deal**
Beatrice Lerma, **Doriana Dal Palù**
Politecnico di Torino, Department of Architecture and Design, Italy
- 11.00 - 12.00 *Open coffee*

THURSDAY, 24 NOVEMBER 2022

FOOD PACKAGING LEGISLATION: EMERGING RISKS AND REGULATORY ISSUES

Moderator: **Giovanna Buonocore**, CNR, Italy

12.15 - 12.30 **Food safety of breast milk storage bags: determination of volatile migrants coming from Irgafos 168 degradation**

Margarita Aznar, Álvaro Martínez and Cristina Nerín
University of Zaragoza, Dept. of Analytical Chemistry, Spain

12.30 - 12.45 **Migration from recycled hdpe to milk products**

Paula Vera, Elena Canellas, Cristina Nerín
GUIA Group, Department of Analytical Chemistry, University of Zaragoza, Spain

12.45 - 13.00 **Elucidation of neo-formed compounds derived from polyurethane adhesives used in champagne cork stoppers**
Elena Canellas^a, Paula Vera^a, Cristina Nerín^a, Nicola Dreolin^b, Jeff Goshawk^b

^aGUIA Group, Department of Analytical Chemistry, University of Zaragoza, Spain

^bWaters Corporation, Wilmslow, United Kingdom

13.00 - 13.30 KEYNOTE LECTURE

Moderator: **Giuseppe Mensitieri**, University of Naples Federico II, Italy

The concept of life cycle thinking applied to innovative multi-material paper based packaging

Graziano Elegir

Innovhub Stazioni Sperimentali per l'Industria S.r.l., Paper Division, Italy

13.30 - 14.30 Lunch

THURSDAY, 24 NOVEMBER 2022

14.30 - 15.00 KEYNOTE LECTURE

Moderator: **Loredana Incarnato**, University of Salerno, Italy

Flexographic printing for active and smart Packaging

Tim Claypole

Faculty of Science and Engineering, Swansea University, UK

15:00 - 17:45 ORAL PRESENTATIONS

INNOVATION IN PACKAGING SUPPORTING EU GREEN DEAL - SUSTAINABILITY AND CIRCULAR ECONOMY

Moderator: **Italo Vailati**, Giflex, Italy

15.00 - 15.15 **R-bopet contribution to flexible pack circularity**
Monomeric recycling of PET for direct food contact recycled packaging

Mathias Mazurelle, Johnny Moscariello
Transparent Paper Ltd, Zurich, Switzerland

15.15 - 15.30 **Composite films based on polylactic acid and sodium alginate surface functionalized by spin-coating**

Pietro Russo^a, Cecilia Mortalò^b, Valentina Zin^b, Silvia Maria Deambrosis^b, Cristina Leonelli^c
^aIPCB-CNR, Pozzuoli (NA), Italy - ^bICMATE-CNR, Padova, Italy

^cDepartment of Engineering "Enzo Ferrari", University of Modena and Reggio Emilia, Italy

15.30 - 15.45 **Potentially greener packaging solutions for sliced cooked ham**
Laura Principato, Andrea Bassani, **Giorgia Spigno**
Università Cattolica del Sacro Cuore, Department for Sustainable Food Processes, Italy

THURSDAY, 24 NOVEMBER 2022

- 15.45 - 16.00 **Waterborne resin-stabilized barrier coatings**
Sterre Bakker^a, A. Catarina C. Esteves^a, Albert P.H.J. Schenning^a, **Gerald A. Metselaar**^b
^aUniversity of Eindhoven, Eindhoven, The Netherlands
^bBASF Nederland B.V., Heerenveen, The Netherlands
- 16.00 - 16.15 **Advances on a paper-based flexible packaging for a circular economy goal**
Joana Andreia Saraiva Mendes, Matteo Croci, Marco Santagostino, Felice Ursino
Sacchital SpA, R&D Department, Pregnana Milanese, Italy
- 16.15 - 16.30 **Electrospun hybrid tio₂/humic substance phbv films: antimicrobial materials for food packaging applications**
Virginia Venezia^a, Cristina Prieto^b, Brigida Silvestri^c, Giuseppe Vitiello^a, Jose M. Lagaron^b, Giuseppina Luciani^a
^aUniversity of Naples Federico II, Dept. of Chemical, Materials and Production Engineering, Italy
^bNovel Materials and Nanotechnology Group, Institute of Agrochemistry and Food Technology (IATA), Spanish National Research Council (CSIC), Paterna, Spain
^cDepartment of Civil, Architectural and Environmental Engineering, University of Naples Federico II, Italy

THURSDAY, 24 NOVEMBER 2022

- 16.30 - 16.45 **Upcycling of polyethylene terephthalate (PET) wastes to generate biodegradable bioplastics for food and drink packaging**
Lupe León-Sánchez^a, Antonio Gómez-Mompeán^b, Verónica Cánovas^b, Cristina Sirvent^a, Friedemann Leipold^c, Philipp Süß^c, Henrike Brundiek^c, Salvador García^b, Rosa María Martínez-Espinosa^d, Erik de Vries^c, Fuensanta Monzó^a
^aTechnological Center of Footwear and Plastic of the Region of Murcia, CETEC, Spain - ^bCETEC Biotechnology, Murcia, Spain - ^cEnzymicals AG, Greifswald, Germany - ^dUniversity of Alicante, Spain
- NANOTECHNOLOGIES IN PACKAGING**
Moderator: **Domenico Acierno**, CRdC President, Italy
- 16.45 - 17.00 **High performance PLA-PHB blends for food packaging applications**
Marta Zaccone^a, Mitul Kumar Patel^b, Laurens De Brauwer^c, Rakesh Nair^c, Vanesa Martinez^d, Maria Luana Montalbano^a, Marco Monti^a, Kristiina Oksman^b
^aProplast, Alessandria, Italy
^bDivision of Materials Science, Dept. on Engineering Sciences and Mathematics, Luleå University of Technology, Sweden
^cBio Base Europe Pilot Plant (BBEPP), Gent, Belgium
^dTecnopackaging, Polígono Industrial Empresarium, Zaragoza, Spain
- 17.00 - 17.15 **Structure and properties of PBS/PLA nanocomposite films. Effect of nanoparticles and their selective localization**
Emilia Garofalo, Luciano Di Maio, Paola Scarfato, Loredana Incarnato
Department of Industrial Engineering, University of Salerno, Fisciano (SA), Italy

THURSDAY, 24 NOVEMBER 2022

- 17.15- 17.30 **High gas barrier flexible packaging realized through graphene hybrid coatings through a design-for-recycling approach**
Marco Guerritore^a, Federico Olivieri^a, Rachele Castaldo^a, Roberto Avolio^a, Mariacristina Cocca^a, Maria Emanuela Errico^a, Maria Rosaria Galdi^b, Valentina Senatore^b, Cosimo Carfagna^c, **Gennaro Gentile^a**
^aInstitute for Polymers Composites and Biomaterials – National Research Council of Italy (IPCB-CNR), Pozzuoli (NA), Italy
^bFlex Packaging AL SpA, Cava de Tirreni (SA), Italy
^cCRdC Nuove Tecnologie per le Attività Produttive Scarl, Naples, Italy
- HAZARD AND SAFETY ISSUES IN PACKAGING PRODUCTION INDUSTRY**
Moderator: **Almerinda Di Benedetto**, University of Naples Federico II, Italy
- 17.30 - 17.45 **About the importance of risk assessment in the packaging production industry**
Maria Portarapillo, Almerinda Di Benedetto
University of Naples Federico II, Dept. of Chemical, Materials and Production Engineering, Italy
- 17:45 - 18:15 KEYNOTE LECTURE**
Moderator: **Marta Zaccone**, Proplast, Italy
Nanocellulose in packaging: recent progress, critical issues, and future perspectives
Carlo Punta
Politecnico di Milano, Dept. of Chemistry, Materials and Chemical Engineering "Giulio Natta", Italy
- 18.15 - 19.00 *Visit to the Museum*

FRIDAY, 25 NOVEMBER 2022

- 08.45 - 10.30 **ORAL PRESENTATIONS**
LAMINATION, PRINTING AND CONVERTING PROCESSES
Moderator: **Giorgia Spigno**, Catholic University of Sacred Heart of Milan, Italy
- 08.45 - 09.00 **Overlapped heptachromy in rotogravure printing: critical aspects and chromatic considerations**
Agapito Di Tommaso^a, Mario Mensitieri^b
^aSmartcolormatch SRL, Naples, Italy - ^bIcimensue SRL, Mariglianese, Italy
- 09.00 - 09.15 **Sustainable water-based inkjet digital printing solutions for flexible packaging: films & barrier paper**
Juan Cano
SCREEN Europe BV, Business Development, Amstelveen, Netherlands Antilles
- ACTIVE AND PASSIVE SOLUTIONS AND NEW FUNCTIONALITIES**
Moderator: **Valeria Di Sarli**, CNR-STEMS, Italy
- 09.15 - 09.30 **Innovative water-based lacquers for flexible films. Active and barrier solutions for sustainable packaging**
Alessandra Colombo, Anna Nuzzo, Matteo Cresci, Miriam Riva, Gabriele Maria Calderoni, Paolo Vacca
SAES Getters SpA, Lainate (MI), Italy
- 09.30 - 09.45 **Novel eugenol-based antimicrobial coatings on aluminium substrates for food packaging applications**
Elena Orlo^a, Mariamelia Stanzione^b, Margherita Lavorgna^a, Marina Isidori^a, **Aldo Ruffolo^c**, **Ciro Sinagra^c**, Giovanna G. Buonocore^b, Marino Lavorgna^b, Cristina Nerin^d
^aUniversity of Campania "Luigi Vanvitelli", Caserta, Italy
^bInstitute of Polymers, Composites and Biomaterials, CNR, Portici (NA), Italy
^cLaminazione Sottile SpA, San Marco Evangelista, Caserta, Italy
^dDepartment of Analytical Chemistry, University of Zaragoza, Campus Rio Ebro, Zaragoza, Spain

FRIDAY, 25 NOVEMBER 2022

- 09.45 - 10.00 **Permeability properties of eco-sustainable multilayer films functionalized with PVOH/PLA+WAX bio-coatings for food packaging application**
Antonio Barbato, **Annalisa Apicella**, Loredana Incarnato, Paola Scarfato
University of Salerno, Dept. of Industrial Engineering, Italy
- 10.00 - 10.15 **Characterization and effectiveness of an alginate-based edible coating loaded with hydroxyapatite/lactoferrin/ quercetin complexes**
Francesca Malvano, Angela M. Montone, Donatella Albanese
University of Salerno, Department of industrial Engineering, Italy
- 10.15 - 10.30 **Poly (lactic acid) nanofibrous membranes obtained by electrospinning and solution blow spinning for carvacrol controlled release: a comparative study for active packaging application**
Emmanuel Fortunato Gulino, Roberto Scaffaro
Department of Engineering, University of Palermo, Italy

FRIDAY, 25 NOVEMBER 2022

- 10.30 - 11.00 **KEYNOTE LECTURE**
Moderator: **Jean Paul Duquet**, *FPE-Flexible Packaging Europe, Germany*
Delamination recycling of light-weight aluminum-barrier composite packaging materials
Thorsten Hornung
Managing Director CEO Saperatec GmbH, Germany
- 11.00 - 11.30 *Coffee break*
- 11.30 - 12.45 **ORAL PRESENTATIONS**
INNOVATION IN PACKAGING SUPPORTING EU GREEN DEAL - SUSTAINABILITY AND CIRCULAR ECONOMY
Moderator: **Marta Zaccone**, *Proplast, Italy*
- 11.30 - 11.45 **MERLIN: increasing the quality and rate of multilayer packaging recycling waste. Development of new processes for the sorting, delamination and recycling of multilayer plastic packaging waste**
Laurent Philippet^a, José L. Angulo^a, Victor Chamizo^a, Ana M. Lopez-Sabiron^a, Francisco V. Sanchez-Correa^b, José L. Diéguez-García^b, Madeira Scauri^c, **Marco De La Feld**^c, Paola Galletti^d, Chiara Samorì^d, Martina Vagnoni^d, Patricio Alemany^e, Javier Curado^e, Guillermo Flores^e
^aIRIS Technology Solutions S.L, Spain - ^bITENE Packaging, Transport & Logistics Research Center, Spain - ^cENCO S.r.l., Italy - ^dChemistry Department "G. Ciamician", University of Bologna - ^eROVIMATICA S.L., Spain
- 11.45 - 12.00 **3D printing to recycle waste from packaging: effect of thermal aging on printed biopolymer**
Antonella Patti^a, Stefano Acierno^b, Gianluca Cicala^a, Domenico Acierno^c
^aUniversity of Catania, Department of Civil Engineering and Architecture (DICAr), Italy
^bUniversity of Sannio, Department of Engineering, Italy
^cCRdC Nuove Tecnologie per le Attività Produttive Scarl, Italy

FRIDAY, 25 NOVEMBER 2022

- 12.00 - 12.15 **Improving barrier properties of biodegradable polymers with biobased coatings**
Roberta Capuano^a, Roberto Avolio^b, Rachele Castaldo^b, Mariacristina Cocca^b, Gennaro Gentile^b, Teresa Cirillo^c, Agata Nolasco^c, Francesco Esposito^a, Maria Emanuela Errico^b
^a*Department of Mechanical and Industrial Engineering, DIMI, University of Brescia, Italy*
^b*Institute for Polymers, Composites and Biomaterials (IPCB), National Research Council of Italy (CNR), Pozzuoli, Italy*
^c*Department of Agricultural Sciences, University of Naples Federico II, Portici (NA), Italy*
^d*Department of Public Health, University of Naples Federico II, Naples, Italy*
- 12.15 - 12.30 **Biocomposites reinforced with lemongrass particles for potential packaging applications**
Antonino Valenza^a, Vincenzo Fiore^a, Luigi Botta^a, Sanjay Mavinkere Rangappa^b
^a*University of Palermo, Dept. of Engineering, Italy*
^b*King Mongkut's University of Technology North Bangkok, Thailand*
- 12.30 - 12.45 **Valorization of anchovy fishbone wastes for the preparation of biopolymeric based green composites for food packaging applications**
Maria Clara Citarrella, Roberto Scaffaro
Università degli Studi di Palermo, Dept. of Engineering, Palermo, Italy
- 12.45 - 13.15 KEYNOTE LECTURE**
Moderator: **Giorgia Spigno**, Catholic University of Sacred Heart of Milan, Italy
Bioplastics: an industrial perspective
Paolo Mariani
Versalis, Biochem R&D, Tortona, Italy
- 13.15 - 13.30 CLOSING REMARKS

POSTER PRESENTATIONS

- 1) **Active gallic acid releasing films: release kinetics and physicochemical properties**
Muhammad Rehan Khan, Stefania Volpe, Elena Torrieri
University of Naples Federico II, Dept. of Agricultural Science, Italy
- 2) **Added and not added additives: the delicate balance in sustainable packaging**
Enrico Nieddu, Orianna Marcon, Lorenza Lovison, Francesca Faraon, **Andrea Vittadello**
Mérieux NutriSciences Italia, Resana (TV), Italy
- 3) **Gas barrier bio-nanocomposite coatings. Ultrasonic spray deposition of chitosan/graphene oxide coatings on biodegradable flexible films**
A. Cabrini^{ab}, A. Ghalayani^b, P. Cerruti^b, L. De Nardo^a, R. Chiesa^a, G. Buonocore^c, M. Lavorgna^{bc}
^a*Dept. of Chemistry, Materials and Chemical Engineering "G. Natta", Politecnico di Milano, Italy*
^b*Institute for Polymers, Composites and Biomaterials (IPCB-CNR), Lecco, Italy*
^c*Institute for Polymers, Composites and Biomaterials (IPCB-CNR), Portici (NA), Italy*
- 4) **Green synthesis of bifunctional materials for active packaging**
Laura Aguerri^a, Cristina Nerín^a, Filomena Silva^{abc}
^a*I3A, Engineering Research Institute of Aragon, University of Zaragoza, Spain*
^b*ARAID - Aragonese Foundation for Research and Development, Zaragoza, Spain*
^c*Faculty of Veterinary Medicine, University of Zaragoza, Spain*

POSTER PRESENTATIONS

- 5) **Antioxidant active packaging for fresh cut fruit based on polyoxometalates**
Nicolás Gracia-Vallés^{ab}, Fernando Ruiz-Torrubia^a,
Scott Mitchell^e, Ahmed Allal^b, Cristina Nerín^a, **Filomena Silva**^{acd}
^a*I3A - Aragon Institute of Engineering Research, University of Zaragoza, Spain*
^b*IPREM – Institut des Sciences Analytiques et de Physico-Chimie pour l'Environnement et les Matériaux, Université de Pau et des Pays de l'Adour, France*
^c*ARAIID - Aragonese Foundation for Research & Development, Spain*
^d*Faculty of Veterinary Medicine, University of Zaragoza, Spain*
^e*INMA - Institute of Nanoscience and Materials of Aragon, University of Zaragoza, Spain*
- 6) **Production and characterization of novel biofilms from third generation feedstocks**
Francesca Ferrari^a, Daniela Fico^a, Raffaella Striani^a, Silvia Carichino^a, **Mohammad Mahbubul Alam**^a, Antonio Greco^a, Anna Moscatello^b, Massimo Melis^b, Carola Esposito Corcione^a
^a*University of Salento, Department of Engineering for Innovation, Lecce, Italy*
^b*Alpak S.r.l., Taurisano, Lecce, Italy*
- 7) **Novacote® NE 810 S + CE 510: C.O.I.M. compostable adhesive**
Maddalena Boara, Sergio Doldi, **Alice Donà**
C.O.I.M. S.p.A., Novacote Division: Adhesives and Coatings for Flexible Packaging, Italy

POSTER PRESENTATIONS

- 8) **Development of functional coatings for flexible packaging to inhibit the growth of molds in bakery food**
Chiara Ascione^a, Vincenzo Scognamiglio^a, Mattia Fornaro^b,
Valentina Marturano^b, Pierfrancesco Cerruti^b,
Mariantonella Palermo^c, Mario Mensitieri^a
^a*Icimensue Srl, Marcanise (CE), Italy*
^b*Institute for Polymers, Composites and Biomaterials (IPCB-CNR), Pozzuoli (NA), Italy*
^c*Tecnoalimenti SCpA, Milano, Italy*
- 9) **Valorization of waste and by-products of the fishing. Industrial value chain in Liguria region: the ecofishent project**
Marta Zaccone, Marco Monti
Proplast, Alessandria, Italy
- 10) **By-product valorization to develop an active packaging: antimicrobial and antioxidant properties**
María Monedero Prieto^b, Ana Maria Tone^b, Loïc G. Carvalho^c,
Alberto Fiore^c, Ornella D'Auria^a, **Elena Torrieri**^a
^a*University of Naples Federico II, Dept. of Agricultural Science, Italy*
^b*Packaging, Transport & Logistics Research Center (ITENE), Paterna, Spain*
^c*School of Applied Sciences, Division of Engineering and Food Science, Abertay University, Scotland, UK*
- 11) **Multilayer packaging recycling through sustainable approaches**
Martina Vagnoni, Walter Pitacco, Chiara Samorì,
Paola Galletti
Department of Chemistry "Giacomo Ciamician", University of Bologna, Italy

POSTER PRESENTATIONS

- 12) **Active edible coatings reinforced with micronized bacterial cellulose**
Annachiara Pirozzi^a, Silvia Bianco^a, Emanuela Maresca^b,
Martina Aulitto^b, Giovanna Ferrari^{ac}, Patrizia Contursi^b,
Francesco Donsì^a
^aUniversity of Salerno, Dept. of Industrial Engineering, Italy
^bUniversity of Naples Federico II, Dept. of Biology, Italy
^cProdAl Scarl, c/o University of Salerno, Italy
- 13) **Blown films based on pbs/pvoh blends: processability and properties**
Francesco Palmieri, Antonio Barbato, Annalisa Apicella,
Loredana Incarnato
University of Salerno, Dept. of Industrial Engineering, Italy
- 14) **PackAlliance Project | European Alliance for innovation training & collaboration towards future packaging**
Susana Remotti^a, Maria Luana Montalbano^a, Maria Teresa Scrivani^a, Loredana Incarnato^b, Emilia Garofalo^b,
Luciano Di Maio^b, Paola Scarfato^b
^aProplast, Alessandria, Italy
^bUniversity of Salerno, Department of Industrial Engineering, Fisciano, Italy
- 15) **BIONTOP project "Novel packaging films and textiles with tailored end of life and performance based on bio-based copolymers and coatings"**
Andrea Lazzeri, Ilaria Canesi
Planet Bioplastics srl, Pisa, Italy

POSTER PRESENTATIONS

- 16) **PRESERVE "High performance sustainable bio-based packaging with tailored end of life and upcycled secondary use"**
Ilaria Canesi, Andrea Lazzeri
Planet Bioplastics srl, Pisa, Italy
- 17) **Explosion of Alcohol-Ester/Air Mixtures**
Francesco Cammarota, **Valeria Di Sarli**
Consiglio Nazionale delle Ricerche (CNR), Istituto di Scienze e Tecnologie per l'Energia e la Mobilità Sostenibili (STEMS), Italy
- 18) **Effect of irradiation processing on the performances of tocopherol-based active LDPE film**
Fabiana Tescione^a, Ilaria Improta^a, Marino Lavorgna^a,
Margherita Lavorgna^b, Elena Orlo^b, Giovanna G. Buonocore^a
^aInstitute of Polymers, Composites and Biomedical Materials, National Research Council, Naples, Italy
^bDISTABIF, University of Campania Luigi Vanvitelli, Caserta, Italy

Posters will be discussed during coffee and lunch breaks.



REGISTRATION FEES (VAT 22% included)

	BEFORE OCTOBER 10, 2022	AFTER OCTOBER 10, 2022
Giflex Members/ CNR Members/ University Professors	€ 230,00	€ 280,00
Non Members Giflex	€ 300,00	€ 350,00
Students *	€ 150,00	
Social Dinner	€ 80,00	

* PhD Students, Trainees, Research Fellows, whoever has a not permanent position at a University. A certification should be sent together with the registration fee.

API 2022 REGISTRATION FEE INCLUDES

- Admission to scientific sessions
- Conference badge and kit
- Certificate of attendance
- Coffee breaks and lunches as in the program

OFFICIAL LANGUAGE

The official language of the Congress will be English. No simultaneous translation will be provided.

SOCIAL DINNER

THURSDAY, 24 NOVEMBER, h. 20.30

Reale Yacht Club Savoia - Banchina S. Lucia, 13

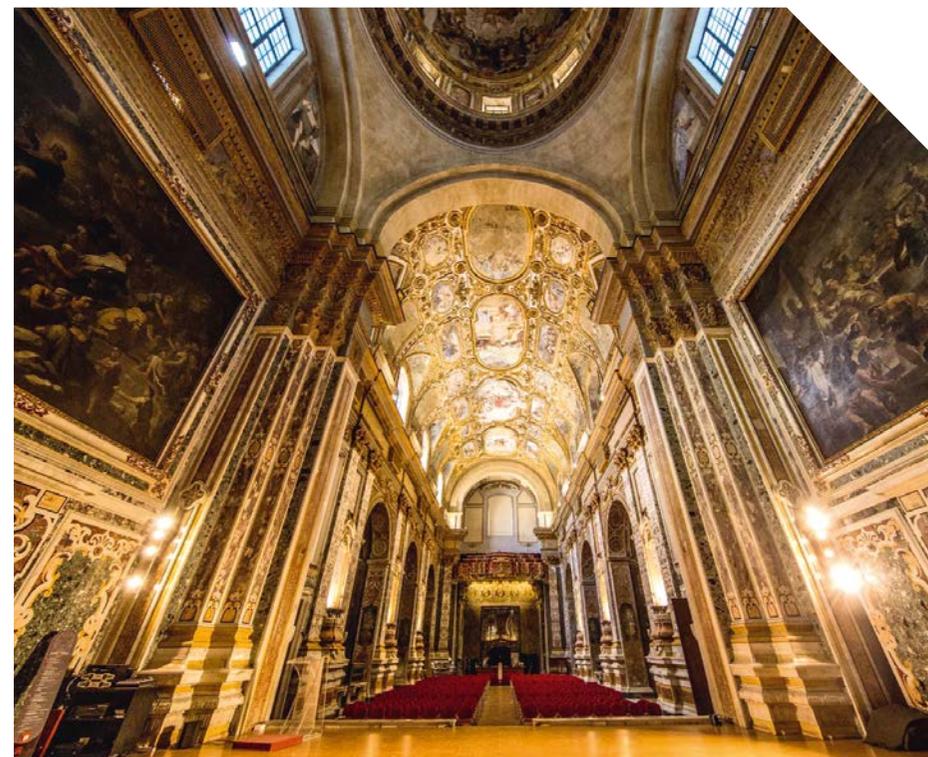
Dress code: Jacket and tie compulsory

A bus will leave at 20.00 from the hotel Palazzo Caracciolo

**VENUE
 MONUMENTAL COMPLEX OF DONNAREGINA**

A really unique location has been selected for the 2022 edition. The congress will take place at the Monumental Complex of Donnaregina - Diocesan Museum of Napoli, a masterpiece of Gothic and Baroque Art, located in the heart of the ancient Napoli. Participants will have the opportunity to visit Napoli from another perspective, different from the classic one offered by the view of the Vesuvius and Castel dell'Ovo. You will really enjoy a unique experience.

One more reason to attend the scientific sessions!





4th International Congress
Advances in the Packaging Industry
"Sustainability: Products and Processes"

UNDER THE AUSPICES OF



SPONSORS



Laminazione
Sottile group



DI
C
Ma
PI
Dipartimento
di Ingegneria Chimica,
dei Materiali e della
Produzione Industriale
Università degli Studi
di Napoli Federico II

i&C GAMA
CONVEGNI

Advances
in the
Packaging
Industry
2022



NAPOLI, Italy
November 24-25, 2022
Museo Donnaregina

Updates will be regularly posted on the conference web site:

www.apicongress.it

ORGANIZING SECRETARIAT

mcm
EVENTI E CONGRESSI

Rione Sirignano, 5 - 80121 Napoli (IT)
Ph. +39 081 7611085 - 081 668774
acanfora@mcmcongressi.it - www.mcmcongressi.it