

**Europass
curriculum vitae**



Personal information

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Work experience

04/09/2017-present Researcher at Alcantara SpA

01/09/2014-31/08/2017 Postdoctoral Research Associate at the University of Perugia, Department of Civil and Environmental Engineering, Terni branch: *“Revalorization of lignocellulosic materials as precursor for the extraction of cellulose nanocrystals and their use in biodegradable nanocomposites for industrial applications”.*

01/09/2013-31/08/2014: Postdoctoral Research Associate at the University of Perugia, Faculty of Engineering Department of Civil and Environmental Engineering, Terni branch: *“Sintesi e caratterizzazione di nanocompositi multifunzionali a matrice polimerica biodegradabile e cellulosa nanocristallina per il progetto HIVOCOMP”.*

01/11/2012-31/08/2013: Postdoctoral Research Associate at the University of Perugia, Faculty of Engineering Department of Civil and Environmental Engineering, Terni branch, with a grant financed by L'Oreal Italia e UNESCO per le Donne e la Scienza with the project *“Progettazione, sviluppo e caratterizzazione di biomateriali nanostrutturati capaci di modulare la risposta e il differenziamento delle cellule staminali”.*

15/01/2011-14/01/2012 Postdoctoral Research Associate at the University of Perugia, Faculty of Engineering Department of Civil and Environmental Engineering, Terni branch: *“Development and characterization of PEEK based nanocomposites”.*

April 2007-September 2007: Research Assistant at the University of Perugia (Materials Science and Technology research group STM - Terni) financed by a research grant of

Umbria Region. *Project Title: Development and characterization of biodegradable nanocomposites.*

Stays abroad- working/studies exchange

12-22/11/2016: Visiting Researcher at the (Nano)Materials Group of the Instituto de Investigaciones Fisicoquímicas Teóricas y Aplicadas (INIFTA), in the City of La Plata, Argentina under the framework of MINCYT-MAE IT1301 project: "Preparation and characterization of polyurethane based on renewable resources and nanocomposites using nanocellulose as reinforcement".

14-18/10/2015: Visiting Researcher at Monomax Ltd., 2 Sestroreckaya str., Saint Petersburg, Russia.

2014: Visiting Researcher (3 months) at the Leibniz Institute of Polymer Research Dresden, IPF, Dresden, Germany. Prof. B. Voit.

2011: Visiting Researcher (4 months) at the University of Alicante, Department of Analytical Chemistry, Nutrition & Food Sciences Alicante, Spain. Prof. Alfonso Jimenez.

2010: Visiting Student (4 months) at the KTH- Royal Institute of Technology. Stockholm, Sweden. Prof. Lars Berglund.

2009 Visiting Student (3 months) at the University of Alicante, Department of Analytical Chemistry, Nutrition & Food Sciences Alicante, Spain. Prof. Alfonso Jimenez.

Education and training

2007-2010: PhD student in Nanotechnology of Materials, University of Perugia (Terni). *Thesis Title: Synthesis and characterization of biodegradable polymer matrix composites for nanobiotechnological applications.* (Prof. José María Kenny, supervisor – **awarded on 26/11/2010**).

January 2009: Registration at engineering register (Terni-Italy) (class A, industrial section).

A-A 2006/2007: Master's degree in Materials Engineering (26/10/2007) - Mark: 110/110 e Lode. *Thesis Title: "Sviluppo e caratterizzazione di nanocompositi a matrice polimerica biodegradabile"*. Supervisor: Prof. JM Kenny.

April 2007: Winner of the international award "Leonardo da Vinci": "Bioinformatic and Nano-Biotechnology (BIO-NANO)".

A-A 2004/2005: Degree in Materials Engineering (20/12/2005) Mark: 110/110 e Lode *Thesis Title: "Caratterizzazione termica e meccanica di compositi a matrice polimerica per lo sviluppo di veicoli super-leggeri"*. Supervisor: Prof. JM Kenny.

Main Research Areas and Collaborations

Research Areas

1. Biodegradable polymers
2. Processing of polymers and advanced polymeric based composites
3. Bio-nanocomposites developing and characterization.
4. Sustainable additives for polymers.
5. Natural fibre and cellulose nanostructures: synthesis and modifications
6. Nanocomposites and thin films
7. Modification of biodegradable polymer (i.e. PLA, PHB, CH, PVA, etc.) for food packaging.
8. Active packaging. Natural antioxidants and antimicrobials.
9. Tissue engineering: stem-cell behaviour.
10. Surface modification: biomedical and antibacterial application.

Scientific Collaborations

Mexico, Universidad Nacional Autónoma de México, Prof. Higinio Arzate.

Spain, Alicante University, Prof. Alfonso Jimenez-Migallon.

Spain, CSIC, Madrid, Prof. M. Lopez Manchado and Prof. C. Mijangos.

Spain, University of Valencia, Prof. Amparo Chiralt.

Svezia, KTH, Prof. Lars Berglund.

University of Roma Torvergata, Prof. Bianco, Prof. Francesca Nanni, Dr. Ilaria Cacciotti.

University of Perugia, Prof. Loredana Latterini, Chemistry Department.

University of Perugia, Prof. Carla Emiliani, Dr. Sabata Martino, Section of Biochemistry and Molecular Biology.

University of Bologna, Prof. Nadia Lotti.

University of Pavia, Tissue Engineering Center, Pavia, Prof. L. Visai.

University of Camerino, Prof. Carlo Santulli.

University of Naples, Prof. Giuseppe Mensitieri, Dr. Giuseppe Scherillo

CNR Naples, Dr. Marino Lavorgna, Dr. Giovanna Buonocore

Tuscia University, Viterbo, DAFNE, Prof. Stefano Grego.

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

From 2008-present: Member of National Interuniversity Consortium of Materials Science and Technology.

Organisational Skills, Competences and Teaching

Author activity: 140 publications in Peer-Reviewed ISI-SCOPUS Journals, more than 40 as first main author and more than 40 as corresponding author, 4 review articles and 20 chapters in scientific books with an international relevance and dissemination. (h-index 38).

- **Guest editor of special issue** “Biopolymeric based formulations for industrial and biomedical applications” (2016) of the Current Organic Chemistry, Bentham Science (SCI and SCIE Indexed) Journal.
- **Co-Editor** of Multifunctional polymeric nanocomposites based on cellulosic reinforcements book **Edited by Debora Puglia, Elena Fortunati, José Maria Kenny**. Elsevier ISBN: 978-0-323-44248-0.

Reviewer activity for international journals ISI-SCOPUS JOURNAL CITATIONS REPORTS[®]. The most important: Journal of Agricultural and Food Chemistry (IF: 2.912), Journal of Applied Polymer Science (IF: 1.770), Carbohydrate Polymers (IF: 4.074), International Journal of Biological Macromolecules (IF: 2.858), Polymer Composites (IF: 1.632), Industrial Crops and Products (IF: 2.837), Journal of Food Engineering (IF: 2.771), Food Hydrocolloids (IF: 4.090), Cellulose (IF: 3.573), Journal of Polymer and Environment (IF: 1.671), Biomacromolecules (IF: 5.750), Bioresource Technology (IF: 4.494), Composites Part A: Applied Science and Manufacturing (IF: 3.071), Powder Technology (IF: 2.349).

Teaching activities

- Teaching assistant in Composite and Polymer Material Course, (2012-2013 and 2013-2014), University of Perugia, Department of Civil and Environmental Engineering.
- Teaching assistant in Material Science Laboratory Course, (2012-2013 and 2013-2014), University of Perugia, Department of Civil and Environmental Engineering.

Supervision of graduate, postgraduate, and postdoctoral fellows

2013-2015: Research Supervisor of a Postgraduate Student (Doctoral Research Student). University of Perugia, Department of Civil and Environmental Engineering, (Italy). *Extraction of cellulose nanocrystals from natural sources and their use as reinforcements phases.*

2013-2015: Research Supervisor of 1 postdoctoral fellow. University of Perugia, Department of Civil and Environmental Engineering, (Italy). *Polyurethane based nanocomposite development and characterization.*

2014: Research Supervisor of 1 bachelor degree student. University of Perugia, Department of Civil and Environmental Engineering, (Italy). *Polyurethane based nanocomposite development and characterization.*

2012/2014/2015: Research Supervisor of 3 master degree students. University of Perugia, Department of Civil and Environmental Engineering, (Italy). *Development and characterization of biodegradable based nanocomposites for food packaging applications.*

2011-2015: Research Supervisor of 6 visiting PhD students from different EU Institutes.

Institutional responsibilities

2015: Member of examination board of 2 Doctoral Thesis at the Technological University of Valencia, Spain and 1 at the Technological University of Valencia, Alcoy, Spain.

2014: Member of examination board of 1 Doctoral at the University of Alicante, Spain.

2014: Co-Advisor of 1 graduate student.

2013: Member of examination board of 1 Doctoral Thesis at the Technological University of Valencia.

Congress Organization committee

2016: Organization committee member of ECNP 2016–Rome (Italy) September 2016.

2015: Organization committee member of BIOPOL 2015–San Sebastian (Spain) October 2015.

2013: Organization committee member of BIOPOL 2013–Rome (Italy) October 2013.

2011: Organization committee member of XX convegno italiano di scienza e tecnologia delle macromolecole - AIM, Terni, September 2011.

Congress Participation

Participation to about 50 **National and International Conferences**, with oral and poster presentations (more than 20 oral presentations starting from 2009).

Invited lectures

- **NanoTechItaly 27-29 November 2013 Conference** in Venice (Italy) - *Title: Innovation in PLA based systems for food packaging.*
- **2nd Russian-Italian Workshop Institute of Macromolecular Compounds Russian Academy of Sciences**, October 2015 St. Petersburg, Russia. *Title: Cellulose nanocrystals in nanocomposite approach: green and high-performance materials for industrial, biomedical and agricultural applications.*
- **ItAr-Nano 2016: I Workshop Italo Argentino sobre Nanotecnologias de Materiales Polimericos y Compuestos**, 14-15 November 2016, Buenos Aires, Argentina. *Title: Cellulose nanocrystals from natural sources or wastes in nanocomposite approach: special focus on sunflower and barley residue revalorization.*

Oral and Poster Presentations

ItAr-Nano 2016: I Workshop Italo Argentino sobre Nanotecnologias de Materiales Polimericos y Compuestos, 14-15 November 2016, Buenos Aires, Argentina. *Title: Cellulose nanocrystals from natural sources or wastes in nanocomposite approach: special focus on sunflower and barley residue revalorization. (Oral Presentation).*

XXXIV Convegno Nazionale SICA, Società Italiana di Chimica Agraria. Ambiente e Sostenibilità: il ruolo della chimica agraria dalla ricerca alla realtà produttiva. 5-7 Ottobre 2016, Perugia. *"Production and characterization of novel PLA/PBS based bionanocomposites reinforced with cellulose nanocrystals extracted from Carmagnola hemp fibres for food packaging applications". (Oral Presentation).*

Evento Cosinterra, UMBRIAFIERE, Bastia, 30 September 2016. *"Rivalorizzazione di fibre vegetali ed animali in prodotti polimerici ad alto valore aggiunto". (Oral Presentation).*

IXth ECNP International Conference on Nanostructured Polymers and Nanocomposites. Rome, Italy, September 19 -21, 2016. *Sunflower stalks as novel sources of cellulose nanofibrils and nanocrystals and their effect on wheat gluten based nanocomposites. (Oral Presentation).*

TOP Conference 19-23 June 2016, Ischia (IT). *Cellulose nanocrystals in nanocomposite approach: green and high-performance materials for industrial, biomedical and agricultural applications. (Oral Presentation).*

SECOND INTERNATIONAL CONFERENCE ON THERMOPLASTIC POLYMERS. 15-18 October 2015, San Petersburg (Russia). *Cellulose nanocrystals in nanocomposite approach: green and high-performance materials for industrial, biomedical and agricultural applications. (Oral Presentation).*

Biopol 2015, 6-9 October 2015 Donostia-San Sebastian (Spain). *Effect of natural Hydroxytyrosol on the mechanical, migration and antioxidant properties of PVA based films for Food Active Packaging. (Oral Presentation).*

European Polymer Congress 2015, -21- 26 June 2015, Dresden (Germany). *Title: Reinforcement effect of cellulose nanocrystals in thermoplastic polyurethane matrix with*

potential application in biomedical field. (Poster).

BIOPOLPACK, 29-30 May 2014 – Parma (Italy).

International COST Conference, “Eco-sustainable food packaging based on polymer nanomaterials” – 26-28 February 2014-Rome (Italy). *Title: Combined effect of cellulose nanocrystals extracted from phormium tenax leaves and limonene on the properties of PLA films. (Poster).*

NanotechItaly: 27-29 November 2013 – Venezia Mestre (Italy)
Title: Innovation in PLA based systems for food packaging. (Oral Presentation).

Biopol 2013: 1-3 October 2013 – Rome (Italy). *Title: Nanocomposite and surface coating approach for improved barrier, antibacterial and migration properties of PLA based films. (Poster).*

Frontiers in Polymer Science: 21-23 May 2013 Sitges (Barcelona- Spain)
Title: Barrier properties and overall migration of hydrogenated amorphous carbon layer coating PLA films. (Poster Presentation).

AIMAT 2012: 16-19 Settembre 2012 – Gaeta
Title: Biomateriali nanostrutturati a matrice di acido polilattico: nanoparticelle, nanocompositi e nanotopografia. (Oral Presentation).

MATBIM 2012: 23-26 Aprile 2012 – Dijon, Francia.
Title: Effect of modified cellulose nanocrystals and silver nanoparticles on the barrier, antiBACTERIAL and migration properties of PLA based nanocomposites (Oral Presentation).

EUROMAT 2011- European Congress and Exhibition on Advanced materials and processes. Montpellier 12-15 September 2011.
Title: Synthesis and characterization of multifunctional bionanocomposite films from poly(lactic acid), cellulose nanocrystals and silver nanoparticles (Oral Presentation).

XX Convegno Nazionale AIM. Terni 4-8 Settembre 2011. *Title: Multifunctional PLA bionanocomposite based on cellulose crystals and silver nanoparticles: potential prospective for food packaging application (Oral Presentation).*

BIOPOL 2011: 3rd international conference on biodegradable polymers and suitable composites. Strasburg 29-31 August 2011.
Title: Multifunctional properties of PLA composites based on silver nanoparticles and nanocrystalline cellulose. (Oral Presentation).

VIII Convegno Nazionale INSTM. Catania 26-29 Giugno 2011.
Title: Multifunctional properties of PLA composites based on silver nanoparticles and crystalline cellulose: role of crystal micro- and nano-dimension (Oral Presentation).

ICAR 2010. Valladolid 3-5 November 2010
Title: “Effect of silver nanoparticles on the bacteria adhesion, antibacterial activity and silver ion release of biodegradable polymer nanocomposite” (Oral Presentation).
Title: “Combined role of Ag nanoparticles and surface plasma treatment on PLGA nanocomposite antibacterial activity” (Oral Presentation).

IX National Conference INBB. Rome, 21-22 October 2010.
Title: “Nanocompositi multifunzionali a matrice biodegradabile rinforzati con nanotubi di carbonio e nanoparticelle di argento” (Poster).
Title: “Nanocompositi a matrice polimerica biodegradabile per l’ingegneria tissutale” (Oral Presentation, Prof. J.M. Kenny).

SIB 2010. 24-26 Maggio 2010, Camogli. *Title: “Carbon nanotubes and silver nanoparticles for multifunctional conductive polymer composites” (Oral Presentation).*
Title: “Surface and antibacterial properties of plasma treated PLGA/Ag nanocomposites” (Poster).

BIOPOLPACK 2010. Parma, 15-16 Aprile 2010. *Title: “Sviluppo, caratterizzazione e degradazione di compositi multifunzionali a base di PLA” (Poster).*

6th International ECNP Conference on NANOSTRUCTURED POLYMERS & NANOCOMPOSITES. Madrid 28-30 Aprile 2010. *Title: “Development of multifunctional PLA composites: characterization and degradation in compost” (Poster).*

MATBIM 2010. 3-5 Marzo 2010- Parigi.
Title: “Development of multifunctional PLA composites: characterization and biodegradabilità” (Oral Presentation).

6th International Discussion Meeting on Relaxations in Complex Systems New Results, Directions and Opportunities. Sapienza, University of Rome, 30 August-4 September, 2009.

BIOPOL 2009: 2nd international conference on biodegradable polymers and suitable

composites. 30 September-2October 2009.
 Title: "Combining microcrystalline cellulose (MCC) and silver nanoparticles for multifunctional PLA based composites" (Poster).

EUROFILLER 2009: From macro to nanofillers for structural and functional polymer materials. 21-25 June 2009 Alessandria.
 Title: "Effect of silver nanoparticles on the processing, antibacterial activity and in-vitro degradation of biodegradable polymer nanocomposite" (Poster).

Short course on Nanocomposites Chemistry and Processing. Alessandria, 25-26 Giugno 2009.

5th International ECNP Conference on NANOSTRUCTURED POLYMERS & NANOCOMPOSITES. Paris 15-17 April 2009.
 Title: "Biodegradable polymer nanocomposite containing silver nanoparticle: material properties and antibacterial activity" (Poster).

Title: "Combining carbon nanotubes and silver nanoparticles for multifunctional conductive and antibacterial polymer based nanocomposites" (Poster).

VIII National Conference INBB, 23-24 October 2008, Rome.
 Title: "Nanoparticelle di argento e nanocompositi biodegradabili: sistemi per applicazioni antibatteriche". (Poster).

X National Biotechnology Congress, 17 – 19 September 2008 Perugia 2008.
 Title: "Silver nanoparticles as a vehicle for antibacterial applications", (Oral presentation and poster).

II Forum Nazionale dei Giovani Ricercatori su Materiali Polimerici e Biomateriali, 4-5 luglio 2008, Genova.
 Title: "Development and bone cell interaction of a new poly(l-lactide)(PLLA)SWNTs substrate", (Oral Presentation).

4th international conference nanofun-poly , Roma, 16-18 April 2008.
 Title: "New nanocomposites based on poly ε-caprolactone and carbon nanostructures", A. Bianco, I Armentano, M. Dottori, E. Fortunati, F. Nanni, C. Del Gaudio and J. Kenny (Oral Presentation Bianco).

Second young polymer scientists conference and sixth course on nanostructured polymer materials: from chemistry to applications, 13-15 April 2008, Terni
 Title: "Nanocomposite biomaterials based on poly ε-caprolactone and carbon nanostructures" (Poster).

Congresso Internazionale sulle Nanotecnologie, Nanotec2008, Venezia, 13-14 March 2008.
 Title: "PLLA/SWNTs as New Nanocomposite for Biomedical Applications: Material Characterization and Biocompatibility Evaluation" (Poster).

WomenInNano Winter School Kranjska Gora, Slovenia, 7-9 February 2008.
 Title: "Nanohybrid films based on poly ε-caprolactone" (Poster).

BIOPOL 2007 First International Conference on Degradable Polymers and Composites (Alicante, Spain), 3-5 October 2007.
 Title: "Nanocomposite based on biodegradable polymers for biomedical applications" (Oral Presentation, Prof. J.M. Kenny).

Schools and Workshops

WORKSHOP L.O.T. Oriel Italia. "L'ellissometria spettroscopica", "La tecnologia QCM-D ex-situ ed in-situ". Terni, 27 March 2009.

WORKSHOP Italia-Serbia. Terni, 5-6 February 2009.

WORKSHOP: La tecnologia QCM-D, Microbilancia a cristalli di quarzo con monitoraggio della dissipazione Q- sense; L.O.T. Oriel Italia, Rome 31 October 2008.

4th international conference nanofun-poly, Rome, 16-18 April 2008.

Second young polymer scientists conference and sixth course on nanostructured polymer materials: from chemistry to applications, Terni, 13-15 April 2008.

Project Participation

- **FUNGUSCHAIN:** Valorisation of mushroom agrowastes to obtain high value products. H2020-BBI-PPP-2015-2-1. BBI.VC3.D5-2015. BBI-IA-DEMO (Researcher-WP Co-leader).
- **CARIT National project 2015:** formulations for food packaging (Principal Investigator).
- **CARIT National project 2016:** formulations for food packaging

- (Principal Investigator).
- **BIT³G** Bioraffineria integrate di Terza Generazione: Cluster della chimica verde SPRING (Principal Investigator).
 - **MINCyT-MAE IT1301 2014 ID ARI4MO1**: Preparation and characterization of polyurethane based on renewable resources and nanocomposites using nanocellulose as reinforcement. (Researcher).
 - **Industrial Project with ALCANTARA S.p.a** (Principal Investigator).
 - **NANOLEAP** Nanocomposite for building constructions and civil infrastructures: European network pilot production line to promote industrial application cases. H2020-NMP-2014. NMP1-01-2014 (Researcher).
 - **SEAMATTER – LIFE** Environment proposal n° LIFE11 ENV/E/000600- Revalorization of coastal algae wastes in textile nonwoven industry with applications in building noise isolation (Researcher).
 - **POCO** - Carbon Nanotube Confinement Strategies to Develop Novel Polymer Matrix COMposites THEME NMP-2007-2.1-1 - Nanostructured polymer-matrix composites. (Researcher).
 - **FIRB** Idea progettuale N° RBIP06FH7J_002: "Impiego di cellule staminali, biomateriali e biotecnologie innovative per la produzione di tessuti" (Researcher).
 - **PRIN-COFIN** (2010-2012: PRIN-COFIN N° 20084XRSBS_001 "Cellule staminali-biomateriali per lo sviluppo di un modello di medicina rigenerativa per il sistema nervoso). (Researcher).
 - **SAMSUNG GRO 2012**: "Multifunctional Composites based on Biopolymers and Biobased Additives for Food Packaging Applications" nella sezione "New Materials" finanziato da SAMSUNG Global Research Outreach (GRO) program (Researcher).

SCIENTIFIC PARTECIPATION AND COORDINATION ACTIVITIES

Invited in 2015 and 2016 by European Research Council (ERC) evaluation panel PE8 (Products and Processes Engineering), after positive proposal revision in Step 1, to attend the interview in Brussels for Step 2 of the evaluation process of the **Calls for Proposals ERC-STG-2015** (Proposal n° 678402-CellActPack) and **ERC-STG-2016** (Proposal n° 714469 - CellActPack). Waiting now for evaluation process of **ERT-STG-2017** (Proposal n° 757434 -CellActPack).

Personal skills and competences

National or international prizes

2015: Winner of Bio-environmental Polymer Society (BEPS) "Outstanding Young Scientist Award" 2015.

2015: Winner of a National award for women professionalism and creativity.

2014: Winner of International research grant financed by German DAAD: RESEARCH PROPOSAL FOR DEUTSCHER AKADEMISCHER AUSTAUSCHDIENST (DAAD) - ITALIAN RESEARCHER EXCHANGE at the Leibniz Institute of Polymer Research Dresden, IPF of Dresden, Germany with a project titled "*Bio-based Linear and Hyperbranched Polyurethanes reinforced with unmodified and modified cellulose nanocrystals.*"

2013: Awarded (Honour 5th Class/Knight) by President of The Italian Republic, Giorgio Napolitano, for scientific merit acquired by the nation on a possible development of biodegradable scaffolds for biomedical applications and food packaging.

2012: Winner of the National Prize L'Oréal Italia and UNESCO for Women and Science.

2007: Winner of the international award "Leonardo da Vinci": "Bioinformatic and

Nano-Biotechnology (BIO-NANO)".

Other Technical skills and competences

Use of specific Equipment for material characterization:

TGA (Thermogravimetric Analysis), DSC (Differential Scanning Calorimeter), TMA (Thermo-mechanical Analysis).

FT-IR, Infrared spectroscopy. UV-Vis spectroscopy.

FESEM, Field Emission Scanning Electron Microscopy.

Contact Angle, FTA 1000 Analyser.

HP 4282A LCR meter for Dielectric measurements (20 Hz – 1 MHz).

HP 4291 meter (1 MHz – 1.8 GHz).

Dinamometer (Instron, Lloyd): tensile test, flexure test, compression test, creep test, ect.. Rheometer.

Extrusion and filmature process, Compression moulding, injection moulding.

Resin Transfer Moulding and Vacuum Infusion.

Mother tongue(s)

Italian

Other language(s)

English (**Business English LCCI certified**)

Spanish (**University of Alicante, Spain, Level B2 certified**).

Computer skills and competences

Microsoft Office, Internet explorer, Windows, KaleidaGraph, Origin, Matlab, Java

Driving licence(s)

Type B

I authorize to handle my personal data according to the ex D. LGS. 196/03.
Aut No Min 13/1/0007145/03 04 of April 1 2008.DPR 196/2003

Terni, 09/10/2019

PhD Elena Fortunati

