

Lista de lucrări & rezultate semnificative în activitatea CDI

1. Teza de doctorat:

“Ingénierie de systèmes conjugués A- π -D diaziniques et évaluation de leurs propriétés opto-électroniques. Mélatamines spirodendritiques à partir des amino-1,3-dioxanes sérinologiques énantiopures. Design, synthèse et analyse structurale” Conducători de doctorat: Pr. Dr. Ing. Mircea Darabantu (Universitatea Babeș-Bolyai, Cluj-Napoca, Romania), Pr. Dr. Yvan Ramondenc (Universitatea din Rouen, Franta). Sustinere publica 22.11.2012, UBB Cluj-Napoca. Calificativul Doctoral acordat *Magna cum Laude* conform OMECTS 3250MD din 20.02.2013.

2. Cărți publicate :

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3. **Articole/studii** publicate în reviste de specialitate de circulație internațională recunoscute sau în reviste din țară recunoscute de CNCSIS:

- 3.1. “Reduced graphene oxide modified with noble metal nanoparticles for formic acid dehydrogenation”
O. Grad, M. Mihet, M. Coros, M. Dan, M. D. Lazar, G. Blanita
Catalysis Today **2021**, 366, 41-47
- 3.2. “MIL-101- Al_2O_3 as catalytic support in the methanation of CO_2 – Comparative study between Ni/MIL-101 and Ni/MIL-101- Al_2O_3 catalysts”
O. Grad, M. Mihet, G. Blanita, M. Dan, M. D. Lazar
Catalysis Today **2021**, 366, 114-122
- 3.3. “Mesoporous metal-organic framework MIL-101 at high pressure”
A. Celeste, A. Paolone, J-P. Itie, F. Borondics, B. Joseph, **O. Grad**, G. Blanita, C. Zlotea, F. Capitani
Journal of the American Chemical Society, **2020**, 142(35), 15012-15019
- 3.4. “Hybrid MOFs-graphene composites: Correlation between thermal transport and kinetics of hydrogen adsorption”
M. Streza, **O. Grad**, M. D. Lazar, M. Depriester, S. Longuemart, A.H. Sahraoui, G. Blanita, D. Lupu
International Journal of Heat and Mass Transfer **2019**, 143, 118539
- 3.5. “Effective encapsulation of Ni nanoparticles in metal-organic frameworks and their application for CO_2 methanation”
M. Mihet, **O. Grad**, G. Blanita, T. Radu, M. Dan, M. D. Lazar
International Journal of Hydrogen Energy **2019**, 44(26), 13383-13396
- 3.6. “Au/reduced graphene oxide composites: eco-friendly preparation method and catalytic applications for formic acid dehydrogenation”
O. Grad, M. Mihet, M. Dan, G. Blanita, T. Radu, C. Berghian-Grosan, M. D. Lazar
J. Mater. Sci. **2019**, 54(9), 6991-7004
- 3.7. “Novel N-modified glycines on a (1S,2S)-2-amino-1-(4-nitrophenyl)propane-1,3-diol skeleton: 1,3-dioxanes and tripodands”
O. Moldovan, K. Albert, I. Nagy, C. Morar, C. Sacalis, M. Darabantu
Tetrahedron Letters **2016**, 57(51), 5808-5811

- 3.8. "Synthesis of Some Selectively N-Protected (1S,2S)-p-Nitrophenylserinol-Based Diamino-1,3-dioxanes and Tripodands"
I. Nagy, **O. Moldovan***, F. Popa, P. Lameiras, C. Morar, C. Sacalis, M. Darabantu
Synthetic Communications, **2015**, 45(20), 2319-2330
- 3.9. "Design, iterative synthesis and structure of novel optically active trispiro-dendritic melamines incorporating 'open-chain' versus 'closed-chain' serinolic peripheral units"
O. Moldovan, I. Nagy, P. Lameiras, C. Antheaume, C. Sacalis, M. Darabantu
Tetrahedron Asymmetry, **2015**, 26(14), 683-701
- 3.10. "Synthesis and stereochemistry of new 1,3-thiazolidine systems based on 2-amino-2-(mercaptomethyl)propane-1,3-diol: 4,4-bis(hydroxymethyl)-1,3-thiazolidines and c-5-hydroxymethyl-3-oxa-7-thia-r-1-azabicyclo[3.3.0]octanes"
C. Morar, C. Sacalis, P. Lameiras, A. Soran, H. Khartabil, C. Antheaume, I. Bratu, **O. Moldovan**, M. Darabantu
Tetrahedron **2013**, 69(47), 9966-9985
- 3.11. "Synthesis and photophysical properties of push-pull structures incorporating diazines as attracting part and fluorene core"
C. Denneval, **O. Moldovan**, C. Baudequin, S. Achelle, P. Baldeck, N. Plé, M. Darabantu and Y. Ramondenc
Eur. J. Org. Chem. **2013**, 25, 5591-5602
- 3.12. "Stereochemistry of Six-membered Spiranes Arising from the First Use of a Diaza-trispiro-heneicosane Motif in the Synthesis of a G-1 Dendritic Melamine"
O. Moldovan, P. Lameiras, I. Nagy, T. Opruta, F. Popa, C. Antheaume, Y. Ramondenc, M. Darabantu
Tetrahedron, **2013**, 69(4), 2199-2213
- 3.13. "Novel 1,3-Thiazolidines. Synthesis of 2-Aryl-4,4-Bis(Hhydroxymethyl)-1,3-Thiazolidines by Direct Thioamination"
C. Morar, C. Sacalis, P. Lameiras, I. Bratu, **O. Moldovan**, Y. Ramondenc and M. Darabantu
Stud. U. Babeş-Bolyai. Chem., **2012**, LVII, 4, 145-156
- 3.14. "Design, Synthesis and Structure of New Dendritic Melamines. First Use of a Tandem C-2-Substituted Serinol-O,O-Masked 4-Piperidone as a Peripheral Unit in Iterative Synthesis"
F. Popa, P. Lameiras, **O. Moldovan**, M. Tomoaia-Cotisel, E. Henon, A. Martinez, C. Sacalis, A. Mocanu, Y. Ramondenc, M. Darabantu
Tetrahedron **2012**, 68(43), 8945-8967
- 3.15. "New Serinolic Amino-s-triazines by Chemoselective Amination of Cyanuric Chloride and their (Pro)diastereomerism in Restricted Rotational Phenomena"
O. Moldovan, P. Lameiras, E. Henon, F. Popa, A. Martinez, D. Harakat, C. Sacalis, Y. Ramondenc, M. Darabantu
Centr. Eur. J. Chem. **2012**, 10(4), 1119-1136
- 3.16. "Amino-s-triazine. Synthesis and Stereochemistry of Restricted Rotational Phenomena. First Use of a C-2-Substituted Serinol in Tandem with Masked 4-Piperidone for Selective Amination of Cyanuric Chloride"
F. Popa, P. Lameiras, E. Henon, **O. Moldovan**, A. Martinez, C. Bătiu, Y. Ramondenc, M. Darabantu
Can. J. Chem. **2011**, 89(10), 1207-1221
- 3.17. "To What Extent the NMR "Mobile Protons" Are Relevant for Restricted Rotational Stereochemistry Phenomena? A Case in Amino-s-Triazine Series"
O. Moldovan, P. Lameiras, E. Henon, F. Popa, A. Martinez, D. Harakat, C. Bătiu, Y. Ramondenc, M. Darabantu
Stud. U. Babeş-Bolyai. Chem. **2010**, LV, 4, 35-39

- 3.18. *“Synthesis of a Dimeric G-2 Melamine Dendrimer. First Use of a Masked Piperidone Motif in Dendritic Chemistry”*
F. Popa, **O. Moldovan**, M. Iusco, P. Lameiras, C. Batiu, Y. Ramondenc, M. Darabantu
Stud. U. Babes-Bol. Che. **2009**, LIV, 4, 237-248

4. Studii publicate în volumele unor manifestări științifice internaționale recunoscute din țară și din străinătate (cu ISSN sau ISBN):

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5. Brevete de invenție:

- 5.1. *“Procedeu de sinteză a structurii metal-organice MIL-101(Cr)”*
G. Blanita, D. Lupu, **O. Grad**, I. Misan, I. Coldea, M. D. Lazar, G. Borodi, M. Dan
Nr. înregistrare OSIM A/01027/5.12.2017

6. Proiecte de cercetare-dezvoltare-inovare pe baza de contract/grant:

1. Proiecte internaționale:

- 6.1.1. *“Hybrid Solvent – Membrane for post-combustion CO₂ capture and utilization-”* proiect România – Norvegia RO-NO-2019-0379 (2020-2023). Responsabil INCDTIM: Dr. Diana Lazăr, *membreu in echipa de cercetare.*
- 6.1.2. *“Metal doped metal-organic frameworks for energy storage -MEMOS-”* proiect Cooperare bilaterală România – Franța PN II-JRP-RO-FR-2015-0025-25 (2016-2018). Director proiect: Dr. Gabriela Blanita, *membreu in echipa de cercetare.*

2. Proiecte naționale:

- 6.2.1. *“CO₂ methanation by MOF based/derived ordered mesoporous catalysts -CO₂-OMC-”* proiect PN III-P1-1.1-TE-2019-1447 TE 161/2020 (2020-2022). Director proiect: Dr. Maria Miheț, *membreu in echipa de cercetare.*
- 6.2.2. *“Implementarea de noi metode, modele și tehnologii inovative în vederea promovării produselor alimentare românești și a protecției mediului inconjurător”* proiect NUCLEU PN19 35 02 02 (2019-2022). Responsabil proiect: Dr. Alina Măgdaș, *membreu in echipa de cercetare.*
- 6.2.3. *“ Hidrogenul ca vector de energie – metode noi pentru stocarea și utilizarea hidrogenului în scopuri energetice”* proiect NUCLEU PN16 – 30 01 04 (2016-2018). Responsabil proiect: Dr. Diana Lazăr, *membreu in echipa de cercetare.*
- 6.2.4. *“ Dezvoltarea unor metode alternative pentru depoluarea apei și solului”* proiect NUCLEU PN16 – 30 02 04 (2016-2018). Responsabil proiect: Dr. Alina Măgdaș, *membreu in echipa de cercetare.*
- 6.2.5. *“Glicine N-modificate ca si core-uri dendritice (hetero)aromatice meta-trivalente si enantiopure”* grant pentru tinerii cercetatori GTC-34053/201/UBB (2013-2014), **director de proiect.**
- 6.2.6. *“Iterative synthesis. New dendritic melamines incorporating serinolic units. Design, preparation, structural analysis and potential applications“* proiect PN-II-ID-PCE-2011-3-0128 (2011-2016). Director de proiect: Pr. dr. Mircea Darabantu, *membreu in echipa de cercetare.*

7. Comunicări orale sau prin postere:

- 7.1. *"Reduced graphene oxide modified with noble metal nanoparticles for formic acid dehydrogenation"*
O. Grad, M. Mihet, M. Coros, M. Dan, M. D. Lazar, G. Blanita
12th International Symposium of the Romanian Catalysis Society (RomCat 2019), Bucharest Romania, 5-7 June 2019 (poster presentation)
- 7.2. *"Effective deposition of Ni nanoparticles on MIL-101/Al₂O₃:catalytic performance in the methanation of CO₂"*
M. Mihet, **O. Grad**, G. Blanita, L. Barbu-Tudoran, M. D. Lazar,
12th International Symposium of the Romanian Catalysis Society (RomCat 2019), Bucharest Romania, 5-7 June 2019 (poster presentation)
- 7.3. *"Synthesis and characterization of MIL-101 based catalysts: bulk MIL-101 on γ -Al₂O₃ as catalytic supports"*
M. Mihet, **O. Grad**, G. Blanita, M. D. Lazar,
14th European Congress on Catalysis (EuropaCat 2019), Aachen Germany, 18-23 August, 2019 (poster presentation)
- 7.4. *"Hierarchical MOF/ γ -Al₂O₃ composites: preparation and characterization"*
O. Grad, M. Mihet, M. D. Lazar, G. Blanita
12th International Conference Processes in Isotopes and Molecules (PIM 2019), Cluj-Napoca Romania, 25-17 September 2019 (poster presentation)
- 7.5. *"Ni@MIL-53 and Ni@MIL-53/Al₂O₃ catalysts: comparative performance in the methanation of CO₂"*
M. Mihet, **O. Grad**, G. Blanita, L. Barbu -Tudoran, M. D. Lazar,
12th International Conference Processes in Isotopes and Molecules (PIM 2019), Cluj-Napoca Romania, 25-17 September 2019 (poster presentation)
- 7.6. *"Au/graphene composites as catalyst for formic acid dehydrogenation"*
T. Radu, **O. Grad**, M. Mihet, M. Dan, C. Berghian-Grosan, G. Blanita, M. D. Lazar,
12th International Conference Processes in Isotopes and Molecules (PIM 2019), Cluj-Napoca Romania, 25-17 September 2019 (poster presentation)
- 7.7. *"Scalable green synthesis of chromium(III) terephthalate metal-organic framework"*
O. Grad, M. Dan, L. Barbu-Tudoran, M. D. Lazar, G. Blanita
12th International Conference on Physics of Advanced Materials (ICPAM-12), Heraklion Greece, 22-28 September 2018 (poster presentation)
- 7.8. *"The interaction of hydrogen with nanosized Pd clusters embedded in MIL-101(Cr)"*
A. Malouche, **O. Grad**, D. Lupu, C. Zlotea, G. Blanita
12th International Conference on Physics of Advanced Materials (ICPAM-12), Heraklion Greece, 22-28 September 2018 (poster presentation)
- 7.9. *"AuPd nanoparticles supported on reduced graphene oxide for dehydrogenation of formic acid"*
O. Grad, M. Mihet, M. Coros, M. Dan, L. Barbu-Tudoran, M. D. Lazar, G. Blanita
7th EuCheMS Chemistry Congress Molecular frontiers & global challenges (EuCheMS), ACC Liverpool UK, 26-30 August 2018 (poster presentation)
- 7.10. *"MOF structuring by immobilization on γ -Al₂O₃ – synthesis and characterization of MOF@Al₂O₃ composites"*
M. Mihet, **O. Grad**, M. D. Lazar, G. Blanita
7th EuCheMS Chemistry Congress Molecular frontiers & global challenges (EuCheMS), ACC Liverpool UK, 26-30 August 2018 (poster presentation)

- 7.11. *"Greening metal-organic frameworks synthesis"*
O. Grad, M. Dan, M. D. Lazar, D. Lupu, G. Blanita
7th EuCheMS Chemistry Congress Molecular frontiers & global challenges (EuCheMS), ACC
Liverpool UK, 26-30 August **2018** (poster presentation)
- 7.12. *"Hierarchical MOF@Al₂O₃ composites – influence of synthesis conditions on the growth of benzenedicarboxylate-based MOFs on γ -Al₂O₃"*
O. Grad, M. Mihet, M. D. Lazar, G. Blanita
14th Pannonian International Symposium on Catalysis, Stry Smokovec Slovak Republic, 03-07
September **2018** (poster presentation)
- 7.13. *"Au-graphene composites: preparation, characterization and catalytic activity"*
M. D. Lazar, G. Blanita **O. Grad**, M. Dan, M. Mihet
14th Pannonian International Symposium on Catalysis, Stry Smokovec Slovak Republic, 03-07
September **2018** (oral presentation)
- 7.14. *"Interacțiunea hidrogenului cu compozite de tip Pd@MOF"*
C. Zlotea, A. Malouche, **O. Grad**, D. Lupu, G. Blanita
Zilele Academice Clujene – Secțiunea Chimie, Cluj-Napoca Romania, 18-19 October **2018** (oral
presentation)
- 7.15. *"The interaction of hydrogen with with nanosized Pd clusters"*
C. Zlotea, A. Malouche, D. Lupu, **O. Grad**, G. Blanita
22nd New cryogenic and isotope technologies for energy and environment (EnergEn), Băile Govora
Romania, 24-26 October **2018** (oral presentation)
- 7.16. *"Graphene-based Catalysts for Efficient Hydrogen Generation from Formic Acid"*
O. Grad, M. Mihet, M. Coros, M. D. Lazar, M. Dan, L. Barbu-Tudoran, G. Borodi, G. Blanita
11th International Conference Processes in Isotopes and Molecules (PIM), Cluj-Napoca Romania,
27-29 Septembrie **2017** (poster presentation)
- 7.17. *"MOF based catalysts for hydrogen production from formic acid"*
M. Dan, A. Vulcu, **O. Grad**, M. Mihet, M. D. Lazar, G. Blanita
11th International Conference Processes in Isotopes and Molecules (PIM), Cluj-Napoca Romania,
27-29 Septembrie **2017** (poster presentation)
- 7.18. *"Glycines N-modifiées comme coeurs dendritiques méta-trivalents (hétéro)aromatiques et
optiquement actives"*
O. Moldovan, I. Nagy, M. Darabantu
Le Huitième Colloque Franco-Roumain de Chimie Appliquée (COFrRoCA 2014), Montpellier,
France 15-18 Septembre **2014** (poster presentation)
- 7.19. *"Tandèmes sérinologiques dans la synthèse itérative de nouvelles mélamines dendritiques"*
O. Moldovan, P. Lameiras, C. Batiu, Y. Ramondenc, M. Darabantu
Journées Nord-Ouest Européennes des Jeunes Chercheurs (JNOEJC 2011), Caen, 14-15 Juin **2011**
(poster presentation)
- 7.20. *"Serinolic Tandems in Iterative Synthesis of Novel Dendritic Melamines"*
O. Moldovan, P. Lameiras, C. Batiu, Y. Ramondenc, M. Darabantu
Journées de l'Ecole Doctorale Normande de Chimie (JEDNC 2011), Havre, 31 Mai **2011** (poster
presentation)
- 7.21. *"Synthèse convergente et analyse structurale de nouveaux dendrimères G-2 melaminiques à partir
d'un tandem Sérinol C-2-substitué et de cétal de la 4-piperidone"*
F. Martin-Popa, **O. Moldovan**, P. Lameiras, M. Tomoaia-Cotisel, C. Batiu, Y. Ramondenc, M.
Darabantu

Le Sixième Colloque Franco-Roumain de Chimie Appliquée (COFrRoCA 2010), Orléans, France 7-10 Juillet 2010 (poster presentation)

- 7.22. *"Design and Iterative Synthesis of Some Melamine G-2 Dendrons and Dendrimers Based on β -Aminoalcohols and 4-Piperidone Skeletons as Surface Groups"*
F. Martin, M. Iusco, **O. Moldovan**, L. Andrisca, P. Lameiras, C. Batiu, Y. Ramondenc, M. Darabantu
Journées Nord-Ouest Européennes Jeunes Chercheurs et Journées de l'Ecole Normande de Chimie (JNOEJC 2009), Rouen-Caen-Southampton, Mai 2009 (poster presentation)

8. Lucrări in extenso reprezentative pentru domeniul ales:

- 8.1. *"Reduced graphene oxide modified with noble metal nanoparticles for formic acid dehydrogenation"*
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Catalysis Today **2021**, 366, 41-47
- 8.2. *"MIL-101- Al_2O_3 as catalytic support in the methanation of CO_2 – Comparative study between Ni/Mil-101 and Ni/MIL-101- Al_2O_3 catalysts"*
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- 8.3. *"Hybrid MOFs-graphene composites: Correlation between thermal transport and kinetics of hydrogen adsorption"*
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- 8.4. *"Effective encapsulation of Ni nanoparticles in metal-organic frameworks and their application for CO_2 methanation"*
M. Mihet, **O. Grad**, G. Blanita, T. Radu, M. Dan, M. D. Lazar
International Journal of Hydrogen Energy **2019**, 44(26), 13383-13396
- 8.5. *"Au/reduced graphene oxide composites: eco-friendly preparation method and catalytic applications for formic acid dehydrogenation"*
O. Grad, M. Mihet, M. Dan, G. Blanita, T. Radu, C. Berghian-Grosan, M. D. Lazar
J. Mater. Sci. **2019**, 54(9), 6991-7004