



Cristina Leonelli is Full Professor in Principles of Chemistry for Applied Technologies at the University of Modena and Reggio Emilia. Her field of interest is in solid state chemistry with particular interest in the reactivity of ceramic powders and transition from amorphous to crystalline state. She has a personal experience in designing new composition, preparation and characterization of different inorganic powders and bulk ceramic materials as well as application developments. She has also been active in the field of several innovative preparation techniques and

microwave heating applied to materials processing and synthesis.



Fabrizio Roncaglia is Assistant Professor in Organic Chemistry at the University of Modena and Reggio Emilia. His activities include the design and development of synthetic methods and “early scale-up” towards the production of high purity molecular targets. He is currently involved in collaborative projects in the field of sustainable chemistry (e.g. biorefineries), polymer chemistry as well as advanced materials for the energy sector.

Microwave and Ultrasound Activity of CHEMSPEED Ltd. Romania – New Challenges and Opportunities

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This year is representative for CHEMSPEED as we celebrate 15 years from the start of the activity in the field of microwave & ultrasound chemistry. All this period was exciting and fulfilled with new opportunities for the technological transfer for emergent technologies like microwave and ultrasound chemistry. Main domains of our activity are extraction of the active ingredients from vegetal biomass, microwave assisted pyrolysis of waste biomass, synergetic microwave & ultrasound synthesis of nanomaterials and several organic & inorganic compounds.

CHEMSPEED has developed multiple partnerships with national Universities and Research Institutions such as The Polytechnic University of Bucharest - Faculty of Chemical Engineering and Biotechnologies Department of Bioresources and Polymer Science and Faculty of Power Engineering; “Ilie Murgulescu” Institute of Physical Chemistry of the Romanian Academy; National Institute for Research & Development in Chemistry and Petrochemistry – ICECHIM; National Institute for Laser, Plasma and Radiation Physics – INFLPR; Banat University of

Agricultural Sciences and Veterinary Medicine of Timisoara – USAMVBT; National Research and Development Institute for Cryogenic and Isotopic Technologies – ICSI; international collaborations with: Microwave Technologies Consulting, Lyon, France; Department of Biological & Agricultural Engineering, Louisiana State University, USA; Sonochemistry Department of Coventry University, U.K.; SAIREM SAS, Lyon, France and much more.

CHEMSPEED’s main activity is based on technological transfer and industrial scale-up of the processes assisted by microwaves and ultrasounds. A few examples are: Sintchem Technologies Ltd. Romania – pilot plant for microwave-assisted extraction of rose essential oil from rose petals, Primosal Ltd., Romania – microwave-assisted synthesis of fire proofing products for wood and textile materials, Smartchem Solutions Ltd., Romania – microwave-assisted extraction of active ingredients from blackcurrant buds, walnut buds, rosehip buds, cedar branches for shampoo formulation with applications in the treatment of dry injuries from canine demodicosis, Activ Trade

Cleaning Services 2008 Ltd. Romania - microwave-assisted portable technology for pest control for the treatment, preservation, and conservation of heritage objects, unmovable wood structures, cultural and ecclesiastical objects.

About the author



Mariana Patrascu received her Ph.D. from Faculty of Applied Chemistry and Materials Science, University POLITEHNICA of Bucharest, Romania in 2012. In 2021, she completed a post-Doctoral study with the Faculty of Power Engineering, University

POLITEHNICA of Bucharest. She is an Associate of CHEMSPEED Ltd., Bucharest – Research & Development Laboratory in the field of microwave and ultrasound technology. She is a member of The Royal Society of Chemistry. Her research involves processes and technologies assisted by microwaves and ultrasounds. Mariana is (co)author of more than 30 national patents and of 5 international patents, 30 scientific publications in peer reviewed journals, and collaborator/lead of 20 research projects. During her activity of over 25 years in the field of microwave & ultrasound chemistry, she was awarded 5 gold medals at the International Inventions Fair in Geneva, Switzerland and the World Exhibition of Innovation, Research and New Technology “Eureka”, Bruxelles.