Anexa 20

INSTITUTUL DE CHIMIE MACROMOLECULARĂ
"PETRU PONI" - IASI
INTRARE
IESIRE Nr. 4912
Ziua 23 luna 10 anul 2025

MEMORIUL ȘTIINȚIFIC

Subsemnata **Ioana Alexandra Călin (căs. TROFIN)**, student doctorand în cadrul SCOSAAR, Școala Doctorală de Chimie, înmatriculat la data de 1.11.2021 în domeniul de studii universitare de doctorat Chimie, la conducătorul de doctorat C.S. I Dr. Mariana-Dana Dămăceanu, autor al tezei de doctorat cu titlul *Polimeri hiperramificați pentru aplicații electronice*, declar următoarele activități realizate in cadrul stagiului doctoral.

A. Lista de lucrări științifice

1. Trofin, I.-A., Constantin, C.-P., Damaceanu, M.-D., Rusu, R.-D. "Diluting branches" put to work: from synthesis to properties control of multifunctional polymers derived from triphenylamine, fluorene and thiophene; Polymer Chemistry, 15(37), 3763–3778, (2024) **(FI = 4,1, Q1) (AIS = 0,765, Q1).**

2. Constantin, C.-P., Trofin, I.-A., Damaceanu, M.-D., Rusu, R.-D. From a highly branched design to multiple functionalities proof of concept: rigid/flexible electrochromic prototypes with integrated energy storage capabilities; Journal of Power Sources, 644, 237098, (2025) **(FI = 8,4, Q1) (AIS = 1,4, Q1).**

3. Rusu, R.-D., Trofin, I.-A., Damaceanu, M.-D., Constantin, C.-P. Starburst macromonomers with carbazole arms: From electropolymerization to electrochromic prototypes with energy storage capability. Journal of Energy Storage, 153, 120901, (2026) **(FI =10,7, Q1) (AIS = 1,338 , Q1).**

4. Trofin, I.-A, Rusu, R.-D., Constantin, C.-P., Damaceanu, M.-D. Highly branched conjugated polymers integrating 3, 4-propylenedioxythiophene, fluorene and triphenylamine: From same building blocks to distinct properties. Reactive and Functional Polymers, 106768, (2026) **(FI = 5,4, Q1) (AIS = 0,56, Q2).**

5. Trofin, I.-A., Rusu, R.-D., Constantin, C.-P., Damaceanu, M.-D. Electrochromic energy storage performance of highly branched conjugated polymers with variable structural composition. Solar Energy Materials and Solar Cells, https://doi.org/10.1016/j.solmat.2026.114798
(FI = 6,6, Q1) (AIS = 0.927, Q1).

6. Trofin, I.-A. Constantin, C.-P., Damaceanu, M.-D., Rusu, R.-D. Tuning the properties of hyperbranched polyimides by the gradual modification of the starburst core ratio, *manuscris în pregătire.*

B. Cărți și manuale

1. Rusu, R.-D., Trofin, I.-A., Gavril I-A, 2024 capitolul de carte intitulat *Polyimide nanocomposites and blends for biomedical applications,* pag. 353-394, Elsevier, 978-0-323-90294-6.

C. Participări la conferințe/workshop-uri

Comunicări orale

1. Trofin, I.-A., Rusu, R.-D., Constantin, C.-P., Damaceanu, M.-D. Macromolecular engineering of thiophene-containing hyperbranched architectures exhibiting electrochromic properties. MacroYouth 2023, ediția a 4-a, Iași, România, 17.11.2023.
2. Trofin, I.-A., Rusu, R.-D., Constantin, C.-P., Damaceanu, M.-D. Hyperbranched thiophene-based polymers with integrated electrochromic and energy storage functions. 15th International Conference on Physics of Advanced Materials (ICPAM-15), Sharm El-Sheikh, Egipt, 19–26.11.2023.
3. Trofin, I.-A., Rusu, R.-D., Constantin, C.-P., Damaceanu, M.-D. Flexible polyimide films obtained from fluorinated hyperbranched architectures. 6th Autumn School on Physics of Advanced Materials (PAMS-6), Sharm El-Sheikh, Egipt, 18–26.11.2023.
4. Trofin, I.-A., Rusu, R.-D., Constantin, C.-P., Damaceanu, M.-D. Thiophene based hyperbranched polymers for electrochromic and energy storage applications. International Conference CHIMIA 2024 "New Trends in Applied Chemistry", Constanța, România, 30.05–01.06.2024.
5. Rusu, R.-D., Trofin, I.-A., Constantin, C.-P., Damaceanu, M.-D. Turning the morphological, dielectric, and wetting properties of hyperbranched polyimides through structural engineering of rigid and flexible moieties. 18th International Conference on Physics of Advanced Materials (ICPAM-18), Praga, Cehia, 05–13.09.2026.
6. Trofin, I.-A., Rusu, R.-D., Constantin, C.-P. Solution and solid-state white light emission from polyfluorene-based organic blends. MacroYouth 2022, ediția a 3-a, Iași, România, 18.11.2022.

Comunicări poster

1. Trofin, I.-A., Constantin, C.-P., Rusu, R.-D., Damaceanu, M.-D. Propylenedioxythiophene-based hyperbranched polymers for electrochromic and energy storage applications. PolyChar World Forum on Advanced Materials, ediția a 30-a, Iași, România, 11–13.09.2024.
2. Trofin, I.-A., Rusu, R.-D., Constantin, C.-P., Damaceanu, M.-D. Fluorinated hyperbranched polyimides for free-standing membranes. International Conference CHIMIA 2024 "New Trends in Applied Chemistry", Constanța, România, 30.05–01.06.2024.
3. Trofin, I.-A., Rusu, R.-D., Constantin, C.-P. Organic polymeric blends for solution and solid-state white light emission. 1st Baltic Symposium on Polymer and (Bio) Materials Science (Baltic BioMat), Szczecin, Polonia, 22–23.09.2022.

D. Brevete

1. Cerere de brevet *Procedeu de obținere a unui derivat aldolic nesaturat pe bază de trifenilamină cu emisie de lumină în domeniul portocaliu*, R. D. Rusu, C. P. Constantin, I. A. Trofin, Nr. OSIM: A/00676 din 25.10.2022.

E. Proiecte

1. Membru doctorand, 01.02.2025–31.05.2025: Phenoxazine-based polyamides for hybrid prototype devices with near infrared electrochromism and energy storage capability, PN-IV-P2-2.1-TE-2023-0213 (NIReCSD).
2. Membru doctorand, 30.12.2024–01.06.2025: Co-Integration of Microelectronics and Photonics for Air and Water Sensors, HORIZON-CL4-2023-DIGITAL-EMERGING-01 (COMPAS).
3. Membru doctorand, 02.03.2023–31.12.2023: Exceeding the limits of polyimide membranes for less-energy intensive CO_2 separation and capture by employing the PIM concept and blending technique, PN-III-P2-2.1-PED-2021-1666 (memPIM-PIs).
4. Membru doctorand, 01.11.2022–20.12.2024: Energy storage smart windows: from material development to engineering single flexible device with integrated electrochromic and capacitive functions, PN-III-P4-PCE-2021-1728 (EnStoreSW).
5. Membru doctorand, 01.11.2022–30.04.2024: Engineering high-k dielectric materials based on copolyimides for energy-storage devices, PN-III-P1-1.1-TE-2021-1110 (High-k-coPI).
6. Membru doctorand, 09.11.2021–31.10.2022: State-of-the-art engineering of energy saving polymer-based electrochromic devices with low voltage operation, PN-III-P2-2.1-PED-2019-3520 (EngEChrom).
7. Membru doctorand, 09.11.2021–31.10.2022: Light Emitting Polymeric Devices Improved by Chemical Tools, PN-III-P2-2.1-PED-2019-3993 (LEPDICT).

F. Stagii de cercetare/perfecționare

1. Stagiu scurt de cercetare la Centrul de Polimeri și Materiale pe bază de Carbon, Zabrze, Polonia, 24–30.10.2022. Participare finanțată în cadrul proiectului LEPDICT, PN-III-P2-2.1-PED-2019-3993.
2. Participare la 6th Autumn School on Physics of Advanced Materials (PAMS-6), Sharm El-Sheikh, Egipt, 18–26.11.2023. Participare finanțată în cadrul proiectului memPIM-PIs, PN-III-P2-2.1-PED-2021-1666.

G. Alte activități

Membru doctorand în Consiliul pentru Studiile Universitare de Doctorat (CSUD) al Școlii de Studii Avansate a Academiei Române (SCOSAAR), în perioada 2023–prezent.

Student-doctorand

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