Prof. Dr. Miriam C. Strumia

Biography abstract

Dr. Miriam Strumia received her doctoral degree in Organic Chemistry in 1982 from the Universidad Nacional de Córdoba, Argentina under the supervision of Prof. Hector Bertorello.
She was a postdoctoral research fellow with Prof. George Newkome in Dendritic Chemistry at the University of South Florida, United State (1995).

Prof. Strumia has directed fourteen doctoral and four masters thesis and has more than 165 scientific international publications in the field of polymer and dendritic chemistry.
Her main research interest are the synthesis and chemical modification to obtain new polyfunctional materials or hybrids nanomaterials, with specific application properties in nanomedicine, biomedical materials, active and intelligent packaging, electrochemical sensors, and drug delivery devices.

Professional Position (Current)

Research and Academia	- Superior Researcher. National Research Council of Argentina (CONICET) (2015-2019). From 2019, *ad-honorem*
	- Emeritus Professor (2020). Chemistry Faculty of National University of Córdoba.
	- Academic of the National Academy of Sciences (2019-Actual)
	- Academic of The World Academy of Sciences (TWAS*)* (2024)

Academic education

1995	Postdoctoral Training. Center for Molecular Design and Recognition. Department of Chemistry. University of South Florida. Tampa. Florida. USA. Direction: Prof. George Newkome.
1984-1988	Postdoctoral Research. Río Tercero Petrochemical Industry, Córdoba, Argentina.
1979-1982	Doctoral Degree in Chemical Sciences, UNC.
1974-1978	Degree in Chemistry (in Organic Chemistry). UNC.

Position in university and academic management

1994-1996 and 2000-2002	Director of the Department of Organic Chemistry
2008-2011	Director of the Center for Applied Chemistry (CEQUIMAP)
2008-2011	Vice Dean of Faculty of Chemical Sciences (UNC)
2011-2014	Dean of the Faculty of Chemical Sciences (UNC)

2016-2018	Head of the Science, Technology and Productive Innovation Management Area of the National University of Córdoba
2018-2022	Director of the Institute for Research and Development of Applied Chemical Process Engineering (IPQA), a dependency shared between CONICET and the National University of Córdoba
2019-2021	Vice-president of National Society of Research in Organic Chemistry (SAIQO)
2021- 2023	President of National Society of Research in Organic Chemistry (SAIQO)

Research Interest

Design, synthesis, and characterization of polymeric and dendritic functional structures applied to the construction of tailored (nano) materials. Iteratively prepared polymers and supramolecular materials, oligomeric and monomeric organic intermediates and classical organic synthons. Nanogels. Hybrids nanomaterials. Natural and biodegradable polymers. Nanomedicine. Active and intelligent packaging. Agropackaging.

Projects (last three years)

-Project FONCYT-PICT-2011-0654. Res. FONCYT: 140/12.
Título: Synthesis of new nanomaterials from polymers and dendritic molecules. Characterization and applications. Director: Strumia, Miriam Cristina. **(2015-2021)**

-Project PIO CONICET - YPF 2016-2021 Nro.:133-201501-00037CO
Synthesis of polymers with EOR applications. Directora: Miriam Strumia

-Project: Research Consolidar (type 3), 2018-2022**,** SECYT, National Univesity of Córdoba, "Research Smart materials" Director: Dra. Marisa Martinelli. Integrante del grupo responsable. Res. 411- 18. https://www.unc.edu.ar/sites/default/files/anexo%20Res.411-18.pdf

- Research Project for Institutes – PUE- 2018. For IPQA. Director: Dra. Miriam Strumia. Technical Director: Dra. Raquel Martini. "Development of smart materials to meet technological needs" Res.2019-574 APN-Conicet.

-Project for equipment PICT-2018- 0380. Director: Dra. Miriam Strumia. "Development of smart materials to meet technological needs" Res. IF-2020-31078490-APN-FONCYT.

Formation of RRHH

- Director of 14 doctoral theses completed
- Director of 2 y co-director of 2 theses of magister completed
- Director of 1 doctoral thesis in course

Awards

-1st. Award for the "Synthesis and characterization" section at the I Argentine-Chilean Binational Symposium on Polymers. V Argentine Symposium on Polymers. Mar del Plata, December 2001, to the work "Influence of the morphology of polymeric adsorbents in the retention of o-phosphoamino acids". Gomez, C. Alvarez, and M. Strumia.

- INNOVAR 2007 Award (Mention in the Applied Chemistry area) and Award from the World Intellectual Property Organization to the research team: Vanina Costamagna, Daniel Wunderlin and Miriam Strumia, for their work "Antimicrobial Active Packaging" in the Applied Research category.
Organized by the Secretariat of Science, Technology and Productive Innovation of the Ministry of Education, Science and Technology, jointly with the Ministry of Economy and Production and the National Institute of Technological Education, Buenos Aires.

-Award for the Best Master's Thesis of Master Vanina Costamagna on the subject: "Chemical modification of films used for food packaging" awarded by the Argentine Association of Materials (SAM). November 2008. Carried out under the direction of Dr. Miriam Strumia.

- INNOVAR 2010 Award (Mention in the Linking and Technology Transfer category, Public University sub-category) awarded to the Center for Applied Chemistry (CEQUIMAP) of the National University of Córdoba. Director: Miriam Strumia.
Organized by the Secretariat of Science, Technology and Productive Innovation of the Ministry of Education, Science and Technology, together with the Ministry of Economy and Production and the National Institute of Technological Education.

-Award for the best research work on nanostructured materials: "Nanostructuring of polypropylene surfaces, obtaining superhydrophobic surfaces with different wettability states". Cintia Contreras, Daniel Weibel and Miriam Strumia. Awarded at the 13th International Congress on Science and Technology in Metallurgy and Materials, held in Misiones from August 20 to 23, 2013.

-Award for the best Doctoral Thesis in the Physical-Chemistry Area of Dr. Julieta Paez, Thesis approved in November 2011, awarded by the Argentine Society of Organic Chemistry (SAIQO), Mar del Plata, November 2013. Carried out under the direction of Dr. Miriam Strumia

- Second Prize CICyTAC 2014 in the area of "SCIENTIFIC-TECHNOLOGICAL DEVELOPMENTS FOR REGIONAL FOODS"
Title of the work: "Active antimicrobial containers based on Polypropylene and Glucose Oxidase immobilized on the surface". Cintia Contreras, Ricardo Toselli, Miriam Strumia.
Awarded by the Secretary of Science and Technology of the Ministry of Industry, Commerce and Technological Scientific Development of the Province of Córdoba, Fundación Banco Provincia de

Córdoba and the Technological Committee of the V International Congress on Food Science and Technology, 2014 .

-"Dr. Héctor Bertorello" Award for the best Argentine Doctoral Thesis in Polymers by Dr. Catalina Biglione.
XIII Argentine Polymer Symposium (SAP). Buenos Aires. Thesis title: Magnetic and thermosensitive nanodevices: Synthesis, studies of their physical-chemical properties and potential applications in nanomedicine. Carried out under the direction of Dr. Miriam Strumia

-Anna Peretti Award for the best scientific paper presented at the First Argentine Seed Congress. Title: Incorporation of active films inside silo bags for the conservation of corn grains. (Zea mays) Authors: Gigena G; Goñi M L; They win N A Martini R E; Usseglio V L; Basso A V; Zygadlo J A ; Strumia MC; Herrera JM.Thematic axis: Production of quality seeds and application of technological innovation. Congress organized by the Faculty of Agricultural Sciences, National University of Córdoba and the Association of Private Agricultural Laboratories (ALAP). 2020.

- Women in Science, Outstanding Scientific Career Award, granted by the Ministry of Science and Technology of the province of Córdoba, 2022.

-Diploma of merit in the area of Organic Chemistry awarded by the Konex Foundation in the year of Science and Technology. September, 2023

-Platinum Konex in the area of Organic Chemistry awarded by the Konex Foundation in the year of Science and Technology. October, 2023

-Fellow of *The World Academy of Sciences (TWAS)* for the advancement of science in developing countries. January 2024

Publications

Number of chapters in books: **15;** number of papers in international refereed journals: **175**

Publications for fouth last year:

160- Biobased polyester from soybean oil: Synthesis, characterization and degradation studies
Mariana Bernard, Verónica Nicolau* and **Miriam Strumia***
Polyolefins Journal. Vol. 9, No. 1, 45-60 (2022)**. DOI: 10.22063/POJ.2021.3019.1203**

161- Antimicrobial modification of polypropylene films by photograft and layered double hydroxides assembly
Giuliana Mosconi, Yadira Salguero, Laura E. Valenti, Ricardo Rojas, **Miriam C. Strumia**, Cesar G. Gomez, Carla E. Giacomelli*
Reactive and Functional Polymers. 178 (2022) 105349.
DOI: https://doi.org/10.1016/j.reactfunctpolym.2022.105349

162- The disulfide bond as a key motif for the construction of multivalent glycoclusters.
María Emilia Cano, Walter Jara, Alejandro Cagnoni, Emmanuel Brizzio, **Miriam C. Strumia**, Evangelina Repetto and María Laura Uhrig*
New J. Chem., 46, 17682-17695 (2022). **DOI: https://doi.org/10.1039/D2NJ03071C**

163- Chemical overview of gel dosimetry systems: A Comprehensive Review
Micaela Macchione, Leidy Sofía Lechón Páez, **Miriam Cristina Strumia**, Mauro Valente *, Facundo Mattea *
Gels, 8, 663-690. 2022. https://doi.org/10.3390/gels8100663.
https://www.mdpi.com/2310-2861/8/10/663

164- Organic Chemistry in Argentina and the Genesis of SAIQO
Special Issue: Organic Chemistry in Argentina: Research from XXIII SINAQO
Miriam Strumia, Juan Argüello and Alejandro Fracaroli. (Guest Editors)
J. Org. Chem., 87, 13423−13426 (2022).**DOI: https://doi.org/10.1021/acs.joc.2c01958**
Org. Lett., 24, 7483−7486. (2022). **DOI: https://doi.org/10.1021/acs.orglett.2c02837**

165- Mesoporous silica and oligo (ethylene glycol) methacrylates-based dual-responsive hybrid nanogels
Micaela A. Macchione, Dariana Aristizabal, Eva Rivero-Buceta, Pablo Botella *, **Miriam C. Strumia ***
Nanomaterials, 12, 3835-3854, (2022) https://doi.org/10.3390/nano12213835

166- Acrylic acid -co- sodium acrylate copolymers synthetized in supercritical carbon dioxide: is it possible to pre-neutralize polymers at high pressure?
Ramses S. Meleán Brito, Facundo Mattea, Juan M. Padró, Miriam C. Strumia, Séverine Camy, Mathias Destarac, Juan M. Milanesio.
The Journal of Supercritical Fluids 209, 10626. (2024). https://doi.org/10.1016/j.supflu.2024.106261

167- Tannic Acid-Modified Poly(acrylamide-co-acrylic acid): A Versatile Approach for Aqueous Viscosity Modulation
Ramses S. Meleán Brito, Juan Milanesio, María Belén Oviedo, Juan M. Padró, **Miriam C. Strumia**, Facundo Mattea*
ACS Applied Polymer Materials, 6, 4462−4474, 2024 https://pubs.acs.org/10.1021/acsapm.3c03056

168-Hydrophobic dendritic modification of a poly(acrylamide-co-acrylic acid) copolymer with Behera´s amine as viscous agent
Ramses S. Meleán Brito, Juan M. Padró, Cristian Villa-Pérez, **Miriam C. Strumia**, Facundo Mattea and Juan M. Milanesio
Industrial & Engineering Chemistry Research, ISSN 0888-5885, 63 (31), pp. 13580-13589, (2024) https://doi.org/10.1021/acs.iecr.4c01650.

169- The role of hyperbranched polyesters in acrylamide-based polymers as thickening agents in aqueous solutions.
Ramses S. Meleán Brito, Juan M. Padró, Jhon J. Pizon Barrantes, Cristian Villa-Pérez, **Miriam C. Strumia**, Juan M. Milanesio and Facundo Mattea.

Journal of Applied Polymer Science, ISSN 1097-4628, 141 (37), pp. 1-11, (2024) https://doi.org/10.1002/app.56149.

170- Taming Visible-Light Induced Precipitation Polymerization in Continuous Flow. Developing Thermo-Responsive Nanogels for Controlled Antimicrobial Delivery
Figueroa, Francisco; Torres, Jazmín; Campagno, Luciana; Calderón, Marcelo; Alovero, Fabiana; **Strumia, Miriam**; Garcia, Monica; Oksdath-Mansilla, Gabriela.
ACS Applied Engineering Materials. *September*, 2, 2397-2413, (2024). https://doi.org/10.1021/acsaenm.4c00444

171- Phase boundaries and copolymerization of acrylic acid + butyl metacrilato in supercritical carbon dioxide.
Ramses S. Meleán Brito, Joana E. Tasque, Juan M. Padró, Gerardo Martínez Delfa, **Miriam C. Strumia**, Facundo Mattea, Juan M. Giussi and Juan M. Milanesio.
The Journal of Supercritical Fluids, 215, 106412, 1-10 (2025) ISSN 0896-8446. https://doi.org/10.1016/j.supflu.2024.106412.

172- Copolymerization of acrylic acid and 2- acrylamido-2-methylpropane sulfonic acid in supercritical carbon dioxide.
Ramses S. Meleán Brito, Juan M. Milanesio, Juan M. Padró, Cristian Villa-Pérez, **Miriam C. Strumia,** Séverine Camy, Mathias Destarac, Facundo Mattea*
The Journal of Supercritical Fluids, V 218, 106485. (2025)
https://doi.org/10.1016/j.supflu.2024.106485

173- Hyperbranched Star Monomer: A New Strategy to Improve HPAM in Harsh Environments
Meleán Brito, Ramses; Iborra, Agustin; Padró, Juan; Vega, Isabel; **Strumia, Miriam**; Milanesio, Juan; Mattea, Facundo; Giussi, Juan
Ind Eng Chem Res, *64*, 948–958, (2025). doi:10.1021/acs.iecr.4c03364.

174- A Comparative Study of Two Synthesis Methods for Poly(Acrylic Acid-Co-Acrylamide) Incorporating a Hyperbranched Star-Shaped Monomer
Ramses S. Melean Brito, Agustin Iborra, Juan M. Padro, Cristian Villa-Perez, **Miriam C. Strumia**, Facundo Mattea, Juan M. Giussi and Juan M. Milanesio*
Polymers, 17, 964, 1-26, (2025). https://doi.org/10.3390/polym17070964

Patents

-**Invention Patent** in INP1 2017010 2993, 17210915. Title: "Impregnated films with insecticide activity and development" by Herrera Jimena, Zygadlo Julio, Martini Raquel, Zunino María Paula, Pizzolitto Romina, Gañán Nicolás, Dambolena, José, Goñi María Laura, Strumia Miriam. 27/10/2017

-**Invention Patent (pending):** "Active packaging for hermetic storage and development" Nro. 20200103046. 4/11/2020 by Herrera, Jimena María, Strumia, Miriam Cristina y Zygadlo, Julio Alberto, Peralta, Elizabeth y Soto-Valdez, Herlinda

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