

CURRICULUM

Sara Toniolo

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1. Short profile

1.1 Academic experience

- From 1 March 2024 (currently ongoing) fixed-term senior researcher of **Commodity Sciences**, Italian scientific disciplinary sector SECS-P/13 at the **University of Verona, Department of Management**. Topic: "Decarbonization of logistics, warehouse operations and last-mile delivery; study of the environmental impacts associated with e-commerce. New uses of residues from a circularity perspective for industrial production chains, for the tertiary sector and for logistics services, including the study of the production of raw materials and their transformation".
- From 1 January 2022 to 29 February 2024 fixed-term researcher of Economics and Business Management, scientific disciplinary sector SECS-P/08 at the **University of Verona, Department of Management**. Topic: "Analysis of the enabling elements for the configuration of innovative businesses in the field of the circular economy". Research project funded by the National fund PON "Research and Innovation" 2014-2020, Axis IV "Education and research for recovery" Action IV.6 – "Research contracts on Green issues". Supervisor: Prof. Ivan Russo.
- 16 November 2020 **National scientific qualification** for the functions of Associate professor in the Sector 13/B5 - Commodity Sciences.
- Research Fellow from June 2021 to December 2021 at the University of Padova, Department of Industrial Engineering. Topic: economic-environmental assessments in relation to ecosystem services of natural areas.
- Research fellow from January 2015 to December 2020 at the University of Padova, Department of Industrial Engineering; and from August 2011 to December 2011 at the University of Padova, Department of Architecture and Urban Planning. Research fellow from April 2010 to April 2011 at Ca' Foscari University of Venice, Department of Environmental Sciences. Topics: environmental assessments from a life cycle perspective for the valorization of industrial waste and industrial transformation processes.

- 2019 First National Award Young Researchers LCA. Research presented: "Application of a decision framework to explore stakeholders' opinions for comparative LCA and LCC studies".
 - 2015 PhD in Industrial Engineering (XXVII cycle) University of Padova. Thesis title: "Accuracy of the results in Life Cycle Assessment in case of recycling"
 - 2009 Master's degree in Environmental Engineering at the University of Padova, thesis entitled "Climate change product management: carbon footprint and life cycle assessment in the food packaging sector".
- ❖ Maternity leave from 20 March 2019 to 24 August 2019.

1.2 Main institutional positions

- Since 2024 Member of the Technical Scientific Committee of the Regional Innovative Network (RIR) "Venetian Green Building Cluster" supported by the Veneto Region, which also aims to support sustainable business models. The scientific manager of the project is a member of the Scientific Technical Committee with the task of giving scientific support in the field of logistics with reduced GHG emissions (<https://www.innoveneto.org/venetian-green-building-cluster/>).
- Since 2024 Member of LOOP Research Center. Lab: Circular Supply Chain Management.
- Since 2023 Member of the Technical Committee for the "Cooperation on Green Public Procurement (GPP) signed between the Veneto Region, the University of Verona, the University of Padova, the Ca' Foscari University of Venice, IUAV University of Venice, Unioncamere del Veneto and ARPAV".
- Since 2022 Member of the Technical Scientific Committee for the design, processing and drafting of the sustainability report of the University of Verona.
- Since 2021 Associate Editor for Environment, Development and Sustainability – Springer (IF 2023: 4,7 – Scopus: 95%).
- Since 2021 Member of the Proposals Evaluation Board of the Malta Council for Science and Technology (MCST).
- Since 2019 Associate Editor for Frontiers in Sustainability – Frontiers.

1.3 Teaching activities

For over 10 years I have been teaching Life Cycle Assessment, Life Cycle Costing, Life Cycle Management, Environmental Management and Sustainability Systems.

I teach production management, logistics operations and supply chain at the master's degree courses of the University of Verona; in postgraduate and professionalizing courses at various institutions.

1.4 Scientific research

My research and publication areas mainly deal with life cycle management, management and valorization of production waste, processing of raw materials, supply chain management and logistics. My research has seen publication in the following research areas:

- Life Cycle Management for products, processes and services in the process that goes from the study, analysis and evaluation of resources and raw materials to the enhancement and management of processing waste and the products themselves at the end of their life;
- New uses of residues with a view to circularity for industrial production chains, for the tertiary sector and for logistics services, including the study of the production of raw materials and their transformation;
- Environmental and sustainability assessments from a life cycle perspective in combination with environmental management tools;
- Decarbonization of logistics, in relation to warehouse operations

1.5 Quality of research

- **Scopus:** 44 documents
- **N. of citations (Scopus):** 990
- **H-index:** 17

1.6 Editorial collocation of scientific production

My research is published in the following journals:

Resources Conservation and Recycling; Journal of Cleaner Production; Bioresource Technology; Science of the Total Environment; Environmental Impact Assessment Review; International Journal of Hydrogen Energy; Utilities Policy; International Journal of Life Cycle Assessment; Energy Conversion and Management; Biomass and Bioenergy; ACS Sustainable chemistry and engineering; Sustainable Production and Consumption; AIChE Journal; Waste Management and Research; Nature Communications.

1.7 Competitive projects

1. (2024 – ongoing) **Coordinator** of the project “Collaborative_LifeCycle: development of an environment for the study of collaborative manufacturing and logistics systems with a

life cycle perspective”. Research funded by Inest (Interconnected Nord-Est Innovation Ecosystem)

2. (2024) **Coordinator** with J. Ren of the project “Analytical Models for Circular Supply Chain Management”. Research funded by the Internationalisation programme of the University of Verona.
3. (2023 – ongoing) **Coordinator** of the project "Decarbonization of internal logistics activities through a life cycle based model". Research funded by the Vicenza Univr Hub Foundation (VUH)
4. (2023 – ongoing) Member of the research group of the project "Innovative systems for the sustainable production of biomethane from OFMSW and other organic matrices". Call: Call for Innovation Agreements DM 31/12/2021 - Area: Circular Industries (Mediocredito centrale, Invitalia). Sustainable Growth Fund. Ministry of Enterprise and Made in Italy. Prog. No. F/310278/01-02/X56

2. Doctorate

PhD in Industrial Engineering (Chemical, Materials and Production Engineering) (XXVII cycle). Academic Disciplinary Sector ING-IND/27 Industrial and Technological Chemistry. University of Padova

Dissertation: “*Accuracy of the results in Life Cycle Assessment in case of recycling*”, Supervisor: Prof. Antonio Scipioni.

Topic: Evaluation of residue treatment for circularity

Aim: The research aimed to quantify how end-of-life modeling methods can influence the results of Life Cycle Assessment (LCA) studies and lead to different choices in decision-making processes.

Several end-of-life modeling, such as i) "system expansion", ii) "cut-off", iii) "50/50 method", iv) "closed loop", were analyzed and applied, for different recovery systems and case studies. Life Cycle Assessment (LCA) studies of the following types have been developed:

- single and comparative,
- product and process,
- cases where the main process of the life cycle took place in situ and cases where the main process took place off-site.

Team: S. Toniolo, A. Scipioni (University of Padova).

Period: 3 years (From 01/2012 to 12/2014, final defense March 2015).

The doctoral research produced:

- ✓ Toniolo S., Mazzi A., Niero M., Zuliani F., Scipioni A., 2013, Comparative LCA to evaluate how much recycling is environmentally favourable for food packaging, *Resources, Conservation and Recycling*, 77, pp. 61-68, ISSN 0921-3449.
- ✓ Toniolo S., Fedele A., Manzardo A., Scipioni A., 2013, Recycling applied to temporary exhibition structures: investigation of the environmental impacts using a life cycle approach, in "Proceeding of 3rd International Exergy, Life Cycle Assessment and Sustainability Workshop & Symposium (ELCAS3)" (ELCAS3, 7-9 July 2013, Nisyros Island Greece), pp. 1111-1119, ISBN 978-960-243-691-2
- ✓ Toniolo S., Mazzi A., Garato V.G., Aguiari F., Scipioni A., 2014, Assessing the "design paradox" with life cycle assessment: A case study of a municipal solid waste incineration plant, *Resources, Conservation and Recycling*, 91, 109-116, 10.1016/j.resconrec.2014.08.001, ISSN 0921-3449
- ✓ Toniolo S., Mazzi A., Pieretto C., Scipioni A., 2017, Allocation strategies in comparative life cycle assessment for recycling: Considerations from case studies, *Resources Conservation and Recycling*; 117, 249-261, DOI <http://dx.doi.org/10.1016/j.resconrec.2016.10.011> ISSN 0921-3449
- ✓ Loss A., Toniolo S., Mazzi A., Manzardo A., Scipioni A., 2018 LCA comparison of traditional open cut and pipe bursting systems for relining water pipelines, *Resources Conservation and Recycling*; 128, 458-469, <http://dx.doi.org/10.1016/j.resconrec.2016.08.001>, ISSN 0921-3449

3. Teaching activities

MODULES/COURSES HELD starting from A.Y. 2011/2012 in master's degree courses, pursuant to art. 3 paragraph 1 letter b), Ministerial Decree 270/2004; in University Masters pursuant to art. 3, paragraph 9, Ministerial Decree of 22 October 2004 nr. 270; in Summer/Winter Schools; Guest lecturer.

3.1 Teaching activities at university

A.Y. 2024/2025:

- Lecturer of the course "Logistics, operations & supply chain" in English (S.S.D. SECS-P/08), Master's degree in Data Science, University of Verona, 24 hours (3 CFU). Course coordinator: Prof. Gaudenzi.
- Lecturer of the course "Industrial Plants & Production Management", Lecturer of the Module "Production Management" - in English (S.S.D. ING-IND/35), Master's

Degree in Computer Engineering for Intelligent Systems, University of Verona, 36 hours (6 CFU).

- Lecturer in "Sustainability in Sports Organizations" (S.S.D. SECS-P/13), Master's Degree in Management of Innovative and Sustainable Sports Activities, University of Verona, Vicenza campus, 36 hours (6 CFU).
- Lecturer at the Foundation - Higher Technical Institute (ITS) in Logistics, Environment, Sustainability Transport for Verona, Padova and Vicenza, lesson "Life Cycle Assessment and decarbonization"

A.Y. 2023/2024:

- Lecturer in "Sustainability in Sports Organizations" (S.S.D. SECS-P/13), Master's Degree in Management of Innovative and Sustainable Sports Activities, University of Verona, Vicenza campus, 36 hours (6 CFU).
- Lecturer of the course "Logistics, operations & supply chain" in English (S.S.D. SECS-P/08), Master's degree in Data Science, University of Verona, 8 hours (1 CFU). Course coordinator: Prof. Gaudenzi.
- Lecturer of the course "Industrial Plants & Production Management", Lecturer of the Module "Production Management" - in English (S.S.D. ING-IND/35), Master's Degree in Computer Engineering for Robotics and Smart Industry, University of Verona, 24 hours (4 CFU).
- Lecturer at the Foundation - Higher Technical Institute (ITS) in Logistics, Environment, Sustainability Transport for Verona, Padova and Vicenza, lesson "Life Cycle Assessment and decarbonization"

A.Y. 2022/2023:

- Lecturer of the course "Logistics, operations & supply chain" in English (S.S.D. SECS-P/08), Master's degree in Data Science, University of Verona, 16 hours (2 CFU). Course coordinator: Prof. Gaudenzi.
- Lecturer in the "Production Management" module included in the course "Industrial Plants & Production Management" - in English (S.S.D. ING-IND/35), Master's Degree in Computer Engineering for Robotics and Smart Industry, University of Verona, 24 hours (4 CFU). Course coordinator: Dr. Muscolo.
- Lecturer of the lecture "Life Cycle Costing (LCC): methodology and examples" in English, course "Sustainability Transition Management" (S.S.D. ING-IND/35),

Master's Degree in Management Engineering, University of Bologna, 3 hours.
Coordinator: Dr. Sara Zanni.

- Lecturer in "Strategic Marketing" (S.S.D. SECS-P/08), Master's Degree in Management and Business Strategy, University of Verona, Vicenza campus, 12 hours (2 CFU). Course coordinator: Prof. Confente.
- Guest lecturer of the lecture "Elements for advanced life cycle assessment modeling", for PhD students of the Department of Industrial & Systems Engineering, The Hong Kong Polytechnic University, 3 hours. Coordinator: Prof. Jingzheng Ren.
- Lecturer in charge of the lesson "Circular Supply Chain Practices", Post Graduation Course in Logistics and Supply Chain Management, University of Verona, 4 hours;
- Lecturer at the Foundation - Higher Technical Institute (ITS) in Logistics, Environment, Sustainability and Transport for Verona, Padova and Vicenza, lesson "Life Cycle Assessment and the decarbonization of logistics" for the modules "Technology 4.0" and "Supply Chain Management", "Transport and intermodality for an industry 4.0.", 20 hours.

A.Y. 2021/2022:

- Lecturer in "Strategic Marketing" (S.S.D. SECS-P/08), Master's Degree in Management and Business Strategy, University of Verona, Vicenza campus, 12 hours (2 CFU); Course coordinator: Prof. Gaudenzi.
- Lecturer of the lecture "The Carbon Footprint: measuring the corporate impact on climate change", University Course "Living, working and producing sustainably", University of Verona.
- Lecturer in charge of the lecture "Life cycle assessment as a sustainability tool for tourism", "Environmental labels as a competitiveness tool for businesses", "Good practices for sustainability: ISO standards for a more sustainable tourism", Post Graduation Course in Design of the Tourist Offer, Department of Cultural Heritage, University of Padova, 10 hours.
- Lecturer in charge of the lecture "Sustainable community and ISO 37101 requirements: case study of territorial sustainability", Professional seminar "The life cycle approach for tourism", University of Catania, 2.5 ore.

A.Y. 2020/2021:

- Lecturer of the lecture "Interpretation of results: uncertainty analysis, sensitivity analysis, relevance and contribution analysis.", Basic Course of Life Cycle Assessment (LCA), organized by the Italian LCA Network Association and the Politecnico di Milano, Summer School June 2021, 1.5 hours.

- Lecturer of the lecture "Life cycle assessment as a sustainability tool for tourism", "Environmental labels as a competitiveness tool for businesses", "Good practices for sustainability: ISO standards for a more sustainable tourism", Master in Tourism Design, Department of Cultural Heritage, University of Padova, 8 hours.
- Lecturer of the lectures "Life Cycle Assessment", "Environmental labels as a tool for competitiveness for companies", Post Graduation Course in Strategic Environmental Management, Department of Industrial Engineering, University of Padova, 16 hours.
- Lecturer at the Foundation - Higher Technical Institute (ITS) RED Academy for Padova, "Life Cycle Assessment" and "Waste Management", for the module "Divestment and end-of-life issues", 12 hours.

A.Y. 2019/2020:

- Assignment of teaching activities and e-learning mini project for ISE 318 Industrial Engineering Techniques and Methods Analysis and evaluation of production and transformation technologies. Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University (duration: 8 hours).

A.Y. 2019/2020:

- Lecturer of "Interpretation of results: uncertainty analysis, sensitivity analysis, relevance and contribution analysis.", Basic Course of Life Cycle Assessment (LCA) September 2020, organized by the Italian LCA Network Association and the Politecnico Milano, 1.5 hours.
- Lecturer "Integrated Product Policy and Life Cycle Assessment", "Environmental Labeling", Master in Strategic Environmental Management, Department of Industrial Engineering, University of Padova, 16 hours.
- Lecturer at the Foundation - Higher Technical Institute (ITS) RED Academy for Padova, lessons "Life Cycle Assessment" and "Waste Management", for the module "Divestment and end-of-life problems", 12 hours;
- Lecturer at the Foundation - Higher Technical Institute (ITS) RED Academy for Padova, lessons on "Life Cycle Assessment", for the "LCA" module, 20 hours;
- Participation in the course of "Strategic Environmental Management" – Master's Degree in Chemical Engineering and Industrial Processes, with interventions on "Life Cycle Assessment".

A.Y. 2018/2019:

- Lecturer "Interpretation of results: uncertainty analysis, sensitivity analysis, relevance and contribution analysis.", Basic Course of Life Cycle Assessment (LCA) January 2019, organized by the Italian LCA Network Association and the University of Roma Tre, Rome, 2 hours.
- Lecturer at the Foundation - Higher Technical Institute (ITS) RED Academy for Padova, lessons "Life Cycle Assessment" and "Waste Management", for the module "Divestment and end-of-life problems", 16 hours;
- Participation in the course of "Strategic Environmental Management" – Master's Degree in Chemical Engineering and Industrial Processes, with interventions on "Life Cycle Assessment".

A.Y. 2017/2018:

- Lecturer of the lectures "Integrated Product Policy and Life Cycle Assessment", "Environmental Labeling", Post Graduation Course in Strategic Environmental Management, Department of Industrial Engineering, University of Padova, 12 hours.
- Lecturer in charge at the Foundation - Higher Technical Institute (ITS) RED Academy for Padova lessons lessons "Life Cycle Assessment" and "Waste Management" for two modules "Decommissioning and end-of-life problems", 48 hours.
- Participation in the course of "Strategic Environmental Management" – Master's Degree in Chemical Engineering and Industrial Processes, with speeches on "Life Cycle Assessment".
- Participation in the course of "Environmental Quality Management Systems" – Degree in Environmental and Land Engineering, with interventions on "Life Cycle Assessment" and "Environmental Management Systems according to ISO 14001 and EMAS Regulation".

A.Y. 2016/2017:

- Lecturer of the lectures "Life Cycle Assessment", "Environmental Performance Evaluation", "Initial Environmental Analysis and Context Analysis", Post Graduation Course in Strategic Environmental Management, Department of Industrial Engineering, University of Padova, 18 hours.
- Participation in the course of "Strategic Environmental Management" – Master's Degree in Chemical Engineering and Industrial Processes, with speeches on "Life Cycle Assessment".
- Participation in the course of "Environmental Quality Management Systems" – Degree in Environmental and Land Engineering, with speeches on "Life Cycle

Assessment" and "Environmental Management Systems according to ISO 14001 and EMAS Regulation".

A.Y. 2015/2016:

- Lecturer of the lectures "Life Cycle Assessment", "Environmental Performance Evaluation", "Initial Environmental Analysis and Context Analysis", Post Graduation Course in Strategic Environmental Management, Department of Industrial Engineering, University of Padova, 18 hours.
- Participation in the course of "Strategic Environmental Management" – Master's Degree in Chemical Engineering and Industrial Processes, with speeches on "Life Cycle Assessment".
- Participation in the course of "Environmental Quality Management Systems" – Degree in Environmental and Land Engineering, with speeches on "Life Cycle Assessment" and "Environmental Management Systems according to ISO 14001 and EMAS Regulation".

A.Y. 2014/2015:

- Lecturer of the lectures "Life Cycle Assessment", "Environmental Performance Evaluation", "Initial Environmental Analysis and Context Analysis", Post Graduation Course in Strategic Environmental Management, Department of Industrial Engineering, University of Padova, 16 hours.
- Participation in the course of "Strategic Environmental Management" – Master's Degree in Chemical Engineering and Industrial Processes, with speeches on "Life Cycle Assessment".
- Participation in the course of "Environmental Quality Management Systems" – Degree in Environmental and Land Engineering, with speeches on "Life Cycle Assessment" and "Environmental Management Systems according to ISO 14001 and EMAS Regulation".

A.Y. 2013/2014:

- Lecturer of the lectures "Life Cycle Assessment", "Environmental Performance Evaluation", "Initial Environmental Analysis and Context Analysis", Post Graduation Course in Strategic Environmental Management, Department of Industrial Engineering, University of Padova, 16 hours
- Participation in the course of "Strategic Environmental Management" – Master's Degree in Chemical Engineering and Industrial Processes, with speeches on "Life Cycle Assessment".

A.Y. 2012/2013:

- Lecturer of the lessons "Life Cycle Assessment", "Environmental Performance Evaluation", "Initial Environmental Analysis", Post Graduation Course in Strategic Environmental Management, Department of Industrial Engineering, University of Padova, 16 hours.

A.Y. 2011/2012:

- Lecturer of the lectures "Environmental Performance Evaluation", "Initial Environmental Analysis", Post Graduation Course in Strategic Environmental Management, Department of Industrial Engineering, University of Padova, 8 hours.

3.2 Participation in exams commissions

Participation in the exams of the courses "Logistics, operations & supply chain" (A.Y. 2022/2023, Master's Degree in Data Science); "Industrial Plant & Production Management" (A.Y. 2022/2023; Master's Degree in Computer Engineering for Robotics and Smart Industry); "Sustainability in sporting organization" (A.Y. 2023/2024; Master's Degree in Management of sustainable and innovative sporting activities); "Strategic Marketing" (A.Y. 2022/2023 and A.Y. 2021/2022; Master's Degree in Management and Business Strategy).

Participation in the exams of the course "Territorial Sustainability" (A.Y. 2022/2023 Master's Degree in Marketing and Business Communication; S.S.D SECS-P/13)

From 2014 to 2020 participation in the exams of the courses "Strategic Environmental Management" and "Environmental Quality Management Systems".

3.3 Supervisor activities in bachelor's and master's theses

I provide teaching assistance and degree theses for students in accordance with office hours. I have served as supervisor and co-supervisor at the University of Verona and the University of Padova for about 40 theses on the topics of Life Cycle Management for industrial processes and Environmental Management Systems.

Supervisor of dissertations awarded by the BPMarostica Foundation and Confindustria Vicenza for the competition "Plastic 2030. Drivers of global innovation"

3.4 Planning and coordination of educational activities

(2023) Member of the Working Group for the establishment and design of the Master's Degree – 77 Class of Master's Degrees in Economic-Business Sciences in Supply Chain Management, structured from the A.Y. 2024/2025.

4. Training activities at qualified Italian or foreign institutes

- (2025) Participation in the seminar “Quo vadis supply chain? Rethinking the creation of value chains in the new global geopolitics”. University of Verona, Department of Management. Prof. Russo.
- (2024) Visiting Scholar at the Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University for research activities concerning supply chain circularity and logistics decarbonization. November 2024.
- (2024) Participation in the workshop “On big data and small data for the tourism sector: insights from a management research perspective” University of Verona, Department of Management.
- (2024) Participation in the seminar “The Dark Side of the Scholarship and the Search for Quality: (A Journey) between the Shadows and the Lights of the Scientific Publication”. University of Verona, Department of Management. Prof. Russo.
- (2024) Participation in the seminar “Predator Journals”. University of Verona, Department of Management. Prof. Baiocchi (Maryland University).
- (2024) Participation in the webinar "Transportation Fleet Sustainability Index". Prof. Scott, University of Tennessee-Knoxville.
- (2024) Participation in the seminar “What motivates public employees to engage with co-production? Experimental evidence from urban planning” University of Verona, Department of Management. Prof. Bordinelli (Indiana University).
- (2024) Participation in the seminar “Breathing, grieving, and staring as sites for a radical vulnerability” University of Verona, Department of Management. Prof. Tyler (University of Essex).
- (2024) Participation in the seminar “Empowering humans: the role of artificial intelligence in the supply chain” University of Verona, Department of Management
- (2024) Participation in the seminar "Success and failures in experimental design", University of Verona, Department of Management. Prof. Nichols (Northern Kentucky University).
- (2024) Participation in the workshop "Resilience, sustainability, and Value Chain", Bocconi University.
- (2024) Participation in the seminar "Historical roots of lending discrimination and new research ideas on the US mortgage market", University of Verona, Department of Management. Prof. Scip.
- (2024) Participation in the seminar "Humanization of virtual assistants and delegation choices", University of Verona, Department of Management. Prof. Drichoutis (Agricultural University of Athens).
- (2024) Participation in the seminar "How to craft compelling conceptual papers for scholarly journals", University of Verona, Department of Management. Prof. Edvardsson (Karlstad University).
- (2023) Participation in the conference "30 years of Life Cycle Assessment: methodological and applicative developments", 28-30 June, Politecnico di Milano.
- (2023) Participation in the seminar "Framing the supply chain management, logistics and operations research: how to publish in academic journals", University of Verona,

Department of Management. Prof. Carnovale (College of Business at Florida Atlantic University).

- (2023) Participation in the Workshop "Environmental sustainability: financing tools for decarbonization", Fondazione Cariverona and EURIS srl.
- (2023) Participation in the seminar "Developments in Social Life Cycle Assessment – An update of ISO 14075", Word Resources Forum.
- (2023) Participation in the seminar "The bumpy road to possible success", University of Verona, Department of Management. Prof. Kuppelwieser (NEOMA Business School).
- (2023) Participation in the seminar "The Gioia Methodology: key assumptions and building blocks", University of Verona, Department of Management. Prof. Magnani (University of Pavia).
- (2023) Participation in the seminar "Emerging digital technologies and professional services: current and future agenda for marketing research" University of Verona, Department of Management. Prof. Sharma (Curtin University, Perth, Australia).
- (2023) Participation in the Workshop "Unchaining Supply Chain: Enabling transformative leaps towards regenerative socio-ecological systems", Journal of Supply Chain Management.
- (2023) Participation in the Seminar "Social LCA: an overview of methodological and applicative developments", WG Social LCA Italian Network LCA and Aachen University.
- (2023) Participation in the Workshop "Logistics Data Space Architecture and Security", GLEC (Global Logistics Emissions Council).
- (2023) Participation in the Webinar "Energy efficiency and GHG emissions intensity values for logistics sites", GILA (German, Italian and Latin America consortium for resource efficient logistics hubs & transport).
- (2023) Participation in the seminar "Human Centricity in Logistics and Supply Chain Management", upskilling activities in the field of enabling technologies for logistics and supply chain management, University of Verona.
- (2022) Participation in the seminar "The potential of Blockchain for logistics and supply chain: between experiences and problems", upskilling activities in the field of enabling technologies for logistics and supply chain management, University of Verona.
- (2022) Participation in the APRE course on Impact in HE (Horizon Europe) entitled "How to Maximise the Impact of Results In Horizon Europe", 20 September 2022, University of Verona.
- (2022) Participation in the seminar "Augmented reality and virtual reality, opportunities and challenges for logistics and supply chain", upskilling activities in the field of enabling technologies for logistics and supply chain management, University of Verona.
- (2022) Participation in the lecture "Green Logistics and Sustainable Supply Chain", Logimaster, University of Verona, Prof. Jon Kirchoff (College of Business, East Carolina University).
- (2021) Participation in the AISME School of Research Methodology, 13-17 September 2021.
- (2021) Participation in the Workshop for the evaluation of international cooperation project proposals between Malta and other countries. Malta Council for Science and Technology.

- (2021) Participation in the Workshop of the Journal Environment, Development and Sustainability for the creation of a group of young researchers to be included in a training course to become Associate Editors, with Prof. Luc Hens (Editor in Chief) and other Associate Editors.
- (2020) Participation in the Workshop "Sustainable tourism monitoring schemes", School of Hospitality & Tourism Management, University of Surrey UK (in collaboration with European Commission). Researchers from the University of Surrey have developed an impulse paper for the European Commission entitled "Measuring Tourism Sustainability in Destinations" based on the ideas provided by the participants in the Workshop.
- (2020) Participation in the seminar "The EU Taxonomy. Technical Expert Group on Sustainable Finance".
- (2020) Participation in the seminar "Ethical claims: UNI ISO/TS 17033 for the protection of consumers and businesses. UNI Italian Standardization Body".
- (2020) Participation in the Webinar "Sustainability meets textiles: new opportunities for fashion that respects the environment and people". Bureau Veritas.
- (2020) Participation in the Webinar "Heritage and territory: tourism and economic and social cohesion", European University of Rome.
- (2018) Participation in the Webinar "Management systems for the sustainable development of communities, models and reference indicators". Bureau Veritas.
- (2018) Participation in the seminar "Scientific writing: Deliberate practice makes your better", University of Padova, Prof. Gregory Patience (Polytechnique Montreal).
- (2018) Participation in the seminar "Funding opportunities for socio-economic sciences humanities in Horizon 2020", University of Padova.
- (2017) Participation in the European Planning Info Day, at Ca' Foscari University of Venice.
- (2017) Participation in the Workshop "Interreg Italy Croatia Project", Trieste, Friuli Venezia Giulia Region.
- (2016) Participation in the new ISO 14001:2015 refresher course, at the University of Padova.
- (2016) Participation in the seminar "Green Public Procurement: The regulatory framework and its implementation", University of Padova.
- (2015) Participation in the UNI CEI 11339:2009 Energy Management Experts in Energy Management (EGE) course General requirements for qualification, at the University of Padova.
- (2015) Participation in the Workshop on Minimum Environmental Criteria (CAM) for public procurement, at the Ministry of the Environment.
- (2015) Participation in the lecture on the sustainability of tourist destinations, carried out during the Master in Planning and Management of the Tourism Product, University of Padova.
- (2015) Participation in a meeting on LCA and sustainability, at the Lombardy Region, Milan.
- (2015) Participation in Workshop on Food Labeling, at the Chamber of Commerce of Verona.
- (2014) Participation in the Course "How green is that product? An introduction to Life Cycle Environmental Assessment", Prof. Eric Masanet (Northwestern University).
- (2014) Participation in the course "Tools for the calculation and reporting of the carbon footprint: the new ISO/TS 14067", Parma.

- (2013) Participation in the course for Auditor of energy management systems according to ISO 50001, at the University of Padova.
- (2013) Participation in the seminar "Life Cycle Thinking, Case studies", University of Padova.
- (2013) Participation in "Academic English Course for PhD Students", PhD School, University of Padova.
- (2012-2013) Participation in the course "Strategic Environmental Management", Master's Degree Course in Chemical Engineering, University of Padova.
- (2012) Participation in the seminar "*Resources for bibliographic research*", University of Padova.
- (2012) Participation in the seminar "Protection of intellectual property", PhD School, University of Padova.
- (2012) Participation in the seminar "Diffusion of innovation. The case of Renewable Energy technologies. Photovoltaic and renewable energies: technical aspects", University of Padova.
- (2012) Participation in the seminar "Water Footprint Training", University of Padova.
- (2012) Participation in the seminar "Environmental Risk Assessment", University of Padova.
- (2012) Advanced modeling course at SimaPro, University of Padova.
- (2011) Visiting Scholar at the Department of Organic Chemistry, University Karlsruhe Institut für Technologie (KIT) for research activities related to the topic of green chemistry.
- • (2011) Participation in the seminar "100 Projects and More, European Research at the University of Padova", University of Padova.
- • (2010) Participation in the course for Auditor of environmental management systems according to ISO 14001, at the University of Padova.
- • (from January 2010 to September 2010) First level Master's Degree in Strategic Environmental Management, University of Padova. (60 CFU)

5. Organization, coordination and participation in research groups

5.1 Participation of research groups of national importance whose projects are funded on the basis of competitive calls and/or positively evaluated

1. (2024 – ongoing) **Coordinator** of the project “**Collaborative_LifeCycle: development of an environment for the study of collaborative manufacturing and logistics systems with a life cycle perspective**”. Research funded by Inest (Interconnected Nord-Est Innovation Ecosystem).

Research topic: creation of a hardware/software platform for modeling, data collection and analysis, and the management of collaborative manufacturing systems with an internal logistics component, with a life cycle perspective.

Research objective:

The project aims to build an experimental environment for the study of collaborative systems for production and logistics, also considering aspects related to sustainability. We want to use this experimental environment to develop collaboration techniques and understand the potential from a life cycle perspective of collaborative manufacturing systems. From the point of view of sustainability, environmental and social aspects will be identified by varying the allocation of its sub-tasks between human and robotic agents, both in terms of manufacturing and logistics processes.

Research team: S. Toniolo, F. Setti, M. Lora, S. Gaiardelli, E. Martini, M. Emporio, F. Cunico (University of Verona)

Project duration: 12 months

2. (2024) **Coordinator** of the research project entitled **“Analytical Models for Circular Supply Chain Management”** University internationalization program call for visiting – edition 2024 – Visiting Researchers&Professors – incoming mobility for research and teaching (Cooperint).

Research topic: transformation and new uses of residues with a view to circularity.

Research objectives:

- highlight challenges and strategies for the development of circular business models under uncertainty and through the application of a life cycle perspective;
- develop a dynamic multi-criteria model (Multi Criteria Decision Making model) integrated with optimization techniques to analyze the challenges and strategies aimed at designing circular business models;
- Develop models that consider the conditions of uncertainty along the supply chain in relation to circularity activities.

The research aims to develop the topic "Supply chain sustainability and circular economy" within the research area of the Department of Management "Logistics and supply chain management". It is also part of the international development of the Department, allowing the creation of a cooperation with the Hong Kong Polytechnic University.

Research team: S. Toniolo and Jingzheng Ren (The Hong Kong Polytechnic University).

Project duration: 6 months

3. (2023 – ongoing) **Coordinator** of the research project entitled **"Decarbonization of internal logistics activities through a life cycle based model"**. Study funded by the Vicenza Univr Hub Foundation (VUH).

Research topic: Resource enhancement and waste management from a life cycle perspective for logistics services

Objective of the research: The research intends to develop a pilot project with the aim of developing a life-cycle based methodological framework applicable to warehouse logistics and the environmental sustainability of related activities. The method that will be developed can be used by all production companies both with finished product warehouses and with logistics warehouses. It will be possible for companies to communicate their commitment to climate change to customers, suppliers and investors also in a strategic key.

Research team: S. Toniolo, I. Russo, S. Blasi (University of Verona)

Project duration: 18 months

4. (2023 – ongoing) Participation as a **research component** in the project "**Innovative systems for the sustainable production of biomethane from OFMSW and other organic matrices**". Call: Call for Innovation Agreements DM 31/12/2021 - Area: Circular Industries (Mediocredito centrale, Invitalia). Sustainable Growth Fund. Ministry of Enterprise and Made in Italy. Prog. No. F/310278/01-02/X56

Research topic: Environmental and economic assessments with a life cycle perspective for industrial production chains and services with a view to circularity.

Research objectives: The research is part of a project for the production of biogas from the anaerobic digestion of OFMSW through the use of advanced process control and command systems using inferential algorithms. The goal is to define an innovative integrated process for the treatment of anaerobic digestate and to study the process from a technical-economic and environmental point of view through Life Cycle Costing and Life Cycle Assessment of the different technological alternatives. The environmental and economic impacts, but also the benefits, quantified can also be used to assess the social acceptability of the work.

Research team: The University of Verona will participate with the Departments of Biotechnology, for the technological part (prof. Bolzonella, Frison, Lampis, Zamboni and Battista) and Management, for the part relating to studies on economic and environmental impacts and social acceptability (prof. Leardini, Russo, Cantele, Confente, Vernizzi, e ricercatori Toniolo, Blasi, D'Acunto).

Project duration: 36 months

5. (2022 – 2024) Participation as a researcher in the research entitled "Analysis of the enabling elements for the configuration of innovative businesses in the field of the circular economy". Research project funded by the PON "Research and Innovation" 2014-2020, Axis IV "Education and research for recovery" Action IV.6 – "Research contracts on Green issues".

Research topic: Environmental assessments with a life cycle perspective for logistics services with a view to circularity.

Objective of the research: The research aims to i) bring out and explore the circularity practices implemented by logistics service providers (distribution and warehouse management); ii) understand and measure the level of familiarity with the circular economy of logistics service providers.

Research team: S. Toniolo, project coordinator: I. Russo (University of Verona)

Duration of research: 36 months.

Products of the research:

- ✓ Toniolo S., Russo I., 2022. The Environmental Impacts of E-Commerce: A Literature Review. In 2022 International Conference on Resource Sustainability.
- ✓ Toniolo S., Russo I., 2022. Exploring the solutions to decarbonize warehousing operations. In SETAC Europe 25th LCA Symposium “The Role of LCA in Raw Material Sustainability, Circularity and Criticality”
- ✓ Toniolo S., Russo I., Bravo I., 2024. Integrating product-focused life cycle perspectives in the fresh food supply chain: Revealing intra- and inter-organizational views. *Sustainable Production and Consumption*, 48, 46-61.
- ✓ Toniolo S., Russo I., 2024. “Chapter 28 The Last-Mile Delivery Process from a Life Cycle Perspective”. In Lagioia G., Paiano A., Amicarelli V., Gallucci T., Ingrao C. (Eds) “Innovation, Quality and Sustainability for a Resilient Circular Economy”, Springer, ISSN 2731-5509/ISSN 2731-5517 (electronic), ISBN 978-3-031-55205-2/ISBN 978-3-031-55206-9 (eBook). https://doi.org/10.1007/978-3-031-55206-9_28

Since 2022 I have been developing other research projects on the following topics:

- Decarbonization of logistics activities, in relation to warehouse operations and last-mile delivery; study of the environmental impacts associated with e-commerce, with Prof. I. Russo.
- Relationship between circular economy, sustainability and regeneration in supply chain management, with Prof. I. Russo
- Trade-off associated with digital technologies for the development of Life Cycle Assessment with Prof. F. Murmura (University of Urbino) e Prof. L. Liberatore (University “G. d’Annunzio” Chieti - Pescara).

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6. (2021) Participation as a contractor in the research entitled "LCA analysis of ABS or PC/ABS granules resulting from the recycling process". Department of Industrial Engineering of the University of Padova.

Research topic: Environmental assessments with a life cycle perspective for industrial production chains with a view to circularity.

Research objectives: The research aimed to develop and apply a life cycle thinking model for the assessment of the potential environmental impacts of plastics manufacturing processes. A further objective was the development of an impact profile of new products compared to traditional polymers.

Research team: S. Toniolo, project coordinator: A. Manzardo (University of Padova)

Search duration: 6 months

Research products:

- ✓ Camana D., Toniolo S., Manzardo A., 2022. Investigating the integration between life cycle thinking, green chemistry principles and sustainability policies. In Albrecht, S. (Editor) The 10th international conference on life cycle management LCM 2021. E3S Web Conf. Volume 349. eISSN: 2267-1242 <https://doi.org/10.1051/e3sconf/202234913005>
- ✓ Toniolo S., Marson A., Manzardo A., Zuliani F., 2021. To what extent does a sporting good impact on the environment and how to communicate? In Proceedings of the 27th Annual Conference, International Sustainable Development Research Society (ISDR). Accelerating the progress towards the 2030 SDGs in times of crisis - ISBN: 978-91-89341-17-3

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7. (2021) Participation as a research fellow in the research entitled "PREPAR-AZIONE TRASFORMATIVA: mapping of training needs" project code 69-0001-1315-2019, funded and approved by the Veneto Region with Decree no. 1086 of 26/09/2019. Tools for the enhancement of the intellectual capital of Veneto companies. Regional Operational Programme – European Social Fund 2014-2020 – Axis I Employability

Research topic: Social sustainability assessments for industrial production chains and the tertiary sector.

Objectives of the research: the research aimed to analyze professional and business needs, through a qualitative mapping of the situation, with respect to work and entrepreneurial evolution, for generational transition and business continuity.

Research team: S. Toniolo, project coordinator: A. Manzardo (University of Padova)

Search duration: 6 months

8. (2021) Participation as a contractor in the research "Design and implementation of economic-environmental assessment models in relation to ecosystem services of natural areas". Project funded by the European project Interreg V-A Italy-Slovenia 2014-2020 entitled "ECO-SMART: Market of Ecosystem Services for an Advanced Policy for the Protection of NATURA 2000 Areas".

Research topic: Sustainability assessments for the tertiary sector.

Research objectives: design of ecosystem service indicators for Natura 2000 areas and systematization of the data in order to allow the modeling of the designed indicators.

Research team: S. Toniolo, project coordinator: A. Manzardo (University of Padova)

Search duration: 6 months

Research products:

- ✓ Camana D., Toniolo S., Manzardo A., Piron M., Scipioni A., 2021. Life cycle assessment applied to waste management in Italy: A mini-review of characteristics and methodological perspectives for local assessment. Waste Management and Research, 39(8), 1007-1026. <https://doi.org/10.1177/0734242X211017979>
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9. (2018-2020) Participation as a research fellow in the research "Development of a model of combination between Life Cycle Sustainability Assessment and management systems for sustainable development".

Research topic: Sustainability assessments for the tertiary sector.

Objectives of the research: the research aimed to analyze and build sustainable development indicators applicable to the territorial and tourist context; identify models and tools proposed by the international literature on the subject of life cycle sustainability assessment (LCSA); verify the applicability of the models proposed by the literature; analyse the evolution of stakeholder behaviour and its impacts on territorial management. Research team: S. Toniolo, project coordinator: A. Scipioni

Research duration: 24 months

Research products:

- ✓ Toniolo S., Pieretto C., Camana D., 2023. Improving sustainability in communities: Linking the local scale to the concept of sustainable development. *Environmental Impact Assessment Review*, 101, 107126
- ✓ Mazzi A., Arfò S., Arzoumanidis I., Battiston E., Crovella T., Longo G.L.A., Paiano A., Petti L., Raggi A., Toniolo S., Zufalo A., Matarazzo A., 2022. Promuovere LCA e sostenibilità: un'esperienza formativa in ambito turistico. In "ATTI DEL CONVEGNO XVI Convegno dell'Associazione Rete Italiana LCA La sostenibilità nel contesto del PNRR: il contributo della Life Cycle Assessment", 22-24 Giugno 2022, Palermo. Rete Italiana LCA Eds., ISBN: 9791221004588
- ✓ Camana D., Manzardo A., Toniolo S., Gallo F., Scipioni A., 2021. Assessing environmental sustainability of local waste management policies in Italy from a circular economy perspective. An overview of existing tools. *Sustainable Production and Consumption*. 27, 613-629. 10.1016/j.spc.2021.01.029

10. (2016-2018) Participation as a research fellow entitled "New business model to increase efficiency of resources aimed at products great durability with use of recycled materials" (Reference: LIFE14 ENV/IT/000082; Acronym: LIFE M&M Man and Metal) financed on a competitive basis within the LIFE Program 2014

Research topic: Environmental assessments with a life cycle perspective for industrial production chains with a view to circularity.

Objectives of the research: to develop a Life Cycle Assessment analysis of an innovative and eco-friendly product of the metallurgical industry and the monitoring of environmental and socio-economic aspects. The research involved 2 partner companies with the aim of promoting scientific research and the analysis of environmental impacts associated with metallurgical processes

Research team: S. Toniolo, project coordinator: A. Scipioni (University of Padova)

Research duration: 36 months

Research products:

- ✓ Toniolo S., Mazzi A., Mazzarotto G., Scipioni A., 2019 International standards with a life cycle perspective: which dimension of sustainability is addressed? *International Journal of Life Cycle Assessment* 24, 1765–1777; DOI <https://doi.org/10.1007/s11367-019-01606-w>, ISSN 1614-7502

11. (2015-2016) Participation as a research fellow entitled "Original ennobling recycling process of GFRP waste to re-produce GFRP replacing energy-intensive construction elements" (Reference: LIFE12 ENV/IT/000579 Acronym: LIFE Enrich a poor waste) funded on a competitive basis within the LIFE Programme 2012

Research topic: Environmental assessments with a life cycle perspective for industrial production chains with a view to circularity.

Objectives of the research: to develop a Life Cycle Assessment analysis for the recovery of GFRP (Glass Fiber Reinforced Polymer) and the monitoring of environmental and socio-economic aspects. The research involved a partner company with the aim of promoting scientific research and the analysis of environmental impacts associated with recovery processes

Research team: S. Toniolo, project coordinator: A. Scipioni (University of Padova)

Research duration: 36 months

Research products:

- ✓ Toniolo S., Mazzi A., Simonetto M., Zuliani F., Scipioni A., 2019 Mapping diffusion of Environmental Product Declarations released by European Program Operators, Sustainable Production and Consumption; 17, 85-94, DOI 10.1016/j.spc.2018.09.004, ISSN 2352-5509

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12. (2011-2012) Participation as a member of the research team in the research entitled: "Tourist enhancement of Lake Garda", approved by DGR no. 3718 of 28 November 2003 and no. 3633 of 19 December 2004. With resolution no. 455 of 2 March 2010, the Regional Council had adopted the "Regional Plan for the Development of Sustainable and Competitive Tourism" to strengthen the criterion of environmental compatibility in the regional tourism offer, using some of the most internationally known tools, such as the voluntary EMAS and Ecolabel certifications, provided for by EU regulations, and the ISO 14001 standards. Deadline subsequently extended by Regional Decree no. 595 of 10 May 2011.

Research topic: Environmental assessments with a life cycle perspective for services.

Research objectives: The research was divided into two objectives. The first was to develop and implement a management system for the environmental aspects of a tourist destination. The research involved 4 municipalities on Lake Garda with the aim of achieving EMAS registration and ISO 14001 certification at the territorial level. The second consisted in developing a model of combination between the management system of environmental aspects and the perspective of the life cycle in the territorial context.

Research team: S. Toniolo, S. Catto, M. Longo, A. Archetti, F. Zuliani, project coordinator: A. Scipioni (University of Padova)

Research duration: 24 months

Research products:

- ✓ Mazzi A., Toniolo S., Catto S., De Lorenzi V., Scipioni A., 2017, The combination of an Environmental Management System and Life Cycle Assessment at the territorial level, *Environmental Impact Assessment Review*; 63, 59-71; <http://dx.doi.org/10.1016/j.eiar.2016.11.004>, ISSN 0195-9255
-

13. (2011-2021) Participation as a member of the research team in Life Cycle Assessment (LCA) research for products/processes/services:

LCA/Carbon Footprint studies, packaging (2012 - 2021), waste management (2012 - 2021), construction site (2013 - 2014), exhibition panels (2014), trade fairs (2014, 2019 - 2020), elective products (2015; 2020-2021), construction products (2016 - 2021), sportswear products (2018-2019), steel production (2018-2021), personal care (2019 - 2021).

Research topic: Environmental assessments with a life cycle perspective for products, industrial processes and services.

Objectives of the research: the research aimed to quantify the environmental impacts of the products/processes/services under analysis, to highlight the major contributions to the impact (both in terms of life cycle phases and substances/materials used or generated).

Research team: S. Toniolo, project coordinator: A. Scipioni (University of Padova)

Duration of the research: 12 to 24 months for each research.

Research products:

- ✓ Toniolo S., Pieretto C., Camana D., 2023. A lifecycle-based indicator to support residual solid waste flow planning at the regional level. *Utilities Policy*, 82, 101525.
- ✓ Toniolo S., Marson A., Fedele A., 2023. Combining organizational and product life cycle perspective to explore the environmental benefits of steel slag recovery practices. *Science of the Total Environment*, 867, 161440. <https://doi.org/10.1016/j.scitotenv.2023.161440>
- ✓ Toniolo S., Camana D., Guidolin A., Aguiari F., Scipioni A., 2021. Are design for disassembly principles advantageous for the environment when applied to temporary exhibition installations? *Sustainable Production and Consumption*, 28, 1262-1274 <https://doi.org/10.1016/j.spc.2021.07.016> ISSN 2352-5509

- ✓ Toniolo S., Mazzi A., Fedele A., Aguiari F., Scipioni A., 2017, Life Cycle Assessment to support the quantification of the environmental impacts of an event, *Environmental Impact Assessment Review*; 63, 12-22; 10.1016/j.eiar.2016.07.007, ISSN 0195-9255
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14. (2010-2011) Participation as a research fellow in the research entitled: "Eco-compatible and low-toxicity solvents for the Veneto footwear sector. Toxicological study of synthesized compounds." Research project funded by the Veneto Region POR FSE (2007-2013) "Ecotoxicity of alkyl carbonates; synthesis of environmentally friendly alkyl esters; synthesis of environmentally friendly alkyl carbonates".

Research topic: Environmental sustainability of chemical syntheses with a life cycle perspective

Objectives of the research: the research aimed to analyze the tools available in the literature for the environmental analysis of the use of low-toxicity solvents for the footwear sector; Evaluate the environmental impact of alkyl carbonates.

Research team: S. Toniolo, F. Aricò, C. R. McElroy, M. Chiurato, Research coordinator: P. Tundo (University of Venice Ca' Foscari)

Search duration: 12 months

Research products:

- ✓ Toniolo S., Aricò F., Tundo P., 2014, A comparative environmental assessment for the synthesis of 1,3-oxazin-2-one by metrics: Greenness evaluation and blind spots, *ACS Sustainable Chemistry and Engineering*, 2, 1056-1062, DOI 10.1021/sc500070t, ISSN 21680485

6. Speaker and participation at national and international conferences

- (2024) Speaker of the Seminar "Ongoing research on supply chain from the life cycle", at the Department of Industrial & Systems Engineering, The Hong Kong Polytechnic University, 6 November 2024, Hong Kong.
- (2024) Speaker, with Bravo I., Russo I. "Innovative packaging for a circular and sustainable supply chain", AISME 2024 Conference, 19-20 September 2024, University of Salento, Lecce, Italy.

- (2024) Speaker, with Bravo I., Russo I. *"Life cycle perspective in the textile supply chain. Analysis of Improvement Practices"*, 1st IAQUIS Conference, 11-13 September 2024, University of Viterbo, Italy.
- (2024) Participation with Bravo I., Colametteo I. "Eating habits and Sustainability: Environmental impacts of the consumption of fruit and vegetables", 14th International Conference on Life Cycle Assessment of Food 2024 "Healthy food systems for a healthy planet" LCAFOOD, 8-11 September 2024, Barcelona, Spain.
- (2024) Speaker, with Russo I. *"Facilitating Circular Transformation: The Role of Logistics Service Providers"*, 19th CSCMP European Research Seminar (ERS) on Logistics and SCM, 20-21 June 2024, Kozminski University, Warsaw, Poland.
- (2024) Participation with Blasi S. *"Decarbonizing Last-Mile Delivery: a study on crowdsourced delivery incentives"*, Sinergie-Sima 2024 Management Conference, 13-14 June 2024.
- (2023) Speaker, with Bravo I., Russo I., Papetti P. *"The supply chain of fresh food products: environmental impacts and opportunities for improvement"*, AISME 2023 Conference *"Quality, Innovation and Sustainability in the agri-food chain: the contribution of Commodity Sciences"*, 16-18 November 2023, Department of Business Economics University of Roma Tre.
- (2023) Participation with Bravo I., Papetti P. *"2 Workshop SETAC Italian language branch"* National Research Council.
- (2023) Poster presenter with Bravo I., Papetti P., Russo I. *"Fresh - cut products: improving the impacts of the supply chain through a life cycle perspective"*, The 11th International Conference on Life Cycle Management, 6-8 September 2023, Lille, France.
- (2023) Poster presenter with Bravo I., Papetti P. *"Biofuels from microalgae: Solutions to reduce the impact on water resource"*, 4th International Conference on Bioresource Technology for Bioenergy Bioproducts and Environmental Sustainability, 14-17 May 2023, Riva del Garda, Italy.
- (2023) Participation with Shi T., Ayub Y., Zhou J., Ren J. *"Co-valorization of poultry litter and sewage sludge to produce hydrogen: Process design AI-based optimization and life cycle analysis"*, 4th International Conference on Bioresource Technology for Bioenergy Bioproducts and Environmental Sustainability, 14-17 May 2023, Riva del Garda, Italy.
- (2023) Participation with Ayub Y., Zhou J., Shi T., Ren J. *"Sustainable valorization of biomass waste through pyrolysis and upgrading technologies: Process design, optimization, analysis and DEA evaluation"*, 4th International Conference on Bioresource Technology for Bioenergy Bioproducts and Environmental Sustainability, 14-17 May 2023, Riva del Garda, Italy.
- (2023) Speaker *"Develop sustainability in the communities"*, Webinar organized by Italian Journal of Regional Science "Contextualizing Sustainability within Regional and Urban Development", 14 December 2023
- (2022) Poster presenter with Russo I. *"The last-mile delivery process from a life cycle perspective"*, XXX National conference on Commodity Sciences, 27-28 October 2022, Bari, Italy.
- (2022) Speaker, with Russo I. *"Exploring the solutions to decarbonize warehousing operations"*, SETAC Europe 25th LCA Symposium "The Role of LCA in Raw Material Sustainability, Circularity and Criticality", 12-14 October 2022.
- (2022) Speaker, with Russo I. *"The Environmental Impacts of E-Commerce: A Literature Review"*, International Conference on Resource Sustainability (icRS), conference organized by the University of Michigan and supported by Resources, Conservation and Recycling, 1-4 August 2022.
- (2021) Speaker, with Marson A., Manzardo A., Zuliani F. *"To what extent does a sporting good impact on the environment and how to communicate? A case study of a cycling product."*, 27th Annual

- Conference, International Sustainable Development Research Society (ISDR) “Accelerating the progress towards the 2030 SDGs in times of crisis”, 13-15 July 2021.
- (2020) Speaker, with Guidolin A., Aguiari F., Scipioni A. “*Carbon footprint of an expositive stand*”, Conference of the Italian LCA Network IX Conference of the Italian LCA Network Association “The sustainability of LCA between global challenges and competitiveness of organizations”, 9-11 December 2020.
 - (2020) Poster presenter, with Trevisanello C. “*Environmental assessment of the pre-treatment of polyethylene waste from agricultural activities*”. XXIX National Congress of Commodity Sciences, 13-14 February 2020, Fisciano, Italy.
 - (2019) Speaker, with Tosato R.C., Zancato I., Scipioni A. “*Application of a decision framework to explore stakeholders’ opinions for comparative LCA and LCC studies*”. XIII Conference of the Italian LCA Network - VIII Conference of the Italian LCA Network Association, 13-14 June 2019, Rome, Italy.
 - (2018) Participation, with Mazzi A., Scipioni A., al convegno “XII Convegno della Rete Italiana LCA. Life Cycle Thinking in decision-making for sustainability: from public policies to private businesses”.
 - (2018) Participation, with De Camillis A., Mazzi A., Arzoumanidis I., Matarazzo A., Petti L., Raggi A., at the conference “XII Conference of the Italian LCA Network. Life Cycle Thinking in decision-making for sustainability: from public policies to private businesses”.
 - (2017) Participation, with Mazzi A., Mason M., Marzotto F., Scipioni A., al convegno “XI Conference of the Italian LCA Network. Resource Efficiency and Sustainable Development Goals: the role of Life Cycle Thinking”.
 - (2017) Participation, with Mazzi A., Fortuna F., Scipioni A., al convegno “XI Conference of the Italian LCA Network. Resource Efficiency and Sustainable Development Goals: the role of Life Cycle Thinking”.
 - (2016) Speaker, with Mazzi A., Fedalto M., Scipioni A. “*Accuracy of Life Cycle Assessment results for a reusable expositive panel*”. X Conference of the Italian LCA Network Association “Life Cycle Thinking, sustainability and circular economy”, 23-24 June 2016, Ravenna, Italy.
 - (2016) Speaker, with Scipioni A., Mazzi A., Mason M., Cangioli S. “*Exploring a methodological approach to evaluate the environmental benefits of an innovative industrial process*”. 1st International Sustainable Stone conference, 18-21 May 2016, Carrara, Italy.
 - (2015) Participation, with Fedele A., Mazzi A., Pieretto C., Scipioni A., LCM 2015 Bordeaux, France.
 - (2015) Participation, with Ricci F., Mazzi A., Aguiari F., Scipioni A., at the conference International conference on Life Cycle Assessment as reference methodology for assessing supply chains and supporting global sustainability challenges – LCA for Feeding the planet and energy for life. Stresa.
 - (2014) Speaker, with Mazzi A., Lazzarin L., Pieretto C., Scipioni A. “*Sustainability considerations in the event industry sector: a literature analysis*”. 17th European roundtable on sustainable consumption and production “The Europe we want”, 14-16 October 2014, Portorož, Slovenia.
 - (2014) Speaker, with Mazzi A., Vacchiato C., Zuliani F., Scipioni A. “*Benefits and limits of the Environmental Management System: the opinion of the Italian Organizations*”. 17th European roundtable on sustainable consumption and production “The Europe we want”, 14-16 October 2014, Portorož, Slovenia.

- (2013) Specker “*LCA and sustainability*”. Conference Polymers from renewable sources Biodegradable polymers, 29 November 2013, University of Bologna, Italy.
- (2013) Speaker, with Fedele A., Manzardo A., Scipioni A. “*Recycling applied to temporary exhibition structures: investigation of the environmental impacts using a life cycle approach*”. 3rd International Exergy, Life Cycle Assessment and Sustainability Workshop & Symposium (ELCAS3), 7-9 July 2013, Nysiros, Grecia.
- (2013) Participation, with Scipioni A., Loss A., Mazzi A., Longo M., at the conference “SETAC Europe 19th LCA Case Study Symposium. LCA in market research and policy: harmonization beyond standardization”, Roma.
- (2012) Speaker, with Manzardo A., Mazzi A., Niero M., Scipioni A. “*Water footprint accounting of organic and nonorganic strawberries including ancillary materials: a case study*”. 8th International Conference on Life Cycle Assessment in the Agri-Food Sector (LCA Food 2012), 1-4 Ottobre 2012, Saint-Malo, France.
- (2012) Poster presenter, with Niero M., Manzardo A., Zuliani F., Scipioni A. “*Water footprint accounting of organic and nonorganic strawberries including ancillary materials: a case study*”. 8th International Conference on Life Cycle Assessment in the Agri-Food Sector (LCA Food 2012), 1-4 Ottobre 2012, Saint-Malo, France.

6.1 Conferences organization and chair activities

- (2025) Member of the Review Board ICQIS2025 6th International Conference on Quality Innovation and Sustainability, 21-23 May 2025, Urbino, Italy.
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- (2024) Member of the Scientific Board “XIX Conference of the Italian LCA Network Association Sustainable transition, competitiveness and innovation: the role of Life Cycle Assessment”, 19-21 March 2025, Cortina d’Ampezzo, Italy.
- (2022) Chair of the ICRS 2022 International Conference on Resource Sustainability, a conference organized by the University of Michigan and supported by the journal Resources, Conservation and Recycling. Invited chair of the Circular Economy Session, Session 8: Circular Economy II, 1 August 2022.
- (2020) Co-Organization of the conference "IX Conference of the Italian LCA Network Association (XIV of the Italian LCA Network) - The sustainability of LCA between global challenges and competitiveness of organizations", from 9 December to 11 December 2020.
- (2020) Co-chair conference "IX Conference of the Italian LCA Network Association (XIV of the Italian LCA Network) - The sustainability of LCA between global challenges and competitiveness of organizations". Session IV Circular sustainability, 10 December 2020.

7. Awards

- 2019 LCA Young Researchers Award - First Prize (Ex Aequo). Research presented: "Application of a decision framework to explore stakeholders' opinions for comparative LCA and LCC studies".

The aim of the research is to explore the decisions that the different actors along the life cycle of a product can make using or neglecting the Life Cycle Thinking perspective from an environmental and economic point of view.

Award ceremony: 13 June 2019, at Roma Tre University, Department of Business Administration, Rome.

Assigning body: Italian LCA Network Association.

8. Other activities

8.1 Institutional activities

For the University of Verona:

- ✓ Since 2024 Member of the Scientific Technical Committee of the Regional Innovative Network (RIR) "Venetian Green Building Cluster" supported by the Veneto Region, which also aims to support sustainable business models. The scientific manager of the project is a member of the Scientific Technical Committee with the task of giving scientific support in the field of logistics with reduced GHG emissions (<https://www.innoveneto.org/venetian-green-building-cluster/>).
- ✓ (2023 – currently ongoing). Member of the Technical Committee for the Cooperation on Green Public Procurement (GPP) signed between the Veneto Region, the University of Verona, the University of Padova, the Ca' Foscari University of Venice, IUAV University of Venice, Unioncamere del Veneto and ARPAV. Action in support of GOAL 12 of the 2030 Agenda and the Sustainable Regional Strategy. Participation in the drafting of the guideline for public administrations entitled "GPP for a sustainable textile system" with Prof. Ivan Russo and David Bolzonella, for the University of Verona. Document approved by Regional Council Resolution no. 581 / DGR of 19/05/2023.
- ✓ (2023 – currently ongoing). Member of the Academic Board of Computer Science – Department of Computer Science.
- ✓ (2023 – currently ongoing). Member of the Inter-University Academic Board of Medical Systems Engineering for the Person - Department of Engineering for Innovation Medicine.
- ✓ (2022 – currently ongoing). Member of the Academic Board of Mathematics and Data Science – Department of Computer Science.
- ✓ (2022 – 2023). Member of the Academic Board of Management and Business Strategy – Department of Management.

- ✓ Since 2022 he has been a member of the Scientific Technical Committee for the design, development and drafting of the sustainability report of the University of Verona. The assignment involves the preparation of the sustainability report of the University of Verona. Project coordinator prof. Silvia Cantele.

For the Department of Management:

- ✓ Since 2024 Member of LOOP Research Center
- ✓ Since 2024 Member of Quality Assurance Board for the research activities of the Department of Management – University of Verona.
- ✓ Since 2022 he has been a member of the Council of the Department of Management – University of Verona.
- ✓ (2023). Member of the Selection Committee for the awarding of research grants for the activation of the second semester teaching tutoring service - a.y. 2022/23 - Department of Management.
- ✓ (2022). Member of the Selection Committee for the awarding of research grants for the activation of the second semester teaching tutoring service - a.y. 2021/22 - Department of Business Administration.

At international level:

- ✓ (from 2021 – ongoing). Member of the Proposals Evaluation Board of the Malta Council for Science and Technology (MCST). Government body with a mandate to advise the government on policies related to science and technology. MCST acts as Managing Authority for Research and Innovation (R&I) programs and initiatives. Appointment until 2025. Activity carried out:
 - Evaluation of research projects with a request for funding of about 200 k€ on the reduction of the impact on climate change.
 - Participation in the Consensus Meeting with the other project evaluators and drafting of the Consensus Report on Proposal Evaluation.

For other Universities:

- ✓ (2024) Evaluator of doctoral thesis, PhD course in Civil, Environmental and Architectural Engineering Sciences, cycle 37. University of Padova.

8.2 Dissemination activities

- (2024) Member of the Scientific Committee ENEA-CONAI Master Thesis Award 2023 and 2024 National Agency for New Technologies, Energy and Sustainable Economic Development. Master Thesis on Circular Economy and Sustainability.
- (2023) Speaker "The supply chain in the textile sector, the challenges for sustainability"; Session "The Sustainable Textile System (CAM Tessile – Decree 7 February 2023)", Compraverde Buygreen VII Edition Regional Forum of Green Purchases, 7 June 2023, Venice.
- (2023) Speaker "Innovation Ecosystem Day", organized by Smact Competence Center (public-private partnership that systematizes skills in the 4.0 field of research, technology providers and early adopter companies), 5 May 2023, Vicenza.
- (2022) Speaker "The Carbon Footprint: measuring the corporate impact on climate change", University Course "Living, working and producing sustainably", University of Verona.
- (2022) Speaker Workshop Teddy Group "Presentation of the research project: Circularity assessment of logistics service providers", University of Verona, 28 September 2022, Verona.
- (2022) Speaker "Presentation of the Volume The Climate Law", Academy of Agriculture, Sciences and Letters, 9 September 2022, Verona.
- (2022) Qualification of THIRD PARTY LEAD AUDITOR for Carbon Footprint studies, obtained through conducting audits as an Auditor. SGS Italy SPA Certification Body. During 2022 Lead Auditor of 7 audits with international verification group (company offices: Europe, South America, China). During 2023 Lead Auditor of 3 audits with national and international verification group (company offices: Europe, China, Italy) and auditor of 1 audit with national verification group (company headquarters: France).
- (2022) Speaker "Take it Slow Veneto Region training program, Certifications and monitoring tools for destinations and businesses", 16 March, 29 March, 30 March 2022: As a result of the training course on sustainable tourism development promoted by the Tourism Directorate of the Veneto Region, in implementation of the European Project TAKE IT SLOW – IT-HR Cooperation Program and on the basis of the lessons presented by the teachers, the organizers developed the Manual of Sustainability in the tourism sector entitled "The culture of sustainability in Veneto" (<https://www.regione.veneto.it/documents/10813/13265440/Manuale+sostenibilit%C3%A0/aa34fb11-44eb-4a22-a8ab-c777f5d746cb>)
- (2021) Qualification of THIRD PARTY LEAD AUDITOR for Environmental Product Declaration studies, obtained through conducting audits as an Auditor. SGS Italy SPA Certification Body. During 2021 she was Lead Auditor and Auditor of 9 audits with national verification group (company offices: Italy)
- (2021) VICE-PRESIDENT of the Board of Directors of the AICQ (Italian Association of Quality Culture) Tourism Sector.
- (2020) Qualification as a THIRD PARTY AUDITOR for Environmental Product Declaration and Carbon Footprint studies, obtained through accompanying audits and on-the-job training. SGS Italy SPA Certification Body. During 2020 she was Auditor of 2 audits with national verification group (company offices: Italy).
- (2020) CHAIR Product Category Rules Review (for electrical/electronic products: charging stations, cables, switchboards, contactors, switches, insulators, wind turbines, transformers, photovoltaic solar panels).

- (2020) AUTHOR with Marson A., Pieretto C., Bortoletto F., "The recovery of textile waste for the circular economy", *Qualità*, n.6 November-December 2020.
- (2019) INTERVIEW "Sustainability" published in ICMQ News n. 93 Year XXIV - March 2019, page 9. MEDIAPRINT – Via Mecenate, 72/36 20138 Milan.
- (2018) AUTHOR with Mazzi A., Scipioni A., "Environmental Product Declarations (EPD) in Italy", *Qualità*, n.6 November-December 2018.
- (2018) INTERVIEW with Pieretto C., "Redefining the city landscape - Standards in Sappada, Italy", published on ISOfocus, the magazine of the International Organization for Standardization; September-October 2018, 37-41, ISSN 2226-1095. Interview also published in Spanish and French, and republished by U&C n°9 October 2018 (journal of the Italian standardization body UNI).
- (2018) Speaker "Autonomy in planning the phases for obtaining product/process certifications and proposing Product Category Rules (PCR)", Project: 69-19-687-2017; Intervention: Dematerialization and plant engineering, 7 September 2018, Cerea (VR).
- (2018) Speaker "Presentation of the LIFE Programme - The LIFE Programme: over 25 years of support for nature, the environment and the climate". Life Day 2018, 26 May 2018, Padova.
- (2018) Speaker "LIFE M&M Man and Metal Project". Life Day 2018, 26 May 2018, Padova.
- (2018) Participation in the Press Conference on the Project "Sappada: Sustainable Community", University of Padova, 11 May 2018.
- (2018) SPEAKER "The path of the Municipality of Sappada towards ISO 37101 certification, Sustainable Development in Communities – Management System for Sustainable Development", 20 March 2018, Sappada (UD).
- (2017) SPEAKER "The EMAS registration of the Municipality of Malcesine", 7 November 2017, Malcesine (VR).
- (2017) SPEAKER "Presentation of the Life Program", 30 June 2017, Firenzuola (Fi).
- (2017) SPEAKER "Presentation of the LIFE Programme - The LIFE Programme: over 25 years of support for nature, the environment and the climate". Life Day 2017, 27 May 2017, Padova.
- (2017) SPEAKER "LIFE M&M Man and Metal Project". Life Day 2017, 27 May 2017, Padova.
- (2017) SPEAKER "The ISO 37101 standard for sustainable communities". AICQ (Italian Association of Quality Culture) Conference "The Circular Economy, a tool for savings and financial development for the competitiveness of work", 7 April 2017, La Sapienza University, Rome.
- (2016) SPEAKER "Procurement management in the Public Administration", 6 December 2016, Malcesine (VR).
- (2016) SPEAKER "Procurement management in the Public Administration", 22 November 2016, Teolo (PD).
- (2016) RAPPORTEUR "Procedure for the labelling of food products", 12 October 2016, S. Maria di Sala (VE)
- (2016) RAPPORTEUR with Scipioni A., "Procedure for the labelling of food products", 5 October 2016, Vicenza

- (2016) SPEAKER "Presentation of the LIFE Programme - The LIFE Programme: over 25 years of support for nature, the environment and the climate". Life Day 2016, 28 May 2016, Padova.
- (2016) SPEAKER "Life of Water is man Life Project". Life Day 2016, 28 May 2016, Padova.
- (2016) RAPPORTEUR with Scipioni A., "Labelling of food products: mandatory nutrition declaration", 17 May 2016, Padova.
- (2015) SPEAKER "Presentation of the LIFE Programme - The LIFE Programme: more than 25 years of support for nature, the environment and the climate". Life Day 2015, 23 May 2015, Padova.
- (2015) RAPPORTEUR "New tools for strategic environmental management". Conference "The most widespread tools for strategic environmental management", 28 January 2015, Vicenza.
- (2015) SPEAKER "Tools for Product Life Cycle Management". Conference "The most widespread tools for strategic environmental management", 28 January 2015, Vicenza.
- (2015) SPEAKER at the seminar "Tools and techniques to support environmental excellence", for the course "Information to support business decisions and their use in the generational transition" organized by Cescot Veneto.
- (2014) SPEAKER at the press conference at VeronaFiere for the project for the Quantification of the carbon footprint of the "Smart Energy" fair (the project was part of the ministerial funding line (Ministerial Decree no. 468 of 19 May 2011 – Access to financing, under the "de minimis" regime, of projects for the analysis of the carbon footprint in the life cycle of consumer products), 15 October 2014, Verona.
- (2014) SPEAKER at the seminar "Global tourism trends", for the course "Advisor for the development and growth of tourism businesses and business networks" organized by Cescot Veneto.
- (2014) SPEAKER at the seminar "Global tourism trends", for the course "Advisor for new forms of eco-sustainable and innovative incoming tourism" organized by Cescot Veneto.
- (2014) SPEAKER at the seminar "Global tourism trends", for the course "Specialist in the promotion and sale of the tourism product and expert in territorial marketing" organized by Cescot Veneto.
- (2014) SPEAKER "The strategic value of Life Cycle Assessment for the improvement of corporate environmental performance". Conference Strategic Environmental Management: the future of environmental management for Italian companies, on the occasion of the ISO Working Tables for the revision of the ISO 14001 and ISO 14004 Standards, 27 February 2014, Padova.
- (2013) RAPPORTEUR "Waste management", 29 May 2013, Conco (VI).
- (2012) RAPPORTEUR "Waste management", 7 June 2012, Conco (VI).

Editorial Board:

- ✓ Since 2025 Associate Editor-in-Chief for Environment, Development and Sustainability (Springer Netherlands, ISSN 1387585X, 15732975, Coverage: 1999-

2023). The journal is in Quartile 1 for the category, "Geography, Planning and Development" (IF 2023: 4.7, Scopus 95%)

- ✓ (2021 – 2024) Associate Editor for Environment, Development and Sustainability (Springer Netherlands, ISSN 1387585X, 15732975, Coverage: 1999-2023). The journal is in Quartile 1 for the category, "Geography, Planning and Development" (IF 2023: 4.7, Scopus 95%)
- ✓ (2021 - 2023) Member of the Working Group for the training of future Associate Editors for Environment, Development and Sustainability. Coordinator of the group composed of early stage researchers of different nationalities.
- ✓ (2019 – 2024) Associate Editor for Frontiers in Sustainability

Membership:

- ✓ (2019 – ongoing) MEMBER of the Italian Academy of Commodity Sciences (AISME);
- ✓ (2019 – ongoing) MEMBER Italian Academy of Business Economics (AIDEA);
- ✓ (2023 – ongoing) MEMBER Italian Society of Management (SIMA). Thematic groups: Supply chain management, logistics & operations; Tourism and culture management;
- ✓ (2022 – ongoing) Academic MEMBER of the Global Logistics Emissions Council (GLEC);
- ✓ (2022 – ongoing) MEMBER Society of Environmental Toxicology and Chemistry (SETAC);
- ✓ (2018 – ongoing) MEMBER of the Italian LCA Network Association. Participation in the National Working Groups "Waste Management and Treatment", "Construction", "Tourist Services", "Social Life Cycle Assessment".

Reviewer for the following journals:

- ✓ *Resources conservation and recycling*
- ✓ *Science of the Total Environment*
- ✓ *Journal of Cleaner Production*
- ✓ *International Journal of Production Economics*
- ✓ *Chemosphere*,
- ✓ *Energy sustainability and society*,
- ✓ *Environment, Development and Sustainability*,
- ✓ *International journal of energy research*,
- ✓ *Journal of Renewable and Sustainable Energy*,
- ✓ *Technological Forecasting and Social Change*,
- ✓ *Transportation research part D*,
- ✓ *Environmental Impact Assessment Review*,
- ✓ *Current opinion in green and sustainable chemistry*
- ✓ *Sustainable Production and Consumption*

- ✓ *Elsevier – books*
- ✓ *Springer – books*

Guest Editor:

- (2024) Section on Circular Economy as a Driver for Achieving Sustainable Production and Consumption, with Jingzheng Ren, Yi Dou, Michael Evan Goodsite, Ziao Lin, Yuan Wang, Haofer Yu and Quanguo Zhang (Journal: Sustainable Production and Consumption)
- (2024) Section on Systems Thinking for Carbon Neutrality, with Jingzheng Ren, Yi Dou, Michael Evan Goodsite, Ziao Lin, Yuan Wang, Haofer Yu, and Quanguo Zhang (Journal: Sustainable Production and Consumption)

Trainings at companies:

I have carried out training activities for companies and specialization courses:

- ✓ (2022) Speech on "Life Cycle Assessment" 6 hours
- ✓ (2021) Speech on "Life Cycle Assessment: business applications" 64 hours
- ✓ (2021) Speech on "Application of the LCA methodology in the company, Type I, II and III environmental labeling" 12 hours
- ✓ (2021) Speech on "Life Cycle Assessment" 6 hours
- ✓ (2020-2021) Speeches on "Integrated Product Policy", "Corporate Sustainable Consumption and Production Strategies", "Environmental Product Declaration" 90 hours
- ✓ (2018) Speeches on "Autonomy in planning the phases for obtaining product/process certifications and proposing PCRs" and course "Demetallization and plant engineering" 15 hours
- ✓ (2018) Speech on "Adopting the culture of life cycle thinking: methods for impact assessment" 4 hours
- ✓ (2017) Interventions on "Initial Environmental Analysis (AAI), Context Analysis and Evaluation of Significance of Environmental Aspects" and "Environmental Performance Evaluation" specialization course specialized in sustainability and carbon footprint management; 8 hours
- ✓ (2016) Speech on "Initial Environmental Analysis and Evaluation of Significance of Environmental Aspects" specialization course on energy-environmental sustainability of production processes; 4 hours

8.3 Responsibility and/or participation in studies and research entrusted by third parties.

- ✓ (April 2024 – on going). Scientific manager of the execution of the Technical and Scientific Assistance Contract between SGS Italy SPA and the Department of Management, University of Verona. Subject: verification activities in the field of Environmental Product Declaration, Product Carbon Footprint, GHG emissions. 12 months.

- ✓ (March 2023 – March 2024). Scientific manager of the execution of the Technical and Scientific Assistance Contract between SGS Italy SPA and the Department of Management, University of Verona. Subject: verification activities in the field of Environmental Product Declaration, Product Carbon Footprint, GHG emissions. 12 months.
- ✓ (March 2022 – March 2023). Scientific manager of the execution of the Technical and Scientific Assistance Contract between SGS Italy SPA and the Department of Management University of Verona. Subject: verification activities in the field of Environmental Product Declaration, Product Carbon Footprint, GHG emissions. 12 Months.

9. Publications

| <u>Articles</u> | <u>Type</u> |
|--|---|
| 1. Moktadir M.A., Zhou J., Ren J., Toniolo S. , 2025. A decision support framework for safe and sustainable by-design practices promoting circularity in waste-to-energy supply chains. <i>Sustainable Production and Consumption</i> , 54, 487-501 | <ul style="list-style-type: none"> • Impact Factor 2023: 10.9 • Scopus: 95% |
| 2. Ayub Y., Zhou J., Shi T., Toniolo S. , Ren J., 2025. Sustainability assessment of blue hydrogen production through biomass gasification: A comparative analysis of thermal, solar, and wind energy sources. <i>Bioresource Technology</i> , 418, 131798 | <ul style="list-style-type: none"> • Impact Factor 2023: 9.7 • Scopus: 97% |
| 3. Zhang, Q., Jiao Y., He C., Ruan R., Hu J., Ren J., Toniolo S. , Jian D., Lu C., Li Y., Man Y., Zhang H., Zhang Z., Xia C., Wang Y., Jing Y., Zhang X., Lin R., Li G., Yue J., Tahir N., 2024. Biological fermentation pilot-scale systems and evaluation for commercial viability towards sustainable biohydrogen production. <i>Nature Communications</i> , 15, 4539. https://doi.org/10.1038/s41467-024-48790-4 | <ul style="list-style-type: none"> • Impact Factor 2023: 14.7 • Scopus: 97% |
| 4. Toniolo S. , Russo I., Bravo I., 2024. Integrating product-focused life cycle perspectives in the fresh food supply chain: | <ul style="list-style-type: none"> • Impact Factor 2023: 10.9 • Scopus: 95% |

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| Revealing intra- and inter-organizational views. <i>Sustainable Production and Consumption</i> , 48, 46-61. | |
| 5. Shi T., Ayub Y., Toniolo S. , Ren J., 2024. Novel process optimization based on machine learning: A study on biohydrogen production from waste resources. <i>Biomass and Bioenergy</i> , 185, 107222 | <ul style="list-style-type: none"> • Impact Factor 2023: 5.8 • Scopus: 95% |
| 6. Toniolo S. , Pieretto C., Camana D., 2023. Improving sustainability in communities: Linking the local scale to the concept of sustainable development. <i>Environmental Impact Assessment Review</i> , 101, 107126. https://doi.org/10.1016/j.eiar.2023.107126 | <ul style="list-style-type: none"> • Impact Factor 2023: 9.8 • Scopus: 97% |
| 7. Toniolo S. , Pieretto C., Camana D., 2023. A lifecycle-based indicator to support residual solid waste flow planning at the regional level. <i>Utilities Policy</i> , 82, 101525. https://doi.org/10.1016/j.jup.2023.101525 | <ul style="list-style-type: none"> • Impact Factor 2023: 3.8 • Scopus: 97% |
| 8. Toniolo S. , Marson A., Fedele A., 2023. Combining organizational and product life cycle perspective to explore the environmental benefits of steel slag recovery practices. <i>Science of the Total Environment</i> , 867, 161440. https://doi.org/10.1016/j.scitotenv.2023.161440 | <ul style="list-style-type: none"> • Impact Factor 2023: 8.2 • Scopus: 95% |
| 9. Ayub Y., Zhou J., Ren J., Wang Y., Shen W., He C., Dong L., Toniolo S. , 2023. Plasma gasification based monetization of poultry litter: System optimization and comprehensive 5E (Energy, Exergy, Emergy, Economic, and Environmental) analysis. <i>Energy Conversion and Management</i> , 282, 116878 https://doi.org/10.1016/j.enconman.2023.116878 | <ul style="list-style-type: none"> • Impact Factor 2023: 9.9 • Scopus: 98% |
| 10. Liu Y., Shi T., Yang A., Ren J., Shen W., He C., Toniolo S. , 2022. Sludge Valorization Process for Waste-to-Value-Added Products: Process Simulation, Sustainability Assessment, and Fuzzy Multi-Criteria Decision Making. <i>ACS Sustainable Chemistry & Engineering</i> , 10 (34), 11428-11440. https://doi.org/10.1021/acssuschemeng.2c03739 | <ul style="list-style-type: none"> • Impact Factor 2023: 7.1 • Scopus: 94% |

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| 11. Toniolo S. , Ren J., Sansa M., Zaimi K., 2022. Editorial: Sustainable life cycle assessment scenarios: Decision making perspectives. <i>Frontiers in Sustainability</i> , 3, 862706. https://doi.org/10.3389/frsus.2022.862706 | <ul style="list-style-type: none"> • Impact Factor 2023: - • Scopus: 61% |
| 12. Toniolo S. , Camana D., Guidolin A., Aguiari F., Scipioni A., 2021. Are design for disassembly principles advantageous for the environment when applied to temporary exhibition installations? <i>Sustainable Production and Consumption</i> , 28, 1262-1274 https://doi.org/10.1016/j.spc.2021.07.016 ISSN 2352-5509 | <ul style="list-style-type: none"> • Impact Factor 2023: 10.9 • Scopus: 95% |
| 13. Camana D., Toniolo S. , Manzardo A., Piron M., Scipioni A., 2021. Life cycle assessment applied to waste management in Italy: A mini-review of characteristics and methodological perspectives for local assessment. <i>Waste Management and Research</i> , 39(8), 1007-1026. https://doi.org/10.1177/0734242X211017979 | <ul style="list-style-type: none"> • Impact Factor 2023: 3.7 • Scopus: 82% |
| 14. Camana D., Manzardo A., Toniolo S., Gallo F., Scipioni A., 2021. Assessing environmental sustainability of local waste management policies in Italy from a circular economy perspective. An overview of existing tools. <i>Sustainable Production and Consumption</i> . 27, 613-629. 10.1016/j.spc.2021.01.029 | <ul style="list-style-type: none"> • Impact Factor 2023: 10.9 • Scopus: 95% |
| 15. Ren J., Toniolo S. , 2021 Interval reference point technique for sustainable industrial process selection under uncertainties. <i>Sustainable Production and Consumption</i> 27, 354-371. https://doi.org/10.1016/j.spc.2020.11.006 ISSN 2352-5509 | <ul style="list-style-type: none"> • Impact Factor 2023: 10.9 • Scopus: 95% |
| 16. Ren J., Toniolo S. , 2020. Hydrogen for better sustainability. <i>International Journal of Hydrogen Energy</i> . 45(59), 34293. https://doi.org/10.1016/j.ijhydene.2020.09.001 ISSN 0360-3199 (Editorial) | <ul style="list-style-type: none"> • Impact Factor 2023: 8.1 • Scopus: 95% |
| 17. Ren J., Ren X., Shen W., Man Y., Lin R., Liu Y., He C., Manzardo A., Toniolo S. , Dong L., 2020. Industrial System Prioritization using the Sustainability-Interval-Index Conceptual Framework with Life-Cycle Considerations. <i>AICbE J</i> , 66:e16961 https://doi.org/10.1002/aic.16961 ISSN 1547- | <ul style="list-style-type: none"> • Impact Factor 2023: 3.5 • Scopus: 77% |

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| 18. Mazzi A., Spagnolo M., Toniolo S. , 2020. External communication on legal compliance by Italian waste treatment companies. <i>Journal of Cleaner Production</i> 255, 120325. DOI https://doi.org/10.1016/j.jclepro.2020.120325 (ISSN 0959-6526) | <ul style="list-style-type: none"> • Impact Factor 2023: 9.7 • Scopus: 98% |
| 19. Toniolo S. , Mazzi A., Mazzarotto G., Scipioni A., 2019 International standards with a life cycle perspective: which dimension of sustainability is addressed? <i>International Journal of Life Cycle Assessment</i> 24, 1765–1777; DOI https://doi.org/10.1007/s11367-019-01606-w , ISSN 1614-7502 | <ul style="list-style-type: none"> • Impact Factor 2023: 4.9 • Scopus: 87% |
| 20. Toniolo S. , Mazzi A., Simonetto M., Zuliani F., Scipioni A., 2019 Mapping diffusion of Environmental Product Declarations released by European Program Operators, <i>Sustainable Production and Consumption</i> , 17, 85-94, DOI 10.1016/j.spc.2018.09.004 , ISSN 2352-5509 | <ul style="list-style-type: none"> • Impact Factor 2023: 10.9 • Scopus: 95% |
| 21. Ren J., Toniolo S. , 2018 Life cycle sustainability decision-support framework for ranking of hydrogen production pathways under uncertainties: An interval multi-criteria decision making approach, <i>Journal of Cleaner Production</i> , 175, 222-236, DOI 10.1016/j.jclepro.2017.12.070 , ISSN 0959-6526 | <ul style="list-style-type: none"> • Impact Factor 2023: 9.7 • Scopus: 98% |
| 22. Loss A., Toniolo S. , Mazzi A., Manzardo A., Scipioni A., 2018 LCA comparison of traditional open cut and pipe bursting systems for relining water pipelines, <i>Resources Conservation and Recycling</i> , 128, 458-469, http://dx.doi.org/10.1016/j.resconrec.2016.08.001 , ISSN 0921-3449 | <ul style="list-style-type: none"> • Impact Factor 2023: 11.2 • Scopus: 99% |
| 23. Toniolo S. , Mazzi A., Pieretto C., Scipioni A., 2017, Allocation strategies in comparative life cycle assessment for recycling: Considerations from case studies, <i>Resources Conservation and Recycling</i> , 117, 249-261, DOI http://dx.doi.org/10.1016/j.resconrec.2016.10.011 ISSN 0921-3449 | <ul style="list-style-type: none"> • Impact Factor 2023: 11.2 • Scopus: 99% |
| 24. Toniolo S. , Mazzi A., Fedele A., Aguiari F., Scipioni A., 2017, Life Cycle Assessment to | <ul style="list-style-type: none"> • Impact Factor 2023: 9.8 |

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| support the quantification of the environmental impacts of an event, <i>Environmental Impact Assessment Review</i> , 63, 12-22; 10.1016/j.eiar.2016.07.007, ISSN 0195-9255 | <ul style="list-style-type: none"> • Scopus: 97% |
| 25. Mazzi A., Toniolo S. , Catto S., De Lorenzi V., Scipioni A., 2017, The combination of an Environmental Management System and Life Cycle Assessment at the territorial level, <i>Environmental Impact Assessment Review</i> , 63, 59-71; http://dx.doi.org/10.1016/j.eiar.2016.11.004 , ISSN 0195-9255 | <ul style="list-style-type: none"> • Impact Factor 2023: 9.8 • Scopus: 97% |
| 26. Mazzi A., Toniolo S. , Manzardo A., Ren J., Scipioni A., 2016. Exploring the Direction on the Environmental and Business Performance Relationship at the Firm Level. Lessons from a Literature Review, <i>Sustainability</i> , 8, 1200-1225, DOI http://dx.doi.org/10.3390/su8111200 , ISSN 2071-1050 | <ul style="list-style-type: none"> • Impact Factor 2023: 3.3 • Scopus: 88% |
| 27. Mazzi A., Toniolo S. , Mason M., Aguiari F., Scipioni A., 2016, What are the benefits and difficulties in adopting an environmental management system? The opinion of Italian organizations, <i>Journal of Cleaner Production</i> , 139, 873-885, http://dx.doi.org/10.1016/j.jclepro.2016.08.053 , ISSN 0959-6526 | <ul style="list-style-type: none"> • Impact Factor 2023: 9.7 • Scopus: 98% |
| 28. Toniolo S. , Aricò F., Tundo P., 2014, A comparative environmental assessment for the synthesis of 1,3-oxazin-2-one by metrics: Greenness evaluation and blind spots, <i>ACS Sustainable Chemistry and Engineering</i> , 2, 1056-1062, DOI 10.1021/sc500070t, ISSN 21680485 | <ul style="list-style-type: none"> • Impact Factor 2023: 7.1 • Scopus: 94% |
| 29. Toniolo S. , Mazzi A., Garato V.G., Aguiari F., Scipioni A., 2014, Assessing the “design paradox” with life cycle assessment: A case study of a municipal solid waste incineration plant, <i>Resources, Conservation and Recycling</i> , 91, 109-116, 10.1016/j.resconrec.2014.08.001, ISSN 0921-3449 | <ul style="list-style-type: none"> • Impact Factor 2023: 11.2 • Scopus: 99% |
| 30. Toniolo S. , Mazzi A., Niero M., Zuliani F., Scipioni A., 2013, Comparative LCA to evaluate how much recycling is environmentally favourable for food packaging, <i>Resources</i> , | <ul style="list-style-type: none"> • Impact Factor 2023: 11.2 • Scopus: 99% |

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| <i>Conservation and Recycling</i> , 77, pp. 61-68, ISSN 0921-3449 | |
| 31. Ren J., Manzardo A., Toniolo S. , Scipioni A., Tan S., Dong L., Gao S., 2013, Design and Modelling of Sustainable Bioethanol Supply Chain by Minimizing the Total Ecological Footprint in Life Cycle Perspective, <i>Bioresource Technology</i> , 146, pp. 771-774, ISSN: 0960-8524 | <ul style="list-style-type: none"> • Impact Factor 2023: 9.7 • Scopus: 97% |
| 32. Ren J., Manzardo A., Toniolo S. , Scipioni A., 2013, Sustainability of Hydrogen Supply Chain. Part I: Identification of critical criteria and cause-effect analysis for enhancing the sustainability using DEMATEL, <i>International Journal of Hydrogen Energy</i> , 38, pp. 14159-14171, ISSN: 0360-3199 | <ul style="list-style-type: none"> • Impact Factor 2023: 8.1 • Scopus: 95% |
| 33. Ren J., Manzardo A., Toniolo S. , Scipioni A., 2013, Sustainability of Hydrogen Supply Chain. Part II: Prioritizing and classifying the sustainability of hydrogen supply chains based on the combination of extension theory and AHP, <i>International Journal of Hydrogen Energy</i> , 38, pp. 13845-13855, ISSN: 0360-3199 | <ul style="list-style-type: none"> • Impact Factor 2023: 8.1 • Scopus: 95% |

Book editing

Ren J., **Toniolo S.** 2019 (Editors) “Life Cycle Sustainability Assessment for Decision-Making. Methodologies and Case Studies, 39-56, Elsevier Eds. ISBN 9780128183557 <https://doi.org/10.1016/B978-0-12-818355-7.00003-8>

| Conference proceedings | Type |
|--|---|
| 1. Bravo I., Toniolo S. , Papetti P., 2023. The Environmental Impacts in Aquaculture Production, Current Perspectives and Future Challenges. In Second Workshop SETAC ITALIAN LANGUAGE BRANCH- Rome, 11 October 2023. Consiglio Nazionale delle Ricerche, Sala Marconi (Rome). Book of Abstracts. ISBN (e-book): 97888897655121 | <ul style="list-style-type: none"> • National conference • Abstract |

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| 2. Toniolo S. , Russo I., 2022. The Environmental Impacts of E-Commerce: A Literature Review. In <i>ICRS 2022 International Conference on Resource Sustainability</i> . | <ul style="list-style-type: none"> • International conference • Abstract |
| 3. Toniolo S. , Russo I., 2022. Exploring the solutions to decarbonize warehousing operations. In <i>SETAC Europe 25th LCA Symposium “The Role of LCA in Raw Material Sustainability, Circularity and Criticality”</i> | <ul style="list-style-type: none"> • International conference • Abstract |
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