

Prof. Dr. Nicolas SBIRRAZZUOLI

University Professor of Exceptional Class (Higher grade)

Leader Eco-Friendly Materials and Polymers Team

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Nicolas Sbirrazzuoli, Professor of Exceptional Class at ICN, is widely recognized for his contributions in the field of bio-based polymers and biomass valorization. He received his PhD in 1992 from the University of Nice Sophia Antipolis focusing on polymeric materials and energy storage solutions, such as solar energy. He initiated the development of kinetic methods and programs to model temperature profiles using calorimetric data. During 1992-1993, as a post-doctoral researcher, he applied Artificial Neural Networks (ANNs) to chemistry. These techniques were applied with success to the recognition of chemical functions from FT-IR spectra, to the computation of kinetic parameters from DSC data, and to the deconvolution of calorimetric signals, demonstrating their robustness with missing or noisy data. In 1994, he became an Assistant Professor, continuing his research on polymers, including polymerization mechanisms, relaxation and crystallization, physical aging, and thermal degradation. In 2000, he was appointed a full Professor at the University Côte d'Azur and developed methods and software for kinetic analysis of thermoanalytical data (including DSC, calorimetry, rheometry, TGA and DMTA). In 2004, he shifted his focus to biobased, biodegradable, renewable, and non-toxic polymers and composites derived from plant biomass and industrial by-products. He mainly worked on furanic thermosets, biobased epoxy and semi-crystalline polyesters. Since 2011, he and his team have led pioneering studies on poly(ethylene 2,5-furandicarboxylate) (PEF), a biobased alternative to PET, and humins, a co-product of sugar conversion from biorefineries. He developed new applications of stochastic temperature modulated DSC and Fast Scanning Calorimetry. He contributed to the development of "Advanced isoconversional kinetic analysis". His method, SbC-Sbirrazzuoli crystallization, has been integrated into commercial kinetic software. He has created computational methods recognized for solving critical industrial challenges across aerospace, automotive, maritime, pharmaceutical, and construction sectors. Since the early 2000s, he has been at the forefront of developing bio-based polymers derived from non-food competing biomass and founded the Eco-Compatible Materials & Polymers team. Supported by various European projects, his research aims to develop eco-compatible polymers and composites, sustainable processes, and alternatives to petrochemicals. His current work focuses on creating 100% bio-based polymers and composites with high thermal and mechanical performance, as well as new recycling methods for these materials. He was actively involved in 6 European projects and several responsibilities functions : Director of the Laboratory of Experimental Thermodynamics, University of Nice Sophia Antipolis, 2001-2004 - Leader of the Eco-friendly Materials and Polymers group, since 2004 - Director of the Federative Research Structure of Chemistry in Nice (now ICN), 2006-2008, Deputy Director of the Institute of Chemistry of Nice (ICN), 2008-2009 - Chairman of the Standing Committee on Human Resources for Chemistry at University Côte d'Azur, 2019-2021 - Co-chair of the Kinetics Committee of the International Confederation for Thermal Analysis and Calorimetry, member Editorial board *Thermochim. Acta*, Advisory Editor *Hybrid Advances*, editorial board *Polymers*, *Materials* and *Thermo*. His research, combining fundamental aspects and industrial applications, has received numerous citations, placing him among the most influential researchers according to Stanford University's Metrics rankings, Research.com and AD Ranking. He authored 160 peer reviewed articles, 3 book chapters, 33 invited conferences, 131 oral communications, 28 invited seminars or courses for industry, 8 training schools, supervised 23 PhD and 31 Master 2.

Bibliometry Google Scholar (12/02/2025): 18 686 citations, *h*-index = 58, *i10* = 138.