

Curriculum Vitae

INFORMAZIONI PERSONALI

Nome VINCENZO
Cognome LA CARRUBBA
Recapiti Dipartimento di Ingegneria - Viale delle Scienze edificio 6
Telefono 349-3186332
091-23863726
E-mail vincenzo.lacarrubba@unipa.it

FORMAZIONE TITOLI

EDUCATION AND ACADEMIC CAREER

2024 (nov)-now Coordinator of the BsC Course in Biomedical Engineering

2018 (oct)-now Associate Professor of Industrial Bioengineering (Ing-Ind/34)– University of Palermo, Engineering Department, viale delle Scienze building 6, 90128, Palermo (Italy)

2011-2018 Associate Professor of Material Science and Technology

2006-2011 Assistant Professor of Chemical Engineering

2001-2005 Post Doctoral Fellowship

2001-2004 MASTER in biomaterials (CIRMIB), Milano

1998-2000 PhD (XIII cycle), University of Palermo

1997 Master Degree in Chemical Engineering (110/100 cum laude).

1996 Erasmus projects (Loughborough University of Technology, UK)

1994-1995 University Stages at AGIP (Gela, Porto Torres, Italy)

ATTIVITA' DIDATTICA

1.a Coordination activities within study courses

- Coordinator of the BsC Course in Biomedical Engineering, 2024-now

- Responsible for relations with companies of the Chemical Engineering Course of Studies and organizer of the Chemical Engineering Week (CEW), 2013-now

- Responsible for the orientation of the three-year bachelor's degree course in Biomedical Engineering, 2017-2024

- Responsible for the orientation of the three-year master's degree course in Biomedical Engineering, 2021-2024

- QA Commission for the course of studies in Technologically oriented Medicine (Med-IT), 2022-2024

Joint Commission – Students/Teachers of the Biomedical Engineering BSC course of studies, 2018-2023

1.b Other Coordination activities

- Member of the Engineering department board, 2022-2024
- Member of the QA Commission for the Engineering Department, 2024-now

2. Teaching Duties (University of Palermo)

- *Tissue Engineering*, 2018-now, Biomedical Engineering
- *Biomedical Devices*, 2021-now, Biomedical Engineering
- *Biomedical Devices*, 2022-now, Medicine and Surgery
- *Blood and Plasma separation methodologies*, 2021-now, Biomedical Engineering
- *Materials and processes for tissue and biochemical engineering*, 2015-2021, Chemical Engineering
- *Materials and processes for tissue and biochemical engineering*, 2022-now, Chemical Engineering
- *Fundamentals of Biochemical Engineering*, 2008-2012, Chemical Engineering
- *Applied Chemistry*, 2014-2020, Chemical Engineering
- *Materials Science and Technology and Applied Chemistry*, 2012-14, Energy Engineering
- *Materials Science and Technology and Applied Chemistry*, 2007-08, Environmental Engineering
- *Materials and processes for tissue engineering*, 2014-15 Chemical Engineering
- *Materials and processing for tissue engineering*, 2015-2020, Biomaterials Engineering

3. Tutorials (University of Palermo)

Polymeric Materials, 2002-2003, Chemical Engineering

Chemical Process Design, 2006-2010, Chemical Engineering

Fundamentals of Biochemical Plants, 2006-2010, Biotechnology for industry and scientific research

Unitary Separation Processes, 2002-2004, Chemical Engineering

Fundamentals of Chemistry and Physics of Macromolecules, 2002-2004, Chemical Engineering

4. Other teaching experiences

- Courses on *Materials Science and Technology* and on *Fundamentals of Polymer Processing* at ITS Alessandro Volta Foundation – Nuove Tecnologie per la vita – Palermo (BioMed area) 2021-now

- Courses on the *Introduction to Biomedical Engineering* for Progetto V.I.T.A. – Verso l'Innovazione e le Tecnologie Avanzate della vita

- Seminars on *Numerical Methods for Chemical Engineering, Energy and Mass Balances, Industrial Polymers and Applications, General Chemistry, Chemistry and Physics of polymers, Fundamentals of Materials for orthopedics, Prosthesis and regenerative Medicine, Fundamentals of Materials, Fundamentals of Material Processing, Polymer Injection Molding* within several projects financed by EU (PON SIB 01-01827, PON 0200355 PLASTics, PONA300273)

- Numerous seminars upon invitations in several international institutions: *Queen's University of Belfast (UK), Heriot-Watt University (UK), University of Halle (Germany), University of Texas at Austin (USA), University of San Sebastian (Spain), DSM Research (The Netherlands)*

- Lecture in the GRICU School 2019 "Green Chemistry and Chemical Engineering", "Chemical Engineering for Biomedical Applications", Palermo, 3-6 luglio 2019

- Lecture in the GRICU School 2015 "Biological and bioprocess engineering", Padova, 7-11 settembre 2015

- Tutor of 50 master students' theses and 40 undergraduate students' theses

- Tutors of 4 PhD students

- Member of the *PhD Teaching Board in Information and Communication Technologies (ICT)*, University of Palermo

RICERCHE FINANZIATE

- PRIN Green Microfluidic Platform for advanced tissue on a Chip cultures (Green MID-PLACE) (National PI) **2023**

- COST P12 "Structuring of Polymers", European Cooperation in the Field of Scientific and technical Research, 2004-2007

- "Polymers Injection Advanced Moulding" (PIAM), EU- Coordination action VII framework, 2004-2007

- "Blue Growth", ARS0100891, "Conversione di Piattaforme Off Shore per usi multipli eco-sostenibili – PON-PlaCE"
- "Identificazione di sistemi di rilascio ottimali per i Nucleic Acid Based Drugs e studio dei meccanismi di azione in alcuni modelli di patologie umane infiammatorie e tumorali", PRIN 2010, UO Palermo, 2013-2016
- "Materiali biodegradabili a porosità controllata per applicazioni biomediche", PRIN 2008, UO Palermo, 2010-12
- "SIBAR – Sistemi di Irrigazione Biodegradabili per l'impiego di Acque Reflue urbane per le produzioni alimentari", P.O.N. Ricerca e competitività 2007/2013
- "Collettore Idea Sole – Innovativa piastrella per l'utilizzo di energia solare per il riscaldamento di liquidi" finanziato dal Ministero dell'Ambiente, 2011-2013
- "SOLUZIONI AVANZATE BASATE SU BIOMATERIALI A MATRICI COMPOSITE COMPLESSE PER LA RIPARAZIONE E LA RIGENERAZIONE DELLA CARTILAGINE ARTICOLARE MEDIANTE TECNICHE MININVASIVE ", PON-SIB, P.O.N. Ricerca e competitività 2007/2013
- "Termoporazione Dinamica Irreversibile (DIT)", linea di intervento 4.1.1.1 del PO FESR 2007/2013
- "ECO-FLACONI - packaging eco-sostenibile per detergenti a ridotto impatto ambientale" P.O. FESR 2007/2013, linea di intervento 4.1.1.2
- "Scaffold polimerici riassorbibili per applicazioni biomedicali" fondi di Ateneo ex 60%, 2004-2006;
- "Cinetica di cristallizzazione, struttura e processabilità di nanocompositi e miscele con gomme a base di polistirene sindiotattico" PRIN, UO Palermo, 2002-2004
- FFR 2012 "Preparazione e caratterizzazione di sostituti vascolari (scaffold) ingegnerizzati a base di acido polilattico"

ASSOCIAZIONI SCIENTIFICHE

Polymer Processing Society - PPS

Associazione Italiana d'Ingegneria dei Materiali - AIMAT

Consorzio Interuniversitario di Scienza e Tecnologia dei Materiali - INSTM

European Association of Material Forming - ESAFORM

Gruppo Ricercatori Ingegneria Chimica dell'Università - GRICU

Latin Association on Vascular Research - LIAC

Gruppo Italiano Biongegneria - GNB

PUBBLICAZIONE

BIBLIOMETRIC PARAMETERS

Indexed Publications 128

h-index 25

Citations 2329

PUBLICATIONS

Referred International Journals

1 2024

Schiera, Veronica, Carfi Pavia, Francesco, La Carrubba, Vincenzo, Brucato, Valerio, Dintcheva, Nadka Tz., Poly-L-Lactic Acid Scaffolds Additivated with Rosmarinic Acid: A Multi-Analytical Approach to Assess The Morphology, Thermal Behavior, and Hydrophilicity

Polymers Volume 16, Issue 12 June 2024 Article number 1672 doi: 10.3390/polym16121672

2 2024

De Luca, Angela, Capuana, Elisa, Carbone, Camilla, Raimondi, Lavinia, Carfi Pavia, Francesco, Brucato, Valerio, La Carrubba, Vincenzo, Giavaresi, Gianluca Three-dimensional (3D) polylactic acid gradient scaffold to study the behavior of osteosarcoma cells under dynamic conditions Journal of Biomedical Materials Research - Part A Volume 112, Issue 6, Pages 841 – 851 June 2024 DOI

10.1002/jbm.a.37665

3 2024

Lopresti, Francesco, Campora, Simona, Rigogliuso, Salvatrice, Nicosia, Aldo, Lo Cicero, Alessandra, Di Marco, Chiara, Tornabene, Salvatore, Gheri, Giulio, La Carrubba, Vincenzo Improvement of Osteogenic Differentiation of Mouse Pre-Osteoblastic MC3T3-E1 Cells on Core-Shell Polylactic Acid/Chitosan Electrospun Scaffolds for Bone Defect Repair International Journal of Molecular Sciences Open Access Volume 25, Issue 5 March 2024 Article number 2507 DOI

10.3390/ijms25052507

4 2024

Ferraro, Wally, Civilleri, Aurelio, Gögele, Clemens, Carbone, Camilla, Vitrano, Ilenia, Carfi Pavia, Francesco, Brucato, Valerio, La Carrubba, Vincenzo, Werner, Christian, Schäfer-Eckart, Kerstin, Schulze-Tanzil, Gundula The Phenotype of Mesenchymal Stromal Cell and Articular Chondrocyte Cocultures on Highly Porous Bilayer Poly-L-Lactic Acid Scaffolds Produced by Thermally Induced Phase Separation and Supplemented with Hydroxyapatite Polymers Open Access Volume 16, Issue 3 February 2024 Article number 331 DOI 10.3390/polym16030331

5 2024

Capuana, Elisa, Carbone, Camilla, Pavia, Francesco Carfi, Gherzi, Giulio, La Carrubba, Vincenzo, Brucato, Valerio, An Airlift Perfusion Bioreactor for Tissue Engineering Applications: from Computational Modeling to Experimental Validation Chemical Engineering Transactions Volume 110, Pages 229 – 234 2024 DOI

10.3303/CET24110039

6 2023

Zanca, Claudio, Milazzo, Alessandro, Campora, Simona, Capuana, Elisa, Pavia, Francesco Carfi, Patella, Bernardo, Lopresti, Francesco, Brucato, Valerio, La Carrubba, Vincenzo Galvanic Deposition of Calcium Phosphate/Bioglass Composite Coating on AISI 316L, Coatings Open Access Volume 13, Issue 6 June 2023 Article number 1006

7 2023

Capuana, Elisa, Campora, Simona, Catanzaro, Giorgio, Lopresti, Francesco, Conoscenti, Gioacchino, Gherzi, Giulio, La Carrubba, Vincenzo, Brucato, Valerio, Pavia, Francesco Carfi, Computational modeling and experimental characterization of fluid dynamics in micro-CT scanned scaffolds within a multiple-sample airlift perfusion bioreactor Biochemical Engineering Journal Volume 191 February 2023 Article number 108797 DOI 10.1016/j.bej.2022.108797

8 2023

Capuana, Elisa, Marino, Davide, Di Gesù, Roberto, La Carrubba, Vincenzo, Brucato, Valerio, Tuan, Rocky S., Gottardi, Riccardo

A High-Throughput Mechanical Activator for Cartilage Engineering Enables Rapid Screening of in vitro Response of Tissue Models to Physiological and Supra-Physiological Loads

9 2022

Lopresti, Francesco, Patella, Bernardo, Divita, Vito, Zanca, Claudio, Botta, Luigi, Radacsi, Norbert O'Riordan, Alan, Aiello, Giuseppe, Kersaudy-Kerhoas, Maïwenn, Inguanta, Rosalinda, La Carrubba, Vincenzo

Green and Integrated Wearable Electrochemical Sensor for Chloride Detection in Sweat Sensors Open Access Volume 22, Issue 21 November 2022 Article number 8223

DOI 10.3390/s22218223

10 2022

Zanca, Claudio, Patella, Bernardo, Capuana, Elisa, Lopresti, Francesco, Brucato, Valerio, Carfi Pavia, Francesco, La Carrubba, Vincenzo, Inguanta, Rosalinda

Behavior of Calcium Phosphate–Chitosan–Collagen Composite Coating on AISI 304 for Orthopedic Applications

Polymers Open Access Volume 14, Issue 23 December 2022 Article number 5108 DOI 10.3390/polym14235108

11 2022

Lopresti, Francesco, Botta, Luigi, La Carrubba, Vincenzo, Attinasi, Giuseppe, Settanni, Luca, Garofalo, Giuliana, Gaglio, Raimondo

Physical and antibacterial properties of PLA electrospun mats loaded with carvacrol and nisin

Express Polymer Letters Open Access Volume 16, Issue 10, Pages 1083 - 1098 October 2022

DOI 10.3144/expresspolymlett.2022.79

12 2022

Zanca C., Carbone S., Patella B., Lopresti F., Aiello G., Brucato V., Carfi Pavia F., La Carrubba V., Inguanta R.

Lopresti, Francesco, Liga, Antonio, Capuana, Elisa, Gulfi, Davide, Zanca, Claudio, Inguanta, Rosalinda, Brucato, Valerio, La Carrubba, Vincenzo, Carfi Pavia, Francesco

Effect of Polyhydroxyalkanoate (PHA) Concentration on Polymeric Scaffolds Based on Blends of Poly-L-Lactic Acid (PLLA) and PHA Prepared via Thermally Induced Phase Separation (TIPS)

Corsino, S. F., Di Trapani, D., Traina, F.; Cruciata, I, Scirè Calabrisotto, L.; Lopresti, F.; La Carrubba, V; Quatrini, P.; Torregrossa, M.; Viviani, G., Integrated production of biopolymers with industrial wastewater treatment: Effects of OLR on process yields, biopolymers characteristics and mixed microbial community enrichment, Journal of Water Process Engineering, Volume 47, June 2022, Article number 102772, DOI: 10.1016/j.jwpe.2022.102772

Di Bella, G.; Corsino, S.F.; De Marines, F.; Lopresti, F.; La Carrubba, V.; Torregrossa, M.; Viviani, G.; Occurrence of Microplastics in Waste Sludge of Wastewater Treatment Plants: Comparison between Membrane Bioreactor (MBR) and Conventional Activated Sludge (CAS) Technologies, Membranes Open Access Volume 12, Issue 4 April 2022 Article number 371, DOI: 10.3390/membranes12040371

Capuana, E.; Lopresti, F.; Ceraulo, M.; La Carrubba, V., Poly-L-Lactic Acid (PLLA)-Based Biomaterials for Regenerative Medicine: A Review on Processing and Applications, Polymers Open Access Volume 14, Issue 6 March-2 2022 Article number 1153, DOI: 10.3390/polym14061153

17 2022

Capuana, E.; Fucarino, A.; Burgio, S.; Intili, G.; Manna, O.M.; Pitruzzella, A.; Brucato, V.; La Carrubba, V.; Carfi Pavia, F.; A dynamic air–liquid interface system for in vitro mimicking of the nasal mucosa, *Biotechnology and Bioengineering* 2022, DOI: 10.1002/bit.28090

18 2022

Capuana, E.; Carfi Pavia, F.; Lombardo, M.E.; Rigogliuso, S.; Gherzi, G.; La Carrubba, V.; Brucato, V.; Mathematical and numerical modeling of an airlift perfusion bioreactor for tissue engineering applications, *Biochemical Engineering Journal* Volume 178 January 2022 Article number 108298, DOI: 10.1016/j.bej.2021.108298

19 2021

Lopresti, F.; Botta, L.; La Carrubba, V.; Di Pasquale, L.; Settanni, L.; Gaglio, R.; Combining carvacrol and nisin in biodegradable films for antibacterial packaging applications, *International Journal of Biological Macromolecules* Volume 193, Pages 117–126, 15 December 2021, DOI: 10.1016/j.ijbiomac.2021.10.118

20 2021

Lombardo, M.E., Carfi Pavia, F., Craparo, E.F., Capuana E., Cavallaro, G.; Brucato, V., La Carrubba, V.; Novel dual-flow perfusion bioreactor for in vitro pre-screening of nanoparticles delivery: design, characterization and testing, *Bioprocess and Biosystems Engineering*, 2021, 44(11), pp. 2361–2374, DOI: 10.1007/s00449-021-02609-4

21 2021

Lopresti, F., Pavia, F.C., Ceraulo, M., Capuana E.; Brucato V.; Gherzi G., Botta, L., La Carrubba, V.; Physical and biological properties of electrospun poly(d,l-lactide)/nanoclay and poly(d,l-lactide)/nanosilica nanofibrous scaffold for bone tissue engineering, *Journal of Biomedical Materials Research - Part A*, 2021, 109(11), pp. 2120–2136, DOI: 10.1002/jbm.a.37199

22 2021

Lopresti, F., Keraite, I., Ongaro, A.E., Howarth, N.M.; La Carrubba, V., Kersaudy-Kerhoas, M.; Engineered membranes for residual cell trapping on microfluidic blood plasma separation systems. A comparison between porous and nanofibrous membranes, *Membranes*, 2021, 11(9), 680, DOI: 10.3390/membranes11090680

23 2021

Core-shell PLA/Kef hybrid scaffolds for skin tissue engineering applications prepared by direct kefir coating on PLA electrospun fibers optimized via air-plasma treatment

Lopresti, F., Campora, S., Tirri, G., Capuana, E.; Carfi Pavia, F.; Brucato, V., Ghersi, G., La Carrubba, V.; Materials Science and Engineering C, 2021, 127, 112248, DOI: 10.1016/j.msec.2021.112248

24 2021

Capuana, E., Lopresti, F., Carfi Pavia, F., Brucato, V., La Carrubba, V.; Solution-based processing for scaffold fabrication in tissue engineering applications: A brief review, Polymers, 2021, 13(13), 2041, DOI: 10.3390/polym13132041

25 2021

Mendolia, I., Zanca, C., Ganci, F., Conoscenti G.; Pavia, F. C.; Brucato V.; La Carrubba V.; Lopresti F.; Piazza S.; Sunseri, C., Inguanta, R., Calcium phosphate/polyvinyl acetate coatings on SS304 via galvanic co-deposition for orthopedic implant applications, Surface and Coatings Technology, 2021, 408, 126771, DOI: 10.1016/j.surfcoat.2020.126771

26 2021

Capuana, E., Marino, D., Di Gesù, R., La Carrubba, V.; Brucato, V.; Tuan, R.S., Gottardi, R.; A High-Throughput Mechanical Activator for Cartilage Engineering Enables Rapid Screening of in vitro Response of Tissue Models to Physiological and Supra-Physiological Loads, Cells Tissues Organs, 2021, DOI: 10.1159/000514985

27 2021

Zanca, C., Cordaro, G., Capuana, E., Brucato, V.; Pavia, F.C.; La Carrubba, V.; Ghersi, G.; Inguanta, R., Galvanic deposition of Hydroxyapatite/Chitosan/Collagen coatings on 304 stainless steel, Chemical Engineering Transactions, 2021, 86, pp. 1399–1404, DOI: 10.3303/CET2186234

28 2020

Lombardo, M.E., Zito, G., Pavia, F.C., Pizzolanti, G.; Giordano, C.; Brucato, V., La Carrubba, V.; 3D polymeric supports promote the growth and progression of anaplastic thyroid carcinoma, Biochemical and Biophysical Research Communications, 2020, 531(2), pp. 223–227, DOI: 10.1016/j.bbrc.2020.07.062

29 2020

Settanni L., Cruciata M., Guarcello R., Francesca N., Moschetti G., La Carrubba V., Gaglio R., Valorisation of Dairy Wastes Through Kefir Grain Production, *Waste and Biomass Valorization*, 2020, 11(8), pp. 3979–3985, DOI: 10.1007/s12649-019-00718-6

30 2020

Ongaro, A.E., Di Giuseppe, D., Kermanizadeh, A., Miguelez Crespo, A., Mencattini, A., Ghibelli, L., Mancini, V., Wlodarczyk, K.L., Hand, D.P., Martinelli, E., Stone, V., Howarth, N., La Carrubba, V., Pensabene, V., Kersaudy-Kerhoas, M. (2020) Polylactic is a Sustainable, Low Absorption, Low Autofluorescence Alternative to Other Plastics for Microfluidic and Organ-on-Chip Applications *Analytical Chemistry* Volume 92, Issue 9, 5 May 2020, Pages 6693-6701, DOI: 10.1021/acs.analchem.0c00651

31 2020

Sabatino M.A., Carfi Pavia F., Rigogliuso S., Giacomazza D., Gherzi G., La Carrubba V., Dispenza C., Development of injectable and durable kefiran hydro-alcoholic gels, *International Journal of Biological Macromolecules* Volume 149, 15 April 2020, Pages 309-319, DOI: 10.1016/j.ijbiomac.2020.01.244

32 2020

De Luca A., Vitrano I., Costa V., Raimondi L., Carina V., Bellavia D., Conoscenti G., Di Falco R., Pavia F.C., La Carrubba V., Brucato V. Giavaresi G., Improvement of osteogenic differentiation of human mesenchymal stem cells on composite poly L-lactic acid/nano-hydroxyapatite scaffolds for bone defect repair, *Journal of Bioscience and Bioengineering* Volume 129, Issue 2, February 2020, Pages 250-257, DOI: 10.1016/j.jbiosc.2019.08.001

33 2020

Lopresti F., Carfi Pavia F., Vitrano I., Kersaudy-Kerhoas M., Brucato V., La Carrubba V., Effect of hydroxyapatite concentration and size on morpho-mechanical properties of PLA-based randomly oriented and aligned electrospun nanofibrous mats, *Journal of the Mechanical Behavior of Biomedical Materials* Volume 101, January 2020, Article number 103449, DOI: 10.1016/j.jmbbm.2019.103449

34 2019

Montesanto, Salvatore, Smithers, Natalie P., Bucchieri, Fabio, Brucato, Valerio, Carrubba, Vincenzo La, Davies, Donna E.,

Conforti, Franco (2019). Establishment of a pulmonary epithelial barrier on biodegradable poly-L-lactic-acid membranes. PLOS ONE, vol. 14, p. 1-13, ISSN: 1932-6203, doi: 10.1371/journal.pone.0210830

35 2019

Palumbo, F.S., Bongiovì, F., Carfi Pavia, F., Vitrano, Ib, La Carrubba, V., Pitarresi, G., Brucato, V., Giammona, G. (2019). Blend scaffolds with polyaspartamide/polyester structure fabricated via TIPS and their RGDC functionalization to promote osteoblast adhesion and proliferation. Journal of Biomedical Materials Research - Part A Volume 107, Issue 12, 1 December 2019, Pages 2726-2735

36 2019

Conoscenti, G., Carfi Pavia, F., Ongaro, A., Brucato, V., Goegele, C., Schwarz, S., Boccaccini, A.R., Stoelzel, K., La Carrubba, V., Schulze-Tanzil, G. (2019). Human nasoseptal chondrocytes maintain their differentiated phenotype on PLLA scaffolds produced by thermally induced phase separation and supplemented with bioactive glass 1393. Connective Tissue Research Volume 60, Issue 4, 4 July 2019, Pages 344-357

37 2019

Lombardo, M.E., Carfi Pavia, F., Vitrano, I., Gherzi, G., Brucato, V., Rosei, F., La Carrubba, V. (2019). PLLA scaffolds with controlled architecture as potential microenvironment for in vitro tumor model. Tissue and Cell Volume 58, June 2019, Pages 33-41

38 2019

Blanda, G., Brucato, V., Carfi, F., Conoscenti, G., La Carrubba, V., Piazza, S., Sunseri, C., Inguanta, R. (2019). Chitosan-Coating Deposition via Galvanic Coupling. ACS Biomaterials Science and Engineering Volume 5, Issue 4, 8 April 2019, Pages 1715-1724

39 2019

Gritsch, Lukas, Conoscenti, Gioacchino, La Carrubba, Vincenzo, Nooeaid, Patcharakamon, Boccaccini, Aldo R. (2019). Polylactide-based materials science strategies to improve tissue-material interface without the use of growth factors or other biological molecules. MATERIALS SCIENCE AND ENGINEERING. C, BIOMIMETIC MATERIALS, SENSORS AND SYSTEMS, vol. 94, p. 1083-1101, ISSN: 0928-4931, doi: 10.1016/j.msec.2018.09.038

40 2018

Vitrano, Ilenia, Pavia, Francesco Carfi, Conoscenti, Gioacchino, Lombardo, Maria Elena, Carrubba, Vincenzo La, Brucato, Valerio (2018). Evaluation of hydroxyapatite distribution in a Poly-L-Lactic Acid (PLLA) scaffolds via Micro Computed Tomography (μ CT). CHEMICAL ENGINEERING TRANSACTIONS, vol. 64, p. 193-198, ISSN: 2283-9216, doi: 10.3303/CET1864033

41 2018

Conoscenti, Gioacchino, Carfi Pavia, Francesco, Ongaro, Alfred, Brucato, Valerio, Goegele, Clemens, Schwarz, Silke, Boccaccini, Aldo R., Stoelzel, Katharina, La Carrubba, Vincenzo, Schulze-Tanzil, Gundula (2018). Human nasoseptal chondrocytes maintain their differentiated phenotype on PLLA scaffolds produced by thermally induced phase separation and supplemented with bioactive glass 1393. CONNECTIVE TISSUE RESEARCH, vol. 1, p. 1-14, ISSN: 0300-8207, doi: 10.1080/03008207.2018.1539083

42 2018

Conoscenti, Gioacchino, Carfi Pavia, Francesco, Ciraldo, Francesca Elisa, Liverani, Liliana, Brucato, Valerio, La Carrubba, Vincenzo, Boccaccini, Aldo R. (2018). In vitro degradation and bioactivity of composite poly-l-lactic (PLLA)/bioactive glass (BG) scaffolds: comparison of 45S5 and 1393BG compositions. JOURNAL OF MATERIALS SCIENCE, vol. 53, p. 2362-2374, ISSN: 0022-2461, doi: 10.1007/s10853-017-1743-9

43 2018

Toscano, Mauro, Pavia, Francesco Carfi, Conoscenti, Gioacchino, Sabatino, Maria A., Carrubba, Vincenzo La, Dispenza, Clelia, Brucato, Valerio (2018). Kefiran-based scaffolds for biomedical applications. CHEMICAL ENGINEERING TRANSACTIONS, vol. 64, p. 181-186, ISSN: 2283-9216, doi: 10.3303/CET1864031

44 2018

Ongaro AE, Keraite I, Liga A, Conoscenti G, Coles S, Schulze H, Bachmann TT, Parvez K, Casiraghi C, Howarth N, La Carrubba V, Kersaudy-Kerhoas M (2018). Laser Ablation of Poly(l-lactic acid) Sheets for the Rapid Prototyping of Sustainable, Single-Use, Disposable Medical Microcomponents. ACS SUSTAINABLE CHEMISTRY & ENGINEERING, vol. 6, p. 4899-4908, ISSN: 2168-0485, doi: 10.1021/acssuschemeng.7b04348

45 2018

Carrubba, V. La, Brucato, V. (2018). Preparation of Poly(l-lactic acid) Scaffolds by Thermally Induced Phase Separation: Role of Thermal History. INTERNATIONAL POLYMER PROCESSING, vol. 33, p. 300-313, ISSN: 0930-777X, doi: 10.3139/217.3511

46 2018

Carfi Pavia, Francesco, Conoscenti, Gioacchino, Greco, Silvia, La Carrubba, Vincenzo, Gherzi, Giulio, Brucato, Valerio (2018). Preparation, characterization and in vitro test of composites poly-lactic acid/hydroxyapatite scaffolds for bone tissue engineering. INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, vol. 119, p. 945-953, ISSN: 0141-8130, doi: 10.1016/j.ijbiomac.2018.08.007

47 2017

CARFI' PAVIA, Francesco, CIAPPA, Marco, Lepedda, A., Fiorentino, S., RIGOGLIUSO, Salvatrice, BRUCATO, Valerio Maria Bartolo, Formato, M., GHERSI, Giulio, LA CARRUBBA, Vincenzo (2017). A poly-L-lactic acid/ collagen/glycosaminoglycan matrix for tissue engineering applications. JOURNAL OF CELLULAR PLASTICS, vol. 53, p. 537-549, ISSN: 0021-955X, doi: 10.1177/0021955X17695093

48 2017

Fiorentino, Simona Maria, La Carrubba, Vincenzo, Abrami, Michela, Farra, Rossella, Turco, Gianluca, Grassi, Gabriele, Grassi, Mario, CARFI' PAVIA, Francesco, BRUCATO, Valerio Maria Bartolo (2017). Characterization of PLLA scaffolds for biomedical applications. INTERNATIONAL JOURNAL OF POLYMERIC MATERIALS, vol. 66, p. 469-477, ISSN: 0091-4037, doi: 10.1080/00914037.2016.1252344

49 2017

La Carrubba, Vincenzo, Gherzi, Giulio, Greco, Silvia, CARFI' PAVIA, Francesco, BRUCATO, Valerio Maria Bartolo (2017). Double flow bioreactor for in vitro test of drug delivery. CURRENT DRUG DELIVERY, vol. 14, p. 239-245, ISSN: 1567-2018, doi: 10.2174/1567201813666160527141538

50 2017

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V. BRUCATO, S. PICCAROLO, LA CARRUBBA V (1998). Polymer solidification under pressure and high cooling rates. In: 1st ESAFORM conference on Material Forming. Sophia–Antipolis, France., 17-20 March

101 1997

V. BRUCATO, S. PICCAROLO, LA CARRUBBA V, G. TITOMANLIO (1997). High Cooling rates and Pressure effects on polymer solidification. In: Polymer Processing Society –Europe/Africa Region Meeting. Gothenburg, Sweden., August 19-21

Chapters in Books

1 2018

Liliana Liverani, Vincenzo Guarino, Vincenzo La Carrubba, Aldo R Boccaccini, Porous Biomaterials and Scaffolds for Tissue Engineering, in Encyclopedia of Biomedical Engineering, pp. 188-202, <https://doi.org/10.1016/B978-0-12-801238-3.99872-6>

2 2012

La Carrubba V, Brucato V (2012). Solidification of Polypropylene Under Processing Conditions – Relevance of Cooling Rate, Pressure and Molecular Parameters. In: (a cura di): Fatih Dogan, Polypropylene. p. 429-458, INTECH, ISBN: 978-953-51-0636-4

La Carrubba V, Carfi Pavia F, Gherzi G, Brucato V (2011). Polylactide biodegradable scaffolds for tissue engineering applications phase separation-based techniques. In: (a cura di): Felton Gary P, Biodegradable Polymers: Processing, Degradation and Applications. p. 109-206, HAUPPAUGE NY 11788-3619:Nova Science Publishers, Inc., ISBN: 978-161209534-9

Presentations to International Meetings

2024

- TERMIS World Conference, Seattle 25-28 june 2024

2019

- EUROFILLER POLYMERBLEND – Palermo (Italy), 23-26 april 2019

- Workshop “Materials in the next decade” – Favignana (Italy), 18-20 september 2019

2018

- IEEE 4th International Forum on Research and Technologies for Society and Industry, RTSI 2018 Institute of Electrical and Electronics Engineers Inc., Palermo, Sept 10-13 2018

- 6th International Conference on Manufacturing Research, Skowde, Sweden Sept 11-13 2018

2017

- 5th International Conference on Manufacturing Research, ICMR 2017; University of Greenwich London; United Kingdom. September 7-9, 2017

- XXXIII LIAC Meeting on Vascular Research, Bordeaux (France), Nov 29-Dec1, 2017

2016

- TERMIS - Americas Conference and Exhibition, San Diego (USA), 11-14 Dec 2016
- XXXII LIAC Meeting on Vascular Research, Ustica (Italy), Sept 14-17, 2016

2015

- 5th international conference on Biofoams, Sorrento (Italy), Oct 13-16, 2015
- International Conference on Polymer Processing with Resulting Morphology and Properties: Feet in the Present and Eyes at the Future, GT70 2015; Salerno (Italy), Oct 15-17, 2015
- Euro Membrane conference 2015, Aachen (Germany) September 7-10 2015
- International Material Research Congress 2015. Cancun (Mx), August 16-20 2015

2014

- XXX LIAC Meeting on Vascular Research, Valladolid (Spain), Oct 22-25, 2014

2013

- Polymer Processing Society 29th Annual Meeting, Nurember, (Germany) July 5-19 2013
- First International Symposium on Vascular Tissue Engineering. Leiden (The Netherlands), May 28-29 2013
- 4th International Conference on Biofoams 2013. Toronto (Canada), August 27-29 2013
- European Polymer Congress (EPF 2013). Pisa (Italy), June, 16 - 21, 2013
- XXIX LIAC Meeting on Vascular Research, Alghero (Italy), Sept 18-21, 2013

2012

- TERMIS Meeting. Vienna (Austria), September 5-8 2012.
- EUPOC 2012 - Porous Polymer-based systems: from design to application. Gargnano (Italy), June 3-7 2012
- 6th International Conference on Times of Polymers (TOP) and Composites; Ischia (Italy). June 12-14 2012
- 3rd International Conference on Industrial Biotechnology. Palermo (Italy) June 24-27 2012.
- XXVIII LIAC Meeting on Vascular Research, Grenoble (France), Oct 3-6, 2012

2011

- The Polymer Processing Society 27th Annual Meeting". Marrakech (Morocco), May 10-14, 2011
- The 14th International Conference on Material Forming ESAFORM 2011, Belfast (UK), April 27–29 2011.
- Advances in Polymer based Materials and Related Technologies, a workshop in honour of Mimmo Acierno's 70th birthday. Capri (Italy), May 29- June 1 2011
- XXVII LIAC Meeting on Vascular Research, Logrono (Spain), Oct 5-8, 2011

2010

- 23rd European Conference on Biomaterials. Tampere, Finland, September 11-15 2010
- XXX Meeting of the Italian Society for The study of the connective tissue (SISC). Palermo (Italy), October 27-29, 2010
- 5TH INTERNATIONAL CONFERENCE ON TIMES OF POLYMERS TOP AND COMPOSITES. Ischia (Italy), June 20-23, 2010

2009

- Polymerfest, 40 years of "Polymer Research" at University of Palermo, Palermo (Italy), August 30-Sept 2, 2009

- 2nd Maghreb Conference on Desalination and Water Treatment. Hammamet (Tunisia), December 20-23 2009

2008

- PPS-24 The Polymer Processing Society 24th Annual Meeting. Salerno (Italy), June 15-19, 2008

2007

- 10th ESAFORM Conference on Material forming. Zaragoza (Spain), 18-20 April 2007
- The 23rd annual meeting of the Polymer Processing Society. Salvador-Bahia, Brazil, May 27-31, 2007
- Polymer Blends 9th European Symposium. Palermo (Italy), September 9-12, 2007

2006

- COST P12 Conference 2006, Crystallisation and Structure Formation of Polymers. Mittelwihr, (France) October 8-11, 2006
- The 9th International Conference on Material Forming ESAFORM 2006. Glasgow (Scotland), April 25-28, 2006

2005

- 21st Annual Meeting of the Polymer Processing Society. Leipzig (Germany), June 19-23, 2005
- The 8th ESAFORM Conference on Material Forming. Cluj Napoca (Romania), April 27-29, 2005

2004

- COST P12 Conference 2004, Structuring of Polymers. Napoli (Italy), October 27-30, 2004
- The 7th ESAFORM Conference on Material Forming ESAFORM 2004. Trondheim (Norway) April 28-30, 2004

2003

- Polymer Processing Society regional meeting. Athens (Greece), September 14-17 2003
- The 6th International ESAFORM Conference on Material Forming, Salerno (Italy), April 28-30 2003
- Polymer Crystallization and Structure Formation in Processing. Linz, Austria, September 19-20, 2003

2002

- Polymer Processing Society, 18th Annual Meeting. Guimaraes (Portugal), June 16-20, 2002
- The 5th ESAFORM conference on Material Forming. Krakow (Poland) April 14-17, 2002

2001

- Polymer Processing Society, 17th Annual Meeting. Montreal, Canada, May 31- June 4, 2001
- 3rd ESAFORM conference on Material Forming. Liège (Belgium) 23-25 April, 2001
- 7th European Conference on advanced Materials and Processing, EUROMAT. Rimini (Italy) June 10-14, 2001

2000

- Polymer Processing Society XVI regional meeting. Zlin (Czech Republic), August 15-18, 2000
- 2nd ESAFORM conference on Material Forming. Stuttgart (Germany), April 11-14 2000

1999

- Polymer Processing Society, 15th Annual Meeting. 's Hertogenbosch (The Netherlands), May 31- June 4 1999

1998

- 1st ESAFORM conference on Material Forming. Sophia–Antipolis (France), March 17-20, 1998

1997

- Polymer Processing Society –Europe/Africa Region Meeting. Gothenburg (Sweden), August 19-21, 1997

Presentations in Italian Meetings

2018

- Congresso Nazionale Società Italiana Biomateriali. Rende (Cosenza), 6-8 giugno 2018

2015

- Congresso Nazionale Società Italiana Biomateriali. Ancona, 3-5 giugno 2015

2014

- XII convegno nazionale AIMAT 2014. Lecce, 21-24 settembre 2014
- XXI Convegno dell'Associazione Italiana di Scienza e Tecnologia delle Macromolecole. Torino, 14-19 settembre 2014
- I materiali biocompatibili per la medicina. Convegno nazionale della Società italiana biomateriali Palermo, 2-4 luglio 2014

2013

- IX convegno nazionale sulla scienza e tecnologia dei materiali. Bari, 30 giugno - 3 luglio 2013

2012

- XII Convegno della Società Italiana di Reologia. Ustica, 3-6 luglio 2012

- Congresso Nazionale Biomateriali. Lecce, 18-20 giugno 2012

2011

- XX Convegno Italiano di Scienza e Tecnologia delle Macromolecole. Terni, 4-8 settembre 2011

2006

- Quarto Congresso del dipartimento di biologia cellulare e dello sviluppo. Palermo, 20-21 Dicembre 2006

- 8° Convegno Nazionale AIMAT. Palermo, June 27-July 1, 2006

2005

- Congresso annuale del Dipartimento di Biologia Cellulare e dello Sviluppo "A. Monroy ". Palermo, 21-22 Dicembre 2005

2004

- Convegno GRICU 2004 Nuove Frontiere di Applicazione delle Metodologie dell'Ingegneria Chimica. Ischia, 12-15 Settembre 2004

2001

- XV Convegno Italiano di Scienza e Tecnologia delle Macromolecole. Trieste, 24-27 Settembre 2001

- III Convegno INSTM Nazionale sulla Scienza e Tecnologia dei Materiali. Trento, 18-20 Giugno 2001

2000

- Convegno AIMAT. Spoleto, 17-21 luglio 2000

1999

- Il Convegno Nazionale sulla Scienza e Tecnologia dei Materiali. Acireale, 14-16 ottobre 1999

1998

- Convegno GRICU. Ferrara, 22-25 settembre 1998

Italian Patents

- Brevetto RM2009A00007 depositato il 18/02/2009 dal titolo "PROCEDIMENTO DI PREPARAZIONE DI SCAFFOLD POLIMBRICI PREANGIOGENIZZATI"

- Brevetto PA2010 A 000023 depositato nel 2010 dal titolo "Sistema biocompatibile di supporto per la piantumazione di organismi vegetali in ambiente marino"

- Brevetto 102016000005975 presentato il 22/01/2016 dal titolo "Bioreattore a perfusione autosufficiente monouso per crescita cellulari 3D"

- Brevetto 102016000033555 depositato in data 01/04/2016 dal titolo "Tessuti bio-ibridi impiegabili nei trapianti e procedimento per la loro preparazione"

AMBITI DI RICERCA

Research activity is focused on the following topics:

- *modelling and characterization of phase separation processes aimed to the synthesis of biodegradable polymeric scaffolds for tissue engineering applications (skin, bone, osteochondral and vascular tissue engineering): mechanical and biological characterization, development of innovative materials*
- *use of biopolymers (poly-lactic acid, PLA) for the production of disposable medical equipment and point-of-care diagnostics in lab-on-chip format in order to reduce the pollution and the global carbon footprint related to the medical waste*

- *Design, fabrication, modelling and set-up of Organ-on-Chip platforms for in-vitro regenerative medicine and drug screening models*
- *Modelling and experimental analysis on crystallization kinetics of thermoplastic polymers under processing conditions*
- *Development of on line tools (indentation test) for modelling, control and optimization of injection moulding*
- *modelling and experimental analysis of injection moulding of polymeric materials (shrinkage e warpage, No-Flow Temperature, polymeric composites)*

The aforementioned activity, pursued in the framework of several research project, is documented by more than *100 publications* on international ISI journals, by *4 patents*, by more than *100 extended abstracts* of international conferences, by seminars given in various international scientific institutions and Congress keynote presentations. The scientific production is characterized by the following bibliometric indices (SCOPUS): Number of referenced papers: 128, H-index: 25, Number of citations: 2329.

Peer-reviewer of several scientific journals (Journal of Polymer Science, Journal of Applied Polymer Science, Polymer, Polymer International, International Journal of Heat and Mass Transfer, Heat and Mass Transfer, Polymer Engineering and Science, Macromolecular Materials and Engineering, Polymer Bulletin, Materials Letters, Tissue and Cell, Materials Science and Engineering C, etc.).

ALTRE ATTIVITA

NATIONAL AND INTERNATIONAL COLLABORATIONS

- Paracelsus Medical University, Erlangen, Dr. Gundula Schulze-Tanzil
- Heriott-Watt University, Edinburgh, prof. Maiween Kersaudy-Kerhoas
- University of Erlangen-Nuremberg, Prof. Aldo Boccaccini
- University of Pittsburg – Fondazione RiMED, Prof. Antonio D'Amore
- DSM Research, Dr. Wim Zoetelief, Dr. Markus Bulters, Dr. Rob Jansen
- Children's Hospital of Philadelphia, prof. Riccardo Gottardi
- University of Padua, Prof. Nicola Elvassore
- University of Salerno, Prof. G. Lamberti
- INRS, Montreal, prof. Federico Rosei
- University of Sassari, prof. Marilena Formato
- University of Leeds, prof. Virginia Pensabene
- Polytechnic of Milano, prof. Silvia Farè, prof. Lorenza Draghi
- Polytechnic of Torino, Prof. Irene Carmagnola, prof. Gianluca Ciardelli
- CNR-Lecce, Dr. Maria Annunziata Carluccio, Dr. Nadia Calabriso

OTHER ACTIVITIES

- Responsible for the “*Lab of Biomaterials Preparation*” (2015-19) then for the “*Electron*

Microscopy Lab” (2019-2024) at ATeN Center - Università di Palermo, in charge of experimental analysis (material characterization via micro-CT, XRD, SEM, DSC, TGA, Surface Area, GPC, etc.) for UNIPA research groups and third parties

- Founder and Member of the Academic Spin-off *BioResystems*
- Organizer of the GNB National Conference, Palermo, June 16-18, 2025

INTERNATIONAL EXPERIENCE

- “Warping in Injection Moulding of semicrystalline polymers” at DSM Research, 2003;

- “Effect of cooling rate, pressure and shear on the structure development of semicrystalline polymer in relation to injection moulding cycle time”, Post-doc fellowships at DSM Research and University of Palermo, 2001-2002