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**Citizenship:** Romanian

**Date/place of birth:** 26.12.1985, Falticeni, Romania

**Gender/Status:** Male/Single

**Foreign languages:** English (full professional proficiency)

**Education and Training:**

**2013-2017** – PhD in Chemistry – Summa cum laude; **PhD thesis title:** “Electroactive silicone and organic-silicone networks”, School of Advanced Studies of the Romanian Academy, “Petru Poni” Institute of Macromolecular Chemistry, Iasi, Romania; PhD Coordinator: Dr. Maria Cazacu; <https://www.icmpp.ro/doctorate/anunturi/4/Engeza-REZUMAT.pdf>

**2009-2011** – Master Degree, Green engineering processes, “Gheorghe Asachi” Technical University, Iasi, Romania.

**2009-2011** – Bachelor degree, Chemical Engineering, “Gheorghe Asachi” Technical University, Iasi, Romania.

**Current Position:** Young researcher, Department of Inorganic Polymers, “Petru Poni” Institute of Macromolecular Chemistry, Iasi, Romania.

**Occupational field:** Dielectric elastomer transducers for actuators, sensors and energy harvesting devices; electrical, mechanical and electromechanical properties of dielectric elastomers.

**Work experience:** 2013 – present, Young researcher at “Petru Poni” Institute of Macromolecular Chemistry, Iasi, Romania.

**Scientific contributions:** **21** articles published in ISI journals, **10** oral presentations at international conferences, **5** at national conferences and **16** posters at international conferences. Member in **4 projects:** New mechanisms and concepts for exploiting electroactive Polymers for Wave Energy Conversion, PolyWEC, [www.polywec.org](http://www.polywec.org) ; Energy harvesting structures optimized through green silicone chemistry, GreENergy, [https://icmpp.ro/ped/greenergy\\_ro\\_03.04.2018.pdf](https://icmpp.ro/ped/greenergy_ro_03.04.2018.pdf) ; Eco innovative technologies for Platinic Group metals recovery from scrapped catalyst– ECOTECH-GM, <http://www.3nanosae.org/ecotech-gmp-en/> Metal-organic frameworks with hydrophobicity fine-tuned by using silicones chemistry, <http://silmofof.icmpp.ro/> .

**Scientific visibility:**

**H-index:** **9** (Web of Science Core Collection); **9** SCOPUS; **9** (Google Scholar)

**Sum of times cited:** **162** (Web of Science Core Collection); **170** SCOPUS; **194** (Google Scholar)

**Achievements:**

**Project Director:** PN-III-P1-1.1-MC-2019-2478

**Research stage:** two months within H2020-MSCARISE2016, Spinswitch No 734322

**Internships:**

COST Action, European Network on smart inorganic polymers, Training School CM1302-250914-049000, 25-30 September 2014, Graz - Austria, Trieste – Italy.

COST Action, ESNAM Training School on Dielectric Elastomers, 25-27 March 2014, Darmstadt, Germany.

3<sup>rd</sup> Autumn School on Physics of Advanced Materials, 22-28 September, 2018, Heraklion, Greece

**Training courses:** “How to write a successful Horizon 2020 project” and “How to manage a Horizon 2020 project”, organized by “Alexadru Ioan Cuza University” in collaboration with University of Bergen, 12-13 October 2016, Iasi, Romania.

**Summa cum laude** Distinction for PhD Thesis, 2017

### List of publications

- [1] C. Tugui, V. Tiron, M. Dascalu, L. Sacarescu, M. Cazacu; From ultra-high molecular weight polydimethylsiloxane to super-soft elastomer, *European Polymer Journal*, 120, 109243, 2019;
- [2] C. Tugui, M.S. Serbulea, M. Cazacu; Preparation and characterisation of stacked planar actuators, *Chemical Engineering Journal*, 364, 217-225, 2019;
- [3] C. Tugui, C. Ursu, M.F. Zaltariov, M. Aflori, M. Mičušík, M. Omastová, M. Cazacu; Silver thin films generated by Pulsed Laser Deposition on plasma-treated surface of silicones to get dielectric elastomer transducers, *Surface & Coatings Technology*, 358, 282-292, 2019;
- [4] M. Iacob, C. Racles, M. Dascalu, C. Tugui, V. Lozan, M. Cazacu; Nanomaterials Developed by Processing Iron Coordination Compounds for Biomedical Application, *Journal of Nanomaterials*, 2592974, 2019;
- [5] A. Bele, C. Tugui, M. Asandulesa, D. Ionita, L. Vasiliu, G. Stiubianu, M. Iacob, C. Racles, M. Cazacu; Conductive stretchable composites properly engineered to develop highly compliant electrodes for dielectric elastomer actuators, *Smart Materials and Structures*, 27(10), 105005, 2018;
- [6] A. Bele, C. Tugui, L. Sacarescu, M. Iacob, G. Stiubianu, M. Dascalu, C. Racles, M. Cazacu; Ceramic nanotubes-based elastomer composites for applications in electromechanical transducers, *Materials & Design*, 141, 120-131; 2018;
- [7] M. Iacob, C. Tugui, V. Tiron, A. Bele, S. Vlad, T. Vasiliu, M. Cazacu, A.L. Vasiliu, C. Racles; Iron oxide nanoparticles as dielectric and piezoelectric enhancers for silicone elastomers, *Smart Materials and Structures*, 26(10), 105046, 2017;
- [8] C. Tugui, C. Ursu, L. Sacarescu, M. Asandulesa, G. Stoian, G. Ababei, M. Cazacu; Stretchable Energy Harvesting Devices: Attempts To Produce High Performance Electrodes, *ACS Sustainable Chemistry & Engineering*, 5(9), 7851-7858, 2017;
- [9] C. Racles, M. Dascalu, A. Bele, V. Tiron, M. Asandulesa, C. Tugui, A.L. Vasiliu; M. Cazacu; All-silicone elastic composites with counter-intuitive piezoelectric response, designed for electromechanical applications, *Journal of Materials Chemistry C*, 5(28), 6997-7010, 2017;
- [10] C. Tugui, A. Bele, V. Tiron, E. Hamciuc, C.D. Varganici, M. Cazacu; Dielectric elastomers with dual piezo-electrostatic response optimized through chemical design for electromechanical transducers, *Journal of Materials Chemistry C*, 5(4), 824-834, 2017;
- [11] M. Iacob, C. Racles, C. Tugui, G. Stiubianu, A. Bele, L. Sacarescu, D. Timpu, M. Cazacu; From iron coordination compounds to metal oxide nanoparticles, *Beilstein Journal of Nanotechnology*, 7, 2074-2087; 2016;

- [12] G. Stiubianu, A.M.C. Dumitriu, C.D. Varganici, C. Tugui, M. Iacob, A. Bele, M. Cazacu; Changes induced in the properties of dielectric silicone elastomers by the incorporation of transition metal complexes, *High Performance Polymers*, 28(8), 2016;
- [13] A. Bele, M. Dascalu, C. Tugui, M. Iacob, C. Racles, L. Sacarescu, M. Cazacu; Dielectric silicone elastomers filled with in situ generated polar silsesquioxanes: Preparation, characterization and evaluation of electromechanical performance, *Materials & Design.*, 106, 454-462, 2016;
- [14] G. Știubianu, A. Soroceanu, C.D. Varganici, C. Tugui, M. Cazacu; Dielectric elastomers based on silicones filled with transitional metal complexes, *Composites Part B-Engineering*, 93, 236-243, 2016;
- [15] C. Tugui, S. Vlad, M. Iacob, C.D. Varganici, L. Pricop, M. Cazacu; Interpenetrating poly(urethane-urea)-polydimethylsiloxane networks designed as active elements in electromechanical transducers, *Polymer Chemistry*, 7(15), 2709-2719, 2016;
- [16] A. Bele, G. Stiubianu, S. Vlad, C. Tugui, C.D. Varganici, L. Matricala, D. Ionita, D. Timpu, M. Cazacu; Aging behavior of the silicone dielectric elastomers in a simulated marine environment, *RSC Advances*, 6(11), 8941-8955, 2016;
- [17] C. Tugui, M. Cazacu, L. Sacarescu, A. Bele, G. Stiubianu, C. Ursu, C. Racles, Full silicone interpenetrating bi-networks with different organic groups attached to the silicon atoms, *Polymer*, 77, 312-322, 2015;
- [18] C. Racles, V.E. Musteata, A. Bele, M. Dascalu, C. Tugui, A.L. Matricala; Highly stretchable composites from PDMS and polyazomethine fine particles, *RCS Advances*, 5(124), 102599-102609 2015;
- [19] C. Tugui, G. Stiubianu, M. Iacob, C. Ursu, A. Bele, S. Vlad, M. Cazacu; Bimodal silicone interpenetrating networks sequentially built as electroactive dielectric elastomers, *Journal of Materials Chemistry C*, 3(34), 8963-8969, 2015;
- [20] M. Iacob, D. Sirbu, C. Tugui, G. Stiubianu, L. Sacarescu, V. Cozan, A. Zelenakova, E. Cizmar, A. Feher, M. Cazacu; Superparamagnetic amorphous iron oxide nanowires self-assembled into ordered layered structures, *RCS Advances*, 5(77), 62563-62570, 2015;
- [21] M. Iacob, G. Stiubianu, C. Tugui, L. Ursu, M. Ignat, C. Turta, M. Cazacu; Goethite nanorods as a cheap and effective filler for siloxane nanocomposite elastomers, *RCS Advances*, 5(56), 45439-45445, 2015.

#### **List of oral presentations at international conferences**

- [1] Contributions to Recent Developments in Silicone Materials: Dielectric Elastomer Transducers (DETs); M. Cazacu, C. Tugui, A. Bele, G. Stiubianu, M. Dascalu, C. Racles; 21<sup>st</sup> Romanian International Conference on Chemistry and Chemical Engineering, 4-7 September, 2019, Constanta, Romania;
- [2] Optimal energy harvesting units based on silicone elastomers; C. Tugui, M. Cazacu; 12<sup>th</sup> International Conference on Physics of Advanced Materials; 22-28 September, 2018 Heraklion, Greece;
- [3] Dielectric elastomers optimized through interpenetration strategies; C. Tugui, A. Bele, S. Vlad, C. Racles, M. Cazacu; Eighth Cristofor I. Simionescu Symposium – Frontiers in Macromolecular and Supramolecular Science, 29 May – 3 June, 2016, Iasi, Romania;

- [4] Dielectric elastomers transducers as medical devices; C. Tugui, C. Ursu, M. Aflori, G. Stiubianu, M. Iacob, A. Bele, X. Patras, M. Cazacu; Congresul International al Universitatii "Apollonia" Editia a XXV-A; 26 February – 1 March, Iasi, Romania;
- [5] Managing silicone electromechanical properties through inorganic nanoparticles fillers, M. Iacob, G. Stiubianu, C. Tugui, A. Bele, M. Cazacu; World Renewable, Energy Congress XIV, 8-12 June, 2015, Bucharest, Romania;
- [6]  $\mu$ 3-oxotrinuclear iron carboxy-clusters as effective alternative sources for their oxide nanoparticles, 5. M. Iacob, C. Racles, C. Tugui, G. Stiubianu, M. Cazacu, 15th International Balkan Workshop on Applied Physics, 2-4 iunie 2015, Constanta, Romania;
- [7] Preparation of magnetic nanoparticles for biomedical applications, M. Iacob, M. Cazacu, C. Racles, X. Patras, G. Stiubianu, C. Tugui, A. Bele, L. Sacarescu, C. Turta, Congres International al Universitatii "Apollonia" Editia a XXV-A; 26 February – 1 March, Iasi, Romania;
- [8] Metallic compliant electrodes for the dielectric silicone elastomers, C. Tugui, M. Aflori, M. Cazacu; EAP Workshop, Electromechanically Active Polymer (EAP) transducers & artificial muscles, 25-26 November, 2014, London, UK;
- [9] Silicone-Iron oxide nanocomposites with improved dielectric and mechanical properties, G. Stiubianu, M. Iacob, C. Tugui, M. Cazacu, C. Racles, C. Turta, The International Conference dedicated to the 55th anniversary from the foundation of the Institute of Chemistry of the Academy of Sciences of Moldova 25-26 mai 2014 Chisinau, Moldova;
- [10] Silicone materials optimized for energy harvesting application, M. Cazacu, A. Bele, C. Racles, G. Stiubianu, C. Tugui, M. Ignat, EAP Workshop 2014, Electromechanically Active Polymer (EAP) transducers & artificial muscle, Queen Mary University of London, 25-26 November, London, UK.