Curriculum Vitae

Surname/First name	**Cazacu Maria**
Present Position	Senior researcher (CSI), Head of Department of Inorganic Polymers, "Petru Poni" Institute of Macromolecular Chemistry, Iasi, PhD supervisor in the field of chemical sciences at the Doctoral School of CHEMICAL Sciences, School of Advanced Studies of the Romanian Academy – SCOSAAR.
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Professional Experience	1990-present: "Petru Poni" Institute of Macromolecular Chemistry, Inorganic Polymers Department, Iasi – Researcher; 1989-1990: "Petru Poni" Institute of Macromolecular Chemistry, Inorganic Polymers Department, Iasi – Engineer; 1981-1989: "FIRMELBO" Spinning Mill - Botosani, Romania: Probationer Engineer, Team Leader, Quality Technologist.
Education	Ph.D. (April 1996), Romanian Academy, "Petru Poni" Institute of Macromolecular Chemistry, Iasi, Romania; topic: Synthesis of the siloxane polymers and copolymers by heterogeneous catalysis. B.S. (July 1981), Department of Macromolecular Compounds Technology, Faculty of Industrial Chemistry, "Gh. Asachi", Polytechnic Institute of Iasi, Romania.
Publications	273 scientific articles published in peer-reviewed journals with impact factor; author of one book, and editor of 2 books; 8 book chapters; 8 granted patents (including 1 international patent); five patent applications.
Scientometric indicators	3633 citations (2696 without self-citations), h-index=29 (Web of Science), 4098 citations, h-index=31 (ResearchGate), 4662 citations, h-index=34, i10=156 (Google Scholar)
Conferences	Author/co-author at 14 national and 21 international conferences, 51 national and 91 international communications.
Awards, membership of professional organizations	•1996: The Romanian Academy Prize for Chemistry, "C. D. Nenitescu". •2000 - present, member of the Romanian Chemical Society; •2005: Diploma and Gold Medal at National Exhibition/Salon CHIMINVENT Iasi, Romania; •2009: Diploma and Gold Medal at International Exhibition of Inventions, Scientific Research and New Technologies, Inventika-2009, 13th edition, Bucuresti, Romania for the Patent "Polymer-based microactuator" at National Exhibition/Salon

CHIMINVENT (2005 and 2013) Iasi, Romania;
•2013; Diploma and Gold Medal at National Exhibition/Salon CHIMINVENT Iasi, Romania;
•2018: Diploma and Gold Medal at: International Exhibition of Inventions, Scientific Research and New Technologies, Inventika, 22nd edition, Iasi;
•2019: "Petru Poni" Medal and the Diploma of Honor for outstanding contributions to the promotion of chemistry, awarded by the Romanian Chemistry Society;
•2022: "Cristofor Simionescu" Medal for Excellence in the Field of Macromolecular Chemistry, awarded by the American Chemical Society;
•Corresponding member of the Romanian Academy since 2023;
•Nominated, together with the coordinated team, as a finalist in the "Best experienced research team" ‘category at the first edition of the Romanian Researcher Gala (January 2023)ș
•2025: Diploma of Excellence with Special Award at the European Exhibition of Creativity and Innovation EUROINVENT, 17th ed., May 8-10, 2025, Iași, Romania
•2025: Gold Medal at 17th edition of EUROINVENT 2025, 8th - 10th of May 2025, Iași, România

Areas of interest

•Polymers and polymeric materials: synthesis, characterization, processing, and chemical modification; development of organic/inorganic hybrid materials, polymer networks, composites, and nanostructured polymeric systems;
•Stimuli-responsive polymeric materials: development, formulation, and optimization of polymeric materials able to respond to electrical, mechanic, thermal, magnetic and optical stimuli or environmentaly conditions (humidity, organic solvents, CO_2, etc.);
•Metal-containing materials: metal clusters and metal oxide nanoparticles, coordination compounds/polymers, and metal-organic frameworks, in special by involving silicone structural motifs;
•Sustainable development and optimization of compounds, polymers, and materials—especially silicones—through efficient processes with reduced environmental impact.
•Interdisciplinary approaches and collaborations to explore and identify potential applications of silicone compounds and derived materials.

Professional skills

•Polymerization techniques (ionic, radical, ring-opening polymerization), polycondensation, supramolecular self-assembly, and sol-gel processes;
•Synthesis of siloxane monomers, polymers, and copolymers via various conventional and non-conventional methods;
• Processing of silicone polymers into rubbers, oils, and adhesives;
•Modification of silicones to tailor their properties;
• Preparation of polymeric materials for diverse applications including dentistry, textiles, leather, electronics, construction, and energy;

•Synthesis of organic-inorganic copolymers, including segmented and graft copolymers with various functional groups (ester, ether, amide, imide, anhydride, azomethine, azo) that enable biphasic morphologies, photochemical activity, surface functionality, liquid crystalline behavior, and controlled degradability;
•Preparation of coordination compounds and metal-organic frameworks;
•Development of organic/inorganic hybrid materials, such as composites, networks, and hybrids;
•Team leadership and coordination, problem-solving and critical thinking, collaboration and networking, etc.

Organisational skills and competences

•Project management; •Coordination of the scientific activities for a research team (8-14 members) in the period 2000-present; •Head of Department of Inorganic Polymers since 2015 (30-40 members).

Involvement in research projects

45 projects:
●13 projects as project coordinator (between them a project financed by European Regional Development Fund of 1.5 milion EUR);
●12 projects as partner team leader (between them a European FP7 and a COST project);
●20 as member;
●Seven applicative research projects (team member).
The main research grants:
●Emerging 2D materials based on permethylated two-dimensional metal–organic networks, 2D-PerMONSil Research Project: PN-III-P4-ID-PCE-2020-2000 / (207/2021, 2021–2023), 250.000 EUR
●Soft electromechanical transducers based on 3D printed silicones, 3DETSi, Experimental demonstration project, PN-III-P2-2.1-PED-2019-3652 (320PED/2020, 2020-2022), 124.000 EUR
●Metal-organic networks with finely controlled hydrophobicity using silicone chemistry, SiMOFs, Research project: PN-III-P4-ID-PCE-2016-0642 (114/2017/ 2017-2019); 180.000 EUR
●Silicone-based energy conversion units built up by green chemistry, Experimental demonstration project, GrEENergy, PN-III-P2-2.1-PED-2016-0188 (68PED / 2017, 2017-2018), 128.000 EUR
●New coordination networks containing polyfunctional flexible bridges, Exploratory Research Projects - PN-II-ID-PCE-2012-4, Contract 53/2.09.2013, 2013-2016; 250.000 EUR
●Collaborative project FP7-Energy-2012-1-2STAGE, New mechanisms and concepts for exploiting electroactive Polymers for Wave Energy Conversion, PolyWEC, GA 309139, 2012-2016; 376.533 EUR
●Synthesis and study of the polymeric metallosiloxanes – new materials for catalysis and nanosciences (POLISILMET), SOP IEC-A2-O2.1.2-2009-2, ID 570; 1.500.000 EUR
●Multifunctional nanostructured silicone materials (NANOSIMAT), Contract CEEX-MATNANTECH 52/2006 (2006-2008), 252.622 EUR.

Other activities	2015-present: Member of the Scientific Council of "Petru Poni" Institute of Macromolecular Chemistry Iasi 2020 - present: Member of editorial board - Revue Roumaine de Chimie 2020 – present: Member of editorial board – Revista de Chimie 2017 – present: Member of the Academic Advisory Commission for the North-East Regional Development Agency 2016-2024 - Member of CNATDCU; 2020-2024: vice-president of the chemistry section 2000 – present: Peer-review activity for national (UEFISCDI) and international (INTAS, ERA.NET RUS, National Science Centre - Poland, Czech Science Foundation) programs/projects; 2000 – present: Peer-review activity for scientific journals (more than 190 articles reviewed); Member of the Examination Board for 24 doctoral theses and 7 habilitation thesis; Member of CSUD-SCOSAAR since 2023.

15.09.2025 [redacted]

Publications (selective)

1. **Cazacu, M**., Marcu, M., Vlad, A., Caraiman, D., & Racles, C. (**1999**). Synthesis of functional telechelic polydimethylsiloxanes by ion-exchangers catalysis. *Euopean Polymer Journal* 35(9), 1629–1635.

2. **Cazacu, M**., Marcu, M., Vlad, A., Rusu, G. I., & Avadanei, M. (**2004**). Chelate polymers. VI. New copolymers of the some siloxane containing bis(2,4-dihydroxybenzaldehyd-imine)Me2+ with bis(p-carboxyphenyl)diphenylsilane. *Journa of Organometallic Chemistry*, 689(19), 3005–3011.

3. **Cazacu, M**., Vlad, A., Marcu, M., Racles, C., Airinei, A., & Munteanu, G. (**2006**). New Organometallic Polymers by Polycondensation of Ferrocene and Siloxane Derivatives. *Macromolecules*, 39(11), 3786–3793

4.Soroceanu, A., **Cazacu, M**., Shova, S., Turta, C., Kožíšek, J., Gall, M., Breza, M., Rapta, P., Mac Leod, TCO., Pombeiro, AJL., Telser, J., Dobrov, AA., Arion, V. B. (**2013**). Copper(II) Complexes with Schiff Bases Containing a Disiloxane Unit: Synthesis, Structure, Bonding Features and Catalytic Activity for Aerobic Oxidation of Benzyl Alcohol. *European Journal of Inorganic Chemistry* 2013(9), 1458–1474.

5. **Cazacu, M**., Shova, S., Soroceanu, A., Machata, P., Bucinsky, L., Breza, M., Rapta, P., Telser, J., Krystek, J., Arion, V. B. (**2015**). Charge and Spin States in Schiff Base Metal Complexes with a Disiloxane Unit Exhibiting a Strong Noninnocent Ligand Character: Synthesis, Structure, Spectroelectrochemistry, and Theoretical Calculations. *Inorganic Chemistry 54(12),* 5691–5706.

6. Bele, A., **Cazacu, M**., Stiubianu, G., Vlad, S., & Ignat, M. (**2015**). Polydimethylsiloxane–barium titanate composites: Preparation and evaluation of the morphology, moisture, thermal, mechanical and dielectric behavior. *Composites Part B: Engineering*, 68, 237–245.

7. Tugui, C., Vlad, S., Iacob, M., Varganici, C. D., Pricop, L., **Cazacu, M**. (**2016**). Interpenetrating poly(urethane-urea)–polydimethylsiloxane networks designed as active elements in electromechanical transducers. *Polymer Chemistry*, 7(15), 2709–2719.

8. Shova, S., Vlad, A., Krzystek, J., Cazacu, M., Ozarowski, A., Malcek, M., Bucinsky, L., Rapta, P., Cano, J., Telser, J., Arion, V.B. (**2019**). Dinuclear manganese(III) complexes with bioinspired coordination and variable linkers showing weak exchange effects: a synthetic, structural, spectroscopic and computation study. *Dalton Transactions,* 48(18), 5909-5922.

9. Tugui, C., Serbulea, M.-S., **Cazacu, M**. (**2019**). Preparation and characterisation of stacked planar actuators. *Chemical Engineering Journal* 364, 217-225.

10. Shova, S., Tiron, V., Vlad, A., Novitchi, G., Dumitrescu, D. G., Damoc, M., Zaltariov, M. F., **Cazacu, M.** (**2020**). Permethylated dinuclear Mn(III) coordination nanostructure with stripe-ordered magnetic domains. *Applied Organometallic Chemistry* e5957, doi:10.1002/aoc.5957.

11.Zaltariov, M.-F., **Cazacu, M**. (**2020**). Coordination compounds with siloxane/silane-containing ligands capable of self-assembly at nano/micro scale in solid state and in solution. *Advances in Inorganic Chemistry* 76, 155-196

12. Stoica, A.C., Dămoc, M., Zaltariov, M.F., Racleș, C., **Cazacu, M**. (**2021**). Two-dimensional coordination polymers containing permethylated motifs - promising candidates for 2D emerging materials. Structural, behavioral and functional particularities. *Reactive and Functional Polymers* 168, 105039.

13. **Cazacu, M**., Racles, C., Zaltariov, M.-F., Dascalu, M., Bele, A., Tugui, C., Bargan, A., Stiubianu, G. (**2021**). From Amorphous Silicones to Si-Containing Highly Ordered Polymers: Some Romanian Contributions in the Field. *Polymers*, 13(10), 1605.

14. **Cazacu, M**., Dascalu, M., Stiubianu, G.T., Bele, A., Tugui, C., Racles C. (**2022**), From passive to emerging smart silicones**,** *Review in Chemical Engineering* 39 (6), 941-1003.

15. Damoc, M., Tigoianu, R.I., Stoica, A.-C., Macsim, A.-M., Dascalu, M., Shova, S., **Cazacu, M**. (**2023**). Micellization Turned on Dual Fluorescence and Room Temperature Phosphorescence by Pseudo-ESIPT in Thiadiazole Derivatives, *Journal of Physical Chemistry C 127* (1), 99-109.

16.Damoc, M., Tiron, V., Tugui, C., Varganici, C.D., Stoica, A.-C., Novitchi, G., Dascalu, M., **Cazacu, M.** (**2023**). Ferronematic Co(II) complex: an active filler for magnetically actuated soft materials, *Small* 20(15) e2307006.

17. Stoica, A.C., Damoc, M., Bele, A., Dascalu, A., Macsim, A.M., Shova, S., Dascalu, M., **Cazacu, M**. (**2024**). A 3D coordination polymer of Cd(II) with conformationally flexible mixed ligands as an active filler for silicone elastomers, *Reactive and Functional Polymers* 197, 105876.

18. Ciubotaru, B.I., Zaltariov, M.F., Dascalu, M., Bele, A., Bargan, A., **Cazacu, M.** (**2024**). Amino-functionalized silicones processed as porous dual covalent/supramolecular networks for pressure sensing, *Reactive and Functional Polymers 194,* 105792, doi.org/10.1016/j.reactfunctpolym.2023.105792.

19.Damoc M., Ursu C., Tiron V., Bulai G., Stoica A.-C., Macsim A.M., Varganici C.D., Bele A., Dascalu M., **Cazacu M**. (**2025**), Thermal Actuators Relying on Elastomer-Dispersed Liquid Crystals: From Imines with Supramolecular Chirality and Ferroelectricity to Soft Robots, *ACS Applied Materials & Interfaces*, 17, 2, 4185−4198, 2025. DOI: 10.1021/acsami.4c18088.

20. **Cazacu, M**., Damoc, M., Stoica, AC. *et al.* (**2025**). Permethylated Silicon: A Structural Motif with a Critical Role in Shaping the Properties of Organic–Inorganic Compounds. *J Inorg Organomet Polym*. https://doi.org/10.1007/s10904-025-03868-4.

21. Arauzo, A., Zaltariov, M.F., Bartolomé, E., Fuertes, S., Tigoianu, R.I., Shova S., **Cazacu, M.** (**2025**) Multifunctional Eu(III) and Sm(III) Coordination Polymers Built with Silane-Bridged Dicarboxylate Ligand: Structure, Luminescence and Magnetism, *J. Mater. Chem. C*, DOI: 10.1039/D5TC02436F.

22. Damoc, M., Stoica, A.-C., Zaltariov, M.-F., Peptanariu, D., Dascalu, M., **Cazacu, M.** (**2025**) Siloxane-spaced salen-type Schiff base cobalt complex. Experimental and docking analysis—adual approach for evaluating anticancer efficacy. *R. Soc. Open Sci.* 12: 250279. https://doi.org/10.1098/rsos.250279

23. Arion, V., Wittmann, C., Palamarciuc, O., Dascalu, M., **Cazacu, M.,** Nesterov, D., Pombeiro, A., Rapta, P. (**2025**). Copper(II) Complex with a Redox Noninnocent Schiff Base Bearing a Tetraphenyldisiloxane Unit: Synthesis, Structure and Catalytic Oxidation of Cyclohexane, (2025), *Dalton Trans.*, 54, 10984-11005, DOI **https://doi.org/10.1039/D5DT01028D**

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