

CURRICULUM VITAE ET STUDIORUM**PROF. GIANPIERO PATARO****Formazione**

[2000 - 2004]. Dottorato di ricerca in Ingegneria Chimica presso l'Università degli Studi di Salerno. Titolo tesi: The utilization of pulsed electric fields in food stabilization.

[2000]. Laurea con lode in Ingegneria Chimica presso l'Università degli Studi della Calabria. Titolo tesi: L'influenza della temperatura e della velocità operativa sulle proprietà della fase densa e della fase bolle di letti di solidi fluidizzati.

Esperienze professionali

[2019–Presente] Professore Associato (S.S.D. ICHI-02/A Impianti Chimici, già ING-IND/25 Impianti Chimici), Dipartimento di Ingegneria Industriale, Università degli Studi di Salerno.

[2021–2024] Socio cofondatore della start-up Natural Extracts & More (NE&M S.r.l.), spin-off dell'Università degli Studi di Salerno.

[2017–presente] Referente per l'Università degli Studi di Salerno presso il Bio-based Industries Consortium (BIC)

[2006–2019] Ricercatore Universitario (S.S.D. ING-IND/25 Impianti Chimici), Dipartimento di Ingegneria Industriale, Università degli Studi di Salerno.

[2005–2024] Collaborazione scientifica con ProAl S.c.a r.l., società consortile partecipata dall'Università degli Studi di Salerno e dedicata al trasferimento tecnologico nel settore agroalimentare. Le attività svolte hanno riguardato la ricerca applicata e il supporto a progetti di innovazione nei campi delle tecnologie avanzate termiche e non termiche, della sanificazione di alimenti liquidi, solidi e particellari, nonché delle tecnologie innovative di estrazione da biomassa algale e da scarti e sottoprodotti agroalimentari.

Nel corso degli anni, tale collaborazione si è concretizzata sia nell'assunzione di responsabilità scientifiche nell'ambito di progetti di ricerca finanziati con fondi pubblici, sia in incarichi di collaborazione e consulenza relativi a commesse affidate a ProAl da enti pubblici e imprese private.

[2018–2024] Componente del Consiglio di Amministrazione di ProAl S.c.a r.l.

[Febbraio 2014 - Aprile 2014]. Visiting Scientist presso il gruppo del Dr. W. Frey - Karlsruhe Institute of Technology (Karlsruhe, Germany) – “Estrazione assistita da PEF di composti di interesse per l'industria alimentare da microalghe”.

[Aprile 2008 - Ottobre 2008]. Visiting Scientist presso il gruppo del Prof. J. Lyng - Institute of Food and Health, University College Dublin (Dublin, Ireland) – “Applicazioni di tecnologie non-termiche, in particolare luce pulsata ed ultrasuoni, nella pastorizzazione di succhi di frutta”.

Attività didattica e supervisione di dottorato

Docente presso il Dipartimento di Ingegneria Industriale dell'Università degli Studi di Salerno, nell'ambito dei corsi di laurea triennale e magistrale. Incarichi di insegnamento nei corsi di:

- Unit Operations of Chemical Engineering/Impianti Chimici (Laurea in Ingegneria Chimica),
- Gestione degli Impianti di Processo (Laurea in Ingegneria Gestionale),
- Biochemical and Food Plant Design (Laurea Magistrale in Food Engineering).

Attività di ricerca

L'attività di ricerca del Prof. Pataro riguarda l'applicazione di tecnologie emergenti termiche (Riscaldamento Ohmico) e non termiche (Campi Elettrici Pulsati, Luce UV Pulsata, Ultrasuoni) nei processi alimentari e biotecnologici.

Le principali linee di ricerca comprendono:

- Tecnologie innovative per il miglioramento della sicurezza, della qualità e della funzionalità degli alimenti trasformati.

- Tecnologie innovative e sostenibili per il recupero di bioprodotto da scarti agroalimentari e biomasse microalgali.
- Valutazione tecnico-economica, dell'efficienza energetica e dell'impatto ambientale di impianti tradizionali e innovativi nel settore alimentare

Supervisione di dottorato

Relatore di dottorandi impegnati in attività di ricerca riguardanti processi di estrazione assistiti da campi elettrici pulsati (PEF), valorizzazione di biomasse e sottoprodotti agroalimentari, trasformazione sostenibile degli alimenti e tecnologie innovative per la stabilizzazione e la funzionalizzazione degli alimenti. Tesi di dottorato supervisionate/co-supervisionate: E. Rrucaj (2020–2024), “Sustainable valorization of agri-food residues”; E. Eslami (2020–2024), “Water/energy reduction and waste valorization in the canning industry”; D. Carullo (2015–2019), “Electrotechnologies for the extraction of valuable compounds from residues, by-products and biomass”; M.A.B. Siddique (2014–2017), “Utilization of innovative technologies for the production of low-allergenic foods”; T. Lanza (2006–2010), “Ohmic heating of food matrices”.

Appartenenza a società scientifiche

[2016–Presente] Membro della International Society for Electroporation-Based Technologies and Treatments (ISEBTT)

Progetti di ricerca

[2025–2027] Project 1.6, “Efficienza energetica dei prodotti e dei processi industriali”, nell’ambito del Programma di Ricerca per il Sistema Elettrico — PTR 2025–2027, finanziato dal Ministero dell’Ambiente e della Sicurezza Energetica, CUP: I53C24003340001. Ruolo: Coordinatore locale.

[2024–2026] Progetto NUBIA, “Nuovi biocompositi per applicazioni automotive”, finanziato dal Ministero dell’Università e della Ricerca, CUP: D43C18000070001. Ruolo: Partecipante.

[2023–2027] Progetto DEEP, “Digitalisation of Nonthermal Extraction of Proteins from Plant By-products and Electroforming as Output Product”, HRZZ IP-2022-10-2207, sostenuto dalla Fondazione Croata per la Scienza. Ruolo: Partecipante.

[2022–2025] NBFC – National Biodiversity Future Center, finanziato nell’ambito del PNRR 2022 del Ministero dell’Università e della Ricerca, CUP: D43C22001260001. Ruolo: Partecipante.

[2022–2024] Project 1.6, “Efficienza energetica dei prodotti e dei processi industriali”, nell’ambito del Programma di Ricerca per il Sistema Elettrico — PTR 2022–2024, finanziato dal Ministero dell’Ambiente e della Sicurezza Energetica, CUP: D43C22001260001. Ruolo: Coordinatore locale.

[2021–2024] Progetto VALICET, “Valorise Foods and Improve Competitiveness through Emerging Technologies Applied to Food By-products within the Circular Economy Framework”, CUP: B45F20003170005, finanziato dal Ministero dell’Università e della Ricerca nell’ambito del bando PRIMA Sezione 2 – Filiera agroalimentare 2020. Ruolo: Coordinatore locale.

[2020–2024] Progetto AccelWater, “Accelerating Water Circularity in Food and Beverage Industrial Areas around Europe”, ID: 958266, finanziato dal programma Horizon 2020, azione H2020-LCCI-2020-EASME-singlestage. Ruolo: Partecipante.

[2017–2020] Progetto VIPACFood, “Valorization of Industrial Fruit By-products and Algal Biomass Waste: Development of Active Coatings to Extend Food Shelf Life and Reduce Food Losses”, finanziato nell’ambito del bando ERA-NET ARIMNet2 Call 2016 — Coordinamento della ricerca agricola nel Mediterraneo, 7° Programma Quadro per la Ricerca, lo Sviluppo Tecnologico e la Dimostrazione. Ruolo: Partecipante.

[2015–2018] Progetto FieldFOOD, “Integration of Pulsed Electric Field Technology in Food Processing for Improving Food Quality, Safety and Competitiveness”, grant agreement n. 635632, finanziato dal programma Horizon 2020 dell’Unione Europea, H2020-SFS-17-2014-2. Ruolo: Partecipante.

[2012–2016] EP4Bio2Med – European Network for Development of Electroporation-Based Technologies and Treatments, Azione COST TD1104, finanziata dall'Unione Europea. Ruolo: Partecipante.

LISTA DELLE PUBBLICAZIONI DEL PROF. PATARO SU RIVISTE (ULTIMI 10 ANNI)

- Golberg, A., Sack, M., Teissie, J., Pataro, G., Pliquett, U., Saulis, G., Stefan, T., Miklavcic, D., Vorobiev, E., & Frey, W. (2016). Energy-efficient biomass processing with pulsed electric fields for bioeconomy and sustainable development. *Biotechnol Biofuels*, 9:94. DOI 10.1186/s13068-016-0508-Z.
- Quagliariello, V., Iaffaioli, R.V., Falcone, M., errari, G., Pataro, G., & Donsi, F. (2016). Effect of pulsed electric fields – assisted extraction on anti-inflammatory and cytotoxic activity of brown rice bioactive compounds. *Food Res Int*, 87, 115–124.
- Lamanuskas, N., Pataro, G., Bobinaši, Č., Šatkauskas, S., Viškelis, P., Bobinaite, R., and Ferrari, G. (2016). Impact of pulsed electric field treatment on juice yield and recovery of bioactive compounds from raspberries and their by-products. *Zemdirbyste*, vol. 103, No. 1, p. 83–90.
- Raso, J., Frey, W., Ferrari, G., Pataro, G., Knorr, D., Teissie, J., Miklavčič D. (2016). Recommendations guidelines on the key information to be reported in studies of application of PEF technology in food and biotechnological processes. *Innov Food Sci Emerg Technol*, 37, 312–321. <http://dx.doi.org/10.1016/j.ifset.2016.08.003>.
- Poojary, M. M., Barba, F. J., Aliakbarian, B., Donsi, F., Pataro, G., Daniel A. Dias 1 and Juliano, P. (2016). Innovative Alternative Technologies to Extract Carotenoids from Microalgae and Seaweeds. *Mar. Drugs*, 14, 214; doi:10.3390/md14110214.
- 29 Siddique, Md A. B., Maresca, P., Pataro, G., Ferrari, G. (2016). Effect of pulsed light treatment on structural and functional properties of whey protein isolate. *Food Res Int*, 87, 189–196.
- Pataro, G., Goettel, M., Straessner, R., Gusbeth, C., Ferrari, G., and Frey, W. (2017). Effect of PEF Treatment on Extraction of Valuable Compounds from Microalgae *C. vulgaris*. *Chem. Eng. Trans*, 57, 67-72 DOI: 10.3303/CET1757012.
- Pataro G., Carullo D., Bobinaite R., Donsi G., Ferrari G. (2017). Improving the Extraction Yield of Juice and Bioactive Compounds from Sweet Cherries and their by-products by Pulsed Electric Fields. *Chem. Eng. Trans*, 57, 1717-1722. DOI: 10.3303/CET1757287.
- Pataro G., Bobinaite, R., Bobinas, Č., Šatkauskas, S., Raudonis, R., Visockis, M., Ferrari, G., Viškelis, P. (2017). Improving the Extraction of Juice and Anthocyanins from Blueberry Fruits and Their By-products by Application of Pulsed Electric Fields. *Food Bioprocess Technol*, DOI 10.1007/s11947-017-1928-x.
- Bakar Siddique, Md A., Maresca, P., Pataro, G., Ferrari, G. (2017). Influence of pulsed light treatment on the aggregation of whey protein isolate. *Food Res Int*, 99, 419-425.
- Özge Taştan, Gianpiero Pataro, Gianpiero Pataro, Giovanna Ferrari, Taner Baysal (2017). Decontamination of fresh-cut cucumber slices by a combination of a modified chitosan coating containing carvacrol nanoemulsions and pulsed light. *Int J Food Microbiol*, 2, 75-80.
- Carullo, G., Demelash Abera, B., Casazza, B. B., Donsi, F., Perego, P., Ferrari, G., Pataro G. (2018). Effect of pulsed electric fields and high pressure homogenization on the aqueous extraction of intracellular compounds from the microalgae *Chlorella vulgaris*. *Algal Res*, 31 60–69
- Arnal, Á.J.; Royo, P.; Pataro, G.; Ferrari, G.; Ferreira, V.J.; López-Sabirón, A.M.; Ferreira, G.A. Implementation of PEF Treatment at Real-Scale Tomatoes Processing Considering LCA Methodology as an Innovation Strategy in the Agri-Food Sector. *Sustainability* 2018, 10, 979.
- Mustafa, W., Pataro, G., Ferrari, G., Donsi, F. (2018). Novel approaches to oil structuring via the addition of high-pressure homogenized agri-food residues and water forming capillary bridges. *J Food Eng*, 236, 9-18.
- Pataro, G., Carullo, D., Bakar Siddique, Md A., Falcone, M., Donsi, F., Ferrari, G. (2018). Improved extractability of carotenoids from tomato peels as side benefits of PEF treatment of tomato fruit for more energy-efficient steam-assisted peeling. *J Food Eng*, 233, 65-73.
- Pataro G., Carullo D., Ferrari G., 2019, PEF-assisted Supercritical CO2 Extraction of Pigments from Microalgae *Nannochloropsis Oceanica* in a Continuous Flow System, *Chemical Engineering Transactions*, 74, 97-102 DOI:10.3303/CET1974017.
- Pataro G., Carullo D., Ferrari G., 2019, Effect of Pef Pre-treatment and Extraction Temperature on the Recovery of Carotenoids from Tomato Wastes , *Chemical Engineering Transactions*, 75, 139-144 DOI:10.3303/CET1975024

- Frontuto, D., Carullo, D., Harrison, S. M., Brunton, N. P., Ferrari, G., Lyng, J. G., & Pataro, G. (2019). Optimization of Pulsed Electric Fields-Assisted Extraction of Polyphenols from Potato Peels Using Response Surface Methodology. *Food and Bioprocess Technology* <https://doi.org/10.1007/s11947-019-02320-z>
- Pataro, G., Carullo, D., Falcone, M., Ferrari, G. (2020). Recovery of lycopene from industrially derived tomato processing byproducts by pulsed electric fields-assisted extraction. *Innovative Food Science & Emerging Technologies*, 63, 1-10. DOI:10.1016/j.ifset.2020.102369.
- Carullo, D., Pataro, G., Donsi, F., and Ferrari, G., 2020. Pulsed Electric Fields-Assisted Extraction of Valuable Compounds from *Arthrospira Platensis* : Effect of pulse polarity and mild heating. *Front. Bioeng. Biotechnol.* 8:551272. doi: 10.3389/fbioe.2020.551272
- Pataro, G., and Ferrari, G. (2020). Limitation of electrochemical reactions. pp.283-310. In *pulsed electric fields to obtain healthier and sustainable food for tomorrow* - ISBN:978-0-12-816402-0
- Denoya, G.I., Pataro, G., Ferrari, G., (2020). Effects of postharvest pulsed light treatments on the quality and antioxidant properties of persimmons during storage. DOI:10.1016/j.postharvbio.2019.111055. pp.1-7. In *postharvest biology and technology* - ISSN:0925-5214 vol. 160
- Guillermo Badillo, Patricio Cumsille, Luis Segura-Ponce, Gianpiero Pataro, Giovanna Ferrari (2020). An efficient optimization methodology of respiration rate parameters coupled with transport properties in mass balances to describe modified atmosphere packaging systems. DOI:10.1080/17415977.2020.1717488. pp.1-23. In *Inverse Problems in Science & Engineering* - ISSN:1741-5977
- Nutrizio, M., Pataro, G., Carullo, D., Carpentieri, S., Mazza, L., Ferrari, G., Chemat, F., Banović, M., and Jambrak, A.R. (2020). High Voltage Electrical Discharges as an Alternative Extraction Process of Phenolic and Volatile Compounds from Wild Thyme (*Thymus serpyllum* L.): In Silico and Experimental Approaches for Solubility Assessment. *Molecules*, 25, 4131; doi:10.3390/molecules25184131
- Pirozzi, A., Pataro, G., Donsi, F., Ferrari, G. (2020). Edible Coating and Pulsed Light to Increase the Shelf Life of Food Products. *Food Engineering Reviews*
- Annachiara Pirozzi, Vittoria Del Grosso, Giovanna Ferrari, Gianpiero Pataro, Francesco Donsi (2021). Combination of Edible Coatings Containing Oregano Essential Oil Nanoemulsion and Pulsed Light Treatments for Improving the Shelf Life of Tomatoes. *CHEMICAL ENGINEERING TRANSACTIONS*, vol. 87, p. 61-66, ISSN: 2283-9216, doi: 10.3303/CET2187011
- Daniele Carullo, Francesco Donsi, Giovanna Ferrari, Gianpiero Pataro (2021). Extraction improvement of water-soluble compounds from *Arthrospira platensis* through the combination of high-shear homogenization and pulsed electric fields. *ALGAL RESEARCH*, vol. 57, p. 1-9, ISSN: 2211-9264, doi: 10.1016/j.algal.2021.102341
- Vicente M. Gomez-Lopez, Gianpiero Pataro, Brijesh Tiwaric, Mario Gozzi, Vicente M. Gomez-Lopez, Gianpiero Pataro, Brijesh Tiwari, Mario Gozzi, Maria Angela A. Meireles, Shaojin Wang, Buenaventura Guamis, Zhongli Pan, Hosahalli Ramaswamy, Sudhir Sastry, Florent Kuntz, Patrick J. Cullen, Sriram K. Vidyarthi, Bo Ling, Joan Miquel Quevedo, Alain Strasser, Giuseppe Vignali, Priscilla C. Veggi, Ramon Gervilla, Heidi Maria Kotilainen, Massimiliano Pelacci, Juliane Vigano, and Antonio Morata (2021). Guidelines on reporting treatment conditions for emerging technologies in food processing. *CRITICAL REVIEWS IN FOOD SCIENCE AND NUTRITION*, p. 1-24, ISSN: 1040-8398, doi: 10.1080/10408398.2021.1895058
- Pataro G., Ferrari G. (2021). Improving the Extraction of Juice And Bioactive Compounds from Blueberry Fruits and Their By-Products by Application of Moderate Electric Field (MEF). *CHEMICAL ENGINEERING TRANSACTIONS*, p. 157-162, ISSN: 2283-9216, doi: 10.3303/CET2187027
- Massimo Poletto, Donatella Albanese, Stefano Cardea, Francesco Donsi, Francesco Marra, Michele Miccio, Gianpiero Pataro (2021). Joint Faculty Approach to Active Learning in Master Classes of Food Technology and Engineering. *CHEMICAL ENGINEERING TRANSACTIONS*, vol. 87, p. 595-600, ISSN: 2283-9216, doi: 10.3303/CET2187100

- Rémy Junqua, Daniele Carullo, Giovanna Ferrari, Gianpiero Pataro, Rémy Ghidossi (2021). Ohmic heating for polyphenol extraction from grape berries: an innovative prefermentary process. *OENO ONE*, vol. 3, p. 39-51, ISSN: 2494-1271, doi: 10.20870/oeno-one.2021.55.3.4647
- Bianca Chiericato Maniglia, Gianpiero Pataro, Giovanna Ferrari, Pedro Esteves Duarte Augusto, Patricia Le-Bail, Alain Le-Bail (2021). Pulsed electric fields (PEF) treatment to enhance starch 3D printing application: Effect on structure, properties, and functionality of wheat and cassava starches. *INNOVATIVE FOOD SCIENCE & EMERGING TECHNOLOGIES*, vol. 68, p. 1-10, ISSN: 1466-8564, doi: 10.1016/j.ifset.2021.102602
- Serena Carpentieri, Luisa Mazza, Marinela Nutrizio, Anet R. Jambrak, Giovanna Ferrari, Gianpiero Pataro (2021). Pulsed electric fields- and ultrasound-assisted green extraction of valuable compounds from *Origanum vulgare* L. and *Thymus serpyllum* L.. *INTERNATIONAL JOURNAL OF FOOD SCIENCE & TECHNOLOGY*, p. 1-9, ISSN: 0950-5423, doi: 10.1111/ijfs.15159
- Carpentieri S, Režek Jambrak A, Ferrari G and Pataro G (2022) Pulsed Electric Field-Assisted Extraction of Aroma and Bioactive Compounds From Aromatic Plants and Food By-Products. *Front. Nutr.* 8:792203. doi: 10.3389/fnut.2021.792203
- Carullo, D., Abera, B.D., Scognamiglio, M., Donsi, F., Ferrari, G., & Pataro, G. (2022). Application of Pulsed Electric Fields and High-Pressure Homogenization in Biorefinery Cascade of *C. vulgaris* Microalgae. *Foods*, 11(3), 471. <https://doi.org/10.3390/foods11030471>.
- Carpentieri, S., Ferrari, G., & Pataro, G. (2022). Optimization of Pulsed Electric Fields-Assisted Extraction of Phenolic Compounds From White Grape Pomace Using Response Surface Methodology. *Front. Sustain. Food Syst.*, 6, 854968.
- Carpentieri, S., Augimeri, G., Ceramella, J., Vivacqua, A., Sinicropi, M. S., Pataro, G., et al. (2022). Antioxidant and anti-inflammatory effects of extracts from pulsed electric field-treated artichoke by-products in lipopolysaccharide-stimulated human THP-1 macrophages. *Foods*, 11(15), 2250. <https://doi.org/10.3390/foods11152250>.
- Eslami, Carpentieri, Pataro, & Ferrari, published in *Foods* (2023), Volume 12, Issue 1, Page 166, with DOI: 10.3390/foods12010166 .
- Carpentieri, A., & et al. (2023). Pulsed electric fields-assisted extraction of valuable compounds from red grape pomace: Process optimization using response surface methodology. *Frontiers in Nutrition*, 10, 1158019. doi.org
- Rrucaj, E., Carpentieri, S., Siano, F., Ferrari, G., & Pataro, G. (2023). Optimizing the solvent extraction process for high-value compounds from sweet cherry press cake treated with pulsed electric fields using response surface methodology. *Frontiers in Food Science and Technology*, 3, 1273243. <https://doi.org/10.3389/frfst.2023.1273243>
- Eslami, E., Abdurrahman, E., Pataro, G., & Ferrari, G. (2024). Increasing sustainability in the tomato processing industry: environmental impact analysis and future development scenarios. *Frontiers in Sustainable Food Systems*, 8, 1400274. <https://doi.org/10.3389/fsufs.2024.1400274>
- Rrucaj, E., Carpentieri, S., Scognamiglio, M., Siano, F., Ferrari, G., & Pataro, G. (2024). Sustainable Valorization of Industrial Cherry Pomace: A Novel Cascade Approach Using Pulsed Electric Fields and Ultrasound Assisted-Extraction. *Foods*, 13(7), 1043. <https://doi.org/10.3390/foods13071043>
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- Eslami E, Donsi F, Ferrari G, Pataro G. (2024). Enhancing Cutin Extraction Efficiency from Industrially Derived Tomato Processing Residues by High-Pressure Homogenization. *Foods*. May 4;13(9):1415. doi: 10.3390/foods13091415. PMID: 38731786; PMCID: PMC11083356.
- Landi, G., Benedetti, M., Eslami, E., Ferrari, G., & Pataro, G. (2024). Cost, Energy Efficiency, and Environmental Impact Analysis of Orange Juice Pasteurization: Comparing Pulsed Electric Fields with Traditional Thermal Treatment. In *2024 IEEE International Conference on Environment and Electrical Engineering and 2024 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe)* (pp. 1–6). IEEE. DOI: 10.1109/EEEIC/ICPSEurope61470.2024.10751382.

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- Miccio, M., Fraganza, M., Cascone, G., Pataro, G., Rrucaj, E., Ferrari, G., Brachi, P., Migliaccio, R., Favot, M., Marchi, F., & Le Nouaille, E. (2024). Final Upcycling of Post-treatment Agri-food Residues by Torrefaction. *Chemical Engineering Transactions*, 109, 373–378. <https://doi.org/10.3303/CET24109063>.
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- Režek Jambrak A., Nutrizio M., Dukić J., Djekić I., Vinceković M., Jurić S., Pataro G., Tiwari B., Goksen G., Čakić Semenčić M., Slavica A., Sabljak I., Diminić J., Pecina E., Sabol A., Fabiano Tixier A.-S., Donsi F. (2025). Digitalisation, bioinformatics, and delivery systems in sustainable nonthermal extraction of proteins. *International Journal of Food Science & Technology*, 60(1), 38–61. DOI: 10.1093/ijfood/vvae038.
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