**CURRICULUM VITAE**

**Personal information**

| | |
|---|---|
| Name, Surname: | **Dimonie Doina**  |
| Nationality: | Romanian |
| *Researcher unique identifier(s) (ORCID, Researcher ID etc.):* | *0000-0002-1663-1603 / C-9758-2012* |
| Personal link from the platform at https://www.brainmap.ro/ | U-1700-033J-2466 |
| URL for personal website (if case): | https://www.brainmap.ro/doina-dimonie |

**Education**

| Year | 1976 / |
|---|---|
| 2016 | Authorized PhD supervisor at the National University of Science and Technology Politehnica Bucharest (NUSTPB) |
| 1997 | Doctor of engineering at NUSTPB |
| 1976 | Engineer at Polyechnica University of Iassy Industrial Chemistry / Macromolecular Compounds Technology Departement /ROMANIA |

**Positions - current and previous**

(*Academic sector/research institutes/industrial sector/public sector/other)*

| Year | Job title – Employer – Country |
|---|---|
| 1979 | Engineer at ICECHIM Bucharest |
| 1984 -1999 | Reserchер/ Researcher 3rd degree / Researcher 2nd degree at ICECHIM Bucharest |
| 2000-till now | Senior researcher – ICECHIM Bucharest / Romania -current |
| 2016 | PhD supervisor at the National University of Science and Technology Politehnica Bucharest -current |

**Other relevant professional experiences**

| Year | Description - Role |
|---|---|
| 2012 | Building team and setting up laboratory: *Multiphase Materials team and laboratory* |

**Project management experience**

(*Academic sector/research institutes/industrial sector/public sector/other. Please list the most relevant.)*

| Year | Project title - Role – Funder – Budget – link to project webpage |
|---|---|
| ***Project director (Total 41 projects)*** | |
| 2019 -2023 | "Sequential processes for closing lateral flows in the bioeconomy and innovative (bio)products: Technology for manufacturing four types of new renewable polymer-based |

| | |
|---|---|
| | materials"- Sub-contract director, ID Proiect: P_40_352- contract subsidiar 1480/2019 - 2023 |
| 2020 - 2023 | "Sequential processes for closing side-stream flows in the bioeconomy and their resulting innovative (bio)products — Technology for the mechanical recycling of pre-consumer waste from bio-based products" -Sub-contract director, ID Proiect: P_40_352- contract subsidiar 2608 |
| 2018 | "New Durable Materials Based on Renewable Polymers for 3D Printing" (proiect 5) 3D-LONG-LIFE (Project 40 / 2018 – director project 5) |
| 2018 | "New renewable and recyclable materials with enhanced fracture resistance for durable 3D applications" 3D-ECO-TOUGH, UEFISCDI -CEC212 |
| 2017 | Improving the functional properties of polylactic acid for 3D prototyping applications, 3D-ECO-GLASS , UEFISCDI -CEC 52 |
| 2012 – 2016 | Advanced Multifunctional Bioplastic Sustainable Food Packaging, ECO-BIO-PACK, UEFISCDI - Contract 52 |
| 2008 - 2011 | "Ecological, biodegradable cellular packaging based on renewable polymers" no. 32101, UEFISCDI - ICECHIM contract no. 32101 |
| 2006-2008 | Plastics recycling technology through re-melting and re-stabilization/ PET Valorization in Medium and Long-Life Composite and Nanocomposite Components, Eureka -47 |
| 2004-2006 | Bio-Based Composites and Nanocomposites from Renewable Resources, Grant UEFISCDI |
| ***Project responsible (Total 9 projects)*** | |
| 2010 – 2013 | Innovative Concepts and Strategies for Expanding Knowledge of Biocompatible Structures in Bioengineering » Complex Exploratory Research Proposals, Contract 248 Consortium Led by the University of Bucharest" |
| 2005 - 2008 | Advanced nanocomposites, micro- and nanostructured materials for new products in construction, bioengineering, and agri-food safety, Consortium Led by UPB, CEEX 11 din 03.10.2005 |

**Main results**:

**a. Scientific and academic areas of interest:**

- Polymer Science and Technology;
- Nanoscience and nanotechnology.
- Rheology of polymer and polymer compoundsa in solid and melted state.
- New polymer compounds obtained my melt compounding, addressed at academic and industrial level (TRL 2 – TRL7)

*b.* **Core areas of scientific expertise***:*

- *Multiphase Polymeric Materials*: Specializing in the synthesis, melt processing, compounding, and characterization of advanced polymers, including smart and active structural grades.
- *Polymeric compounds for Additive Manufacturing (3D/4D Printing)*: Advanced research into controlling the thermodynamic stability and shape-memory performance of renewable blends (like PLA/PLLA and starch-based bio-hybrids) tailored for 3D/4D automotive and durable engineering applications;
- *Nanocomposites & Biodegradable Polymers***:** Developing sustainable, cost-effective bio-nano-materials, such as starch and polyvinyl alcohol (PVOH) blends reinforced with multilayered silicates for food packaging and eco-friendly alternatives; iv) *Polymeric Biomaterials for Tissue Engineering***:** Designing stimuli-responsive (pH/thermosensitive) hydrogels and 3D scaffold matrices (such as layered alginate hydrogels) engineered for soft tissue regeneration and biomedical use;

- *Mechanical & Chemical Recycling:* Innovating structural up-gradation and chain-extension techniques for polymer circularity, specifically targeted at recycling post-consumer PET bottles and renewable polyesters.

**c. The most important contributions of the research results:**

- *Advanced Engineering of Starch-Based Materials:* core contributions is making starch—an abundant but brittle and highly rigid natural resource—commercially viable for sustainable, long-term applications through De- and Re-structuring Techniques through compatibilization and melt compounding processes that break down starch's natural crystalline structure and re-engineer it at micro- and nano-scales and controlling viscoelasticity to ensure the melt behavior proper for various techniques to get finished propucts.
- *Upgrading Biodegradable Polymers for 3D/4D Printing* through extended the lifetime by bridging this gap by modifying PLA blends);
- *Efficiencies in Polymeric Nanocomposites and Silicates* with researchers heavily targeting how nanomaterials disperse within polymer matrixes, a defining factor in structural material strength with multilayered exfoliation innovation method (its thermo-mechanical pretreatment in a plasticizer yields far better material exfoliation than heat and shear stress at melt compounding),
- *Mechanical Recycling of Plastics* through mechanical recovery of agricultural polyolefin films, end-of-life battery packs, post consumed PET bottles.

**d. Important key metrics:**

- *Project Leadership & Management* by acting as aProject Director and Principal Investigator for 40 academic and industrial research contracts. The experience spans driving technologies through various Technology Readiness Levels (TRL 3 to TRL 7), bridging the gap between laboratory concepts and commercially viable industrial scales;
- *Patents and Intellectual Property by holding as main author* 24 patents aand 4 patent requests (such as specialized compositions for biodegradable materials and tissue engineering hydrogels), demonstrating a strong capability to direct research toward tangible, protected industrial products and technologies
- *Scientific Output by* authoring over 85 articles in ISI-indexed journals as main authors, 1 booh, 5 book chapters (4 as main author) , and more than 150 scientific papers.
- *Scientific Evaluation and Review*: expert valuator for research programs and active scientific reviewer for major polymer and materials journals, ensuring that any project she leads adheres to global standards of methodology and ethics. Guest Editor at Polymers two editions, 2025- 2026.

**Track record of the last 10 years**

A list of the ten most important scientific outputs (publications, patents, technologies etc).

***a. Publications (Total 110 articles; 85as main author)***

1. *Doina Dimonie* et all., Controlling the Thermodynamic Stability of Melt-Compounded PLA as Opportunity to Achieve 3D Printing Automotive Items with Medium Lifetime, Journal of Composites Science *2026*-02-09 | Journal article DOI: 10.3390/jcs10020092
2. *Doina Dimonie* et all., The Influence of Miscibility of Some PLA-Based Bio-Hybrids Designed for 3D Printing and Medium-Life Applications on Their Physical Aging and Thermodynamic Stability, Polymers *2025*-12-25 | Journal article DOI: 10.3390/polym18010061
3. *Doina Dimonie* et all., De- and Re-Structuring of Starch to Control the Melt and Solid State Visco-Elasticity as Method for Getting New Multi Component Compounds with Scalable Properties, Polymers *2024*-10-30 | Journal article DOI: 10.3390/polym16213063
4. *Doina Dimonie* et all., Increasing the Efficiency of Multilayered Silicate Melt Incorporation into Starch-Based Polymeric Matrices, Journal of Composites Science *2024*-02-11 | DOI: 10.3390/jcs8020072

5. *Doina Dimonie et all*., New Biodegradable Materials for Re-Thought Packaging from Pre-Consumer Wastes by Controlling the Storage Time as Method to Increase the Mechanical Recycling Efficiency, Materials *2023*-02-10 | Journal article, DOI: 10.3390/ma16041503
6. *Doina Dimonie et all*, Embedded Target Filler and Natural Fibres as Interface Agents in Controlling the Stretchability of New Starch and PVOH-Based Materials for Rethinked Sustainable Packaging, Materials, *2022*-02 | Journal article | *Author,* DOI: 10.3390/ma15041377
7. *Doina Dimonie et all.,* Modulation of the PLLA Morphology through Racemic Nucleation to Reach Functional Properties Required by 3D Printed Durable Applications, Materials *2021*-11 | Journal article | *Author* DOI: 10.3390/ma14216650
8. *Doina Dimonie.*, "Materiale polimerice multifazice micro si nano structurate", Ed.Politehnica Press, 2019, ISBN 978-606-515-893-1, 2019
9. *Doina Dimonie et all,* New Evidences on the Process Sensitivity of Some Renewable Blends Based on Starch considering Their Melt Rheological Properties, International Journal of Polymer Science, *2016,* vol. 2016, Article ID 7873120, 10 pages, doi:10.1155/2016/7873120
10. *Doina Dimonie* et all. "Starch - Evolution and Recent Advances", InTech, DOI10.5772/intechopen.94824 June 28th *2022*, 978-1-83969-891-0, Cap.10, Micro and Nano Structuring as Method to Enhance the Functional Properties of Starch-Based Polymeric Materials

**b.** ***Books (1 main authors ) and Book chapters (5 and 4 as main author)***

1. Materiale Polimerice Multifazice micro si nano Structurate, Politehnica Press, **2019**, ISBN 978-606-515-893-1
2. "Starch - Evolution and Recent Advances", InTech, DOI10.5772/intechopen.94824 June 28th 20222, 978-1-83969-891-0 Cap.10, Micro and Nano Structuring as Method to Enhance the Functional Properties of Starch-Based Polymeric Materials (book chapter)

**c.** ***Patents and patent request (Total: 27 patents and 6 patent requests as main inventor )*** Gold Medal "Inventica 2008" Bucharest patent Ro.121692 ( main inventor ); Bronze medal "Inventica 2011" Bucharest patent Ro.125305 ( main author ).

1. *Doina Dimonie et all. "*Compozitie si procedeu pentru imbunatatirea proprietatilor functionaler ale acidului polilactic destinat imprimarii 3D", Brevet Ro nr.134389 / 28/02/*2023*
2. *Doina Dimonie et all.* "Compozitie pe baza de polimeri de provenienta regenerabila pentru aplicatii durabile in industria auto realizabile prin tehnici 3D sau/si clasice", Cerere *2022*
3. *Doina Dimonie* et all., "Compozitie si procedeu pentru realizarea de acid polilactic cu comportare termica imbunatatita pentru imprimare 3D", Brevet Ro 137348
4. *Doina Dimonie* et all., „Compozitie si procedeu pentru realziarea de polimeri regenerabili cu reologie controlata pentru imprimarea 3D" Hotarare OSIM nr.4.2/163/29.11.*2021*
5. *Doina Dimonie* et all., *"*Compozitie si procedeu pentru realizarea unor materiale regenerabile pentru produse biodegradabile cu viata scurta si procedeu pentru realizarea acestora", Brevet Ro 132579*/2020*
6. *Doina Dimonie* et all, *"*Compozitie si procedeu pentru imbunatatirea proprietatilor functionale alea PLA destinate imprimarii 3D", A2019-0079 /11.02.*2019*
7. *Doina Dimonie* et all, *"*Compozitie si procedeu pentru produse cu distrugere totala in mediu", brevet Ro 131977 B1, *2018*
8. *Doina Dimonie*, et all "Compozitie si procedeu pentru obtinerea unor hidrogeluri pH si termosenzitive destinate ingineriei tisulare", Brevet Ro 129557, 30.08.*2018*
9. *Doina Dimonie* et all,"Compozitie si procedeu pentru realizarea unor materiale biodegradabile cu continut ridicat de fibre naturale si umpluturi anorganice", Brevet Ro 130349 / 25.11.*2018*
10. si procedeu pentru obtinerea unor hidrogeluri destinate regenerarii tesutului adipos, Brevet RO 128708 /30.03.*2016*

***d. Technologies*** *(Total 20):*

1. Tehnologie pentru fabricarea unor compounduri de amidon si alti polimeri de provenienta regenerabila, fara plastifiant, prelucrabile in folii subtiri pentru ambalaje (2024, pentru PROMATERIS S.A.).
2. Tehnologie pentru fabricarea unor compounduri de amidon, si alti polimeri de provenienta regenerabila, fara plastifiant, prelucrabuile in tevi cu diametrul ingust(2024, pentru PROMATERIS S.A.).
3. Tehnologie pentru fabricarea unor compounduri de amidon si alti polimeri de provenienta regenerabila, fara plastifiant, printabile 3D (2024, pentru PROMATERIS S.A.).

4. Tehnologie pentru fabricarea unor compounduri de amidon si alti polimeri de provenienta regenerabila, fara plastifiant, prelucrabile in produs finit prin injectie (2024, pentru PROMATERIS S.A.).
5. Tehnologie pentru reciclare fara separarea de culori a deseurilor tehnologice formate la fabricatia foliilor multistrat din materiale pe baza de polimeri de provenienta regenerabila (2024, pentru PROMATERIS S.A.).

***e. New materials and products_other*** *(Total 47)*

- Performing technical evaluations of industrial operations to formulate production quality improvement strategies.
- Participating in the engineering and design of industrial lines optimized for emerging technology deployment.
- Overseeing the commissioning of new research instrumentation and identifying best-in-class equipment for operational integration
- 3D printing filament extrusion line construction (2015 – 2019)

***f. Member of PhD supervisory committees***

- „Modification of Bitumen with Macromolecular Compounds" (*2002 - 2006) at* UPB
- "Ecological, biodegradable cellular packaging based on renewable polymers" (2008 – 2012) at UPB
- "Investigation into the shear and extensional rheology of bio-based polymer during melt compounding" (2013 – 2015) at UPB

**g.** ***Academic advisor*** *for thesis: Renewable polymer materials compatible with 3D printing for sustainable applications," Similarity Report 45, dated 02/26/2026 (2% overall similarity index), embargoed until September 15, 2026, Oct. 2026.* "Materiale cu polimeri de provenienta regenerabila, compatibile cu imprimarea 3D, pentru aplicatii durabile", Raport de similitdine 45 din 26.02.2026 ( 2% index general de similitudine), in transparenta pana in 15 septembrie 2026, sustinere, oct.2026.

**h.** ***Reviewer*** (2002-current): Polymer International, Jurnal of nanomaterials, International Journal of Polymer Science, Materials Chemistry and Physics, World Journal of Engineering and Physical Science, World Journal of Engineering and Phisical Science, Journal of Polymer Engineering

**i.** ***Guest Editor Polymers – special Number*** Progress in 3D Printing of Polymeric Materials **,** 2025-First Edition; 2026-Second Edition

***j.*** ***Research contract Evaluator :*** 2002 – until now