## PERSONAL INFORMATION


# Maria Miheţ (born Cîmpean)

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Sex F | Date of birth 12/09/1981 | Nationality Romanian


## WORK EXPERIENCE

July 2016 – present
March 2008 – July 2016
November 2006 – March 2008

### Scientific researcher III
### Scientific researcher
### Assistant researcher

National Institute for R&D of Isotopic and Molecular Technologies – INCDTIM, Donat Street, nr. 67-103, Cluj-Napoca, 400293, www.itim-cj.ro

- Preparation of metal/support catalysts using different techniques: impregnation, co-precipitation, deposition-precipitation;
- Characterization of nanostructured materials through: *physical methods* (specific surface area, specific pore volume, pore size and distribution – BET method), or *chemical methods* (active metallic surface by $H_2$ or CO chemisorption, determination of active catalytic centers by temperature programmed desorption – $H_2$-TPD, $CO_2$-TPD, NO-TPD, $NH_3$-TPD, temperature programmed reduction – TPR, temperature programmed oxidation – TPO).
- Catalytic activity of metal/support materials in heterogeneous catalytic processes – gas-solid, liquid-solid: conversion, selectivity, reaction rate, deactivation – regeneration of catalysts (catalytic reduction of NOx with $H_2$, $CO_2$ methanation, hydrogenation reactions, formic acid decomposition, etc.)
- Mathematical modelling of chemical processes (MatLAB, COMSOL Multiphysics)

Business or sector research – development

October 2003 – April 2004

### „Leonardo Da Vinci" Scholarship

Umweltforschungszentrum GmbH, Leipzig-Halle, Germany, https://www.ufz.de

- Investigation of As containing compounds in the presence of enzymes (arsenious acid (As(III)), dimethyl arsinic acid (DMA), arsenat (As(V)), arsenobetaine (AsB), trimethyl arsinic oxide (TMAO));
- Enzyme-assisted extraction of As containg compounds from plant material: kinetics and efficiency of enzymatic hydrolysis (HPLC-PAD), analysis of As containing compounds from the extracts (IC-ICPMS).

Business or sector research – development

## EDUCATION AND TRAINING

October 2008 – May 2015

### PhD – Chemical Engineering — ISCED 6

*„Catalytic reduction of nitrogen oxides from the residual gases of the $^{15}N$ separation column"*

Babeş-Bolyai University, Faculty of Chemistry and Chemical Engineering, Cluj-Napoca, Romania

2006 – 2007

### Master of Science – Advanced Process Engineering (*in English*) — ISCED 6

Babeş-Bolyai University, Faculty of Chemistry and Chemical Engineering, Cluj-Napoca, Romania

2000 – 2003; 2004 – 2006

### Bachelor of Science – *Chemical Engineering, Chemical Systems Informatics* — ISCED 5

Babeş-Bolyai University, Faculty of Chemistry and Chemical Engineering, Cluj-Napoca, Romania

1996 – 2000

### Bacalaureat

National Colege „Decebal", Deva, *Mathematics-Physics, intensive English teaching*

## PERSONAL SKILLS

Mother tongue(s): Romanian / German

Other language(s):

| | UNDERSTANDING | | SPEAKING | | WRITING |
|---|---|---|---|---|---|
| | Listening | Reading | Spoken interaction | Spoken production | |
| English | C1 | C1 | C1 | C1 | C1 |
| French | B1 | B1 | A2 | A2 | A2 |
| Spanish | A2 | A2 | A2 | A2 | A1 |

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

**Communication skills**
- Good communication skills gained through my experience in multicultural and multidisciplinary teams.

**Organisational / managerial skills**
- Planning and organizing skills gained in the preparation and development of research projects, or in organizing events (scientific conferences, seminaries, children camps, etc)

**Job-related skills**
- Operation and maintainance of equipments: Sorptomatic 1990 (BET), TPDRO Series 1100 (TPD, TPR, TPO), Microactivity Reference Reactor PID&Eng Tech, Quadrupolar Mass spectrometer QMS, PrismaPlus.

**Digital skills**
- MSOffice, OriginPro, ChemDraw, CorelDraw, MatLab, COMSOL Multiphysics

**Other skills**
- Text editing skills obtained during multiple contexts (books, guides, etc)

**Driving licence**: B

## ADDITIONAL INFORMATION

**Publications**
- 34 scientific papers (31 in ISI journals)
- 2 book chapters, 1 patent

**Presentations/Conferences**
- 50 works presented at international conferences (12 oral presentations)

**Projects**
- Coordinator of 1 project: Postdoctoral Project PN-III-P1-1.1-PD-2016-1228 - „From nanoreactor to a high-performance fixed bed reactor using hierarchical MOF based catalysts – MOFReCAT, project value 250.000 lei, project duration 2018-2020.
- Member in the research team of 19 R&D projects (2 international)

**Memberships**
- Member of the Romanian Catalysis Society, since 2007
- Member of the Romanian Chemistry Society, since 2018

**Citations**
- h-index: 10

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ResearcherID: http://www.researcherid.com/rid/F-7222-2015
ResearchGate Profile: https://www.researchgate.net/profile/Maria_Mihet

## ANNEXES

List of Publications:

- M. Dan, **M. Mihet**, G. Borodi, M.D. Lazar – Combined steam and dry reforming of methane for syngas production from biogas using bimodal pore catalysts, *Catalysis Today*, **2020**, https://doi.org/10.1016/j.cattod.2020.09.014
- O. Grad, **M. Mihet**, M. Coros, M. Dan, M.D. Lazar, G. Blanita – Reduced graphene oxide modified with noble metal nanoparticles for formic acid dehydrogenation, *Catalysis Today*, **2020**, https://doi.org/10.1016/j.cattod.2020.08.009
- O. Grad, **M. Mihet***, G. Blanita, M. Dan, L. Barbu-Tudoran, M.D. Lazar – 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, *Catalysis Today*, **2020**, https://doi.org/10.1016/j.cattod.2020.05.003
- M. Dan, M. **Mihet**, M.D. Lazar – Hydrogen and/or syngas production by combined steam and dry reforming of methane on nickel catalysts, *Int. J. Hydrogen Energy*, **2020**, https://doi.org/10.1016/j.ijhydene.2019.12.158
- **M. Mihet,** O. Grad, G. Blanita, T. Radu, M. D. Lazar – Effective Encapsulation of Ni nanoparticles in metal-organic frameworks and their application for $CO_2$ methanation, *Int. J. Hydrogen Energy*, **2019,** 44, 13383–13396.

- O. Grad, **M. Mihet,** M. Dan, G. Blanita, T. Radu, C. Berghian-Grosan, M. D. Lazar – Au/reduced graphene oxide composites: eco-friendly preparation method and catalytic applications for formic acid dehydrogenation, *J. Mater. Sci.,* **2019**, 54, 6991–7004.
- **M. Mihet,** G. Blanita, M.Dan, L. Barbu-Tudoran, M.D. Lazar – Pt/UiO-66 nanocomposites as catalysts for $CO_2$ methanation process, *J. Nanosci. Nanotechnol.*, **2019**, 19, 3187-3196. (doi:10.1166/jnn.2019.16607)
- M.D. Lazar, L. Senila, M. Dan, **M. Mihet** – Crude Bioethanol Reforming Process: The Advantage of a Biosource Exploitation (chapter 10), in *Ethanol – Science and Engineering*, Editors: A. Basile, A. Iulianelli, F. Dalena, T. N. Veziroglu, **2019**, Elsevier, Amsterdam, 257–288. (https://doi.org/10.1016/B978-0-12-811458-2.00010-9)
- **M. Mihet**, M.D. Lazar – Methanation of $CO_2$ on Ni/γ-$Al_2O_3$: Influence of Pt, Pd or Rh promotion, *Catal Today,* **2018**, 306, 294–299. (https://doi.org/10.1016/j.cattod.2016.12.001)
- **M. Mihet**, V.-M. Cristea, P.-S. Agachi, A.-M. Cormos, M.D. Lazar – CFD simulations, experimental validation and parametric studies for the catalytic reduction of NO by hydrogen in a fixed bed reactor, *RSC Adv.,* **2016**, 6, Issue 92, 89259–89273. (doi: 10.1039/C6RA18294A)
- M. Dan, **M. Mihet**, M.D. Lazar, L.M. Muresan – Promoted alumina supported Ni catalyst for ethanol steam reforming, *Studia Chemia UBB,* **2016**, *LXI, 2*, 137–154.
- M. Dan, **M. Mihet**, M.D. Lazar – Catalytic Glycerol Steam Reforming for Hydrogen Production, *AIP Conf Proc*, **2015**, *1700*, 060001. (doi: 10.1063/1.4938451)
- M. Dan, **M. Mihet**, Z. Tasnadi-Asztalos, G. Katona, M.D. Lazar – Hydrogen production by ethanol steam reforming on nickel catalysts: Effect of support modification by $CeO_2$ and $La_2O_3$, *Fuel*, **2015**, *147*, 260-268. (doi: 10.1016/j.fuel.2015.01.050)
- G. Blanita, **M. Mihet,** G. Borodi, I. Misan, I. Coldea, D. Lupu – Ball milling and compression effects on hydrogen adsorption by MOF:Pt/carbon mixtures, *Microporous Mesoporous Mater*, **2015**, *203*, 195-201. (doi:10.1016/j.micromeso.2014.10.041)
- M. Dan, L. Senila, M. Roman, **M. Mihet**, M.D. Lazar – From wood wastes to hydrogen: preparation and catalytic steam reforming of crude bio–ethanol obtained from fir wood, *Renewable Energy* **2015**, *74*, 27-36. (doi: 10.1016/j.renene.2014.07.050)
- **M. Mihet**, M.D. Lazar – Effect of Pd and Rh promotion on Ni/$Al_2O_3$ for NO reduction by hydrogen for stationary applications, *Chem. Eng. J.* **2014**, *251*, 310-318. (http://dx.doi.org/10.1016/j.cej.2014.04.079)
- M-C Rosu, **M. Mihet**, I. Bratu – The influence of drying conditions on some physical–chemical properties of $TiO_2$-based layers prepared using different organic binders, *Mater. Sci. Semicond. Process.* 2014, *19*, 95–100. (http://dx.doi.org/10.1016/j.mssp.2013.12.007)
- **M. Mihet**, M.D. Lazar, G. Borodi, V. Almasan – Effect of Pt Promotion on Ni/$Al_2O_3$ for the Selective Catalytic Reduction of NO with Hydrogen, *AIP Conf Proc*, **2013**, *1565*, 126-132. (doi: 10.1063/1.4833711)
- M. Dan, **M. Mihet**, V. Almasan, G. Borodi, G. Katona, L. Muresan, M.D. Lazar – Modified Ni-Cu Catalysts for Ethanol Steam Reforming, *AIP Conf Proc*, **2013**, *1565*, 208-214. (doi: 10.1063/1.4833729)
- M-C Rosu, R-C Suciu, **M. Mihet**, I. Bratu – Physical chemical characterization of titanium dioxide layers sensitized with the natural dyes carmine and morin, *Mater. Sci. Semicond Process.*, **2013**, *16*, 1551-1557. (https://doi.org/10.1016/j.mssp.2013.05.020)
- O. Ardelean, G. Blanita, G. Borodi, **M. Mihet**, M. Coros, Dan Lupu – On the enhancement of hydrogen uptake by IRMOF-8 composites with Pt/carbon catalyst, *Int. J. Hydrogen Energy*, **2012**, *37 (9)*, 7378-7384. (http://dx.doi.org/10.1016/j.ijhydene.2012.01.133)
- **M. Mihet**, M.D. Lazar, V. Almasan, V. Mirel – $H_2$-SCR at low temperatures on noble metal supported catalysts, *AIP Conf Proc*, **2012**, *1425*, 73-76. (doi: 10.1063/1.3681970)
- M.D. Lazar, M. Dan, **M. Mihet**, Gh. Borodi, V. Almasan – Hydrogen production by ethanol steam reforming on Ni-oxide catalysts, *AIP Conf Proc*, **2012**, *1425*, 131-134. (doi: 10.1063/1.3681984)
- R.C. Suciu, M.C. Rosu, I. Marian, P. Pascuta, T.D. Silipas, C. Varodi, A. Popa, **M. Mihet**, A.R. Biris, I. Bratu, E. Indrea – $TiO_2$ thin film deposition by chemical methods, *AIP Conf Proc*, **2012**, *1425*, 159-162. (doi: 10.1063/1.3681970)
- M. Dan, **M. Mihet**, A.R. Biris, P. Marginean, V. Almasan, G. Borodi, F. Watanabe, A. S. Biris, M.D. Lazar **–** Supported nickel catalysts for low temperature methane steam reforming: comparison between metal additives and support modification, *Reac Kinet Mech Cat,* **2012**, *105*: 173-193. (DOI 10.1007/s11144-011-0406-0)
- **M. Mihet**, V. M. Cristea **–** Contributions to the Model Predictive Control of the UOP Fluid Catalytic Cracking Unit, *Rev. Roum. Chim*, **2011**; 56(12): 1093-1100.
- M.D. Lazar, M. Dan, **M. Mihet**, V. Almasan, V. Rednic, G. Borodi **–** Hydrogen production by low temperature methane steam reforming using Ag and Au modified alumina supported nickel catalysts*, Rev. Roum. Chim*, **2011**; 56(6): 637-642.
- G. Blanita, O. Ardelean, D. Lupu, G. Borodi, **M. Mihet,** M. Coros, M. Vlassa, I. Misan, I. Coldea, G. Popeneciu **–** Microwave assisted synthesis of MOF-5 at atmospheric pressure, *Rev. Roum. Chim*, **2011**; 56(6): 583-588.
- **M. Mihet,** M.D. Lazar, V. Almasan, G. Borodi **–** Low temperature hydrogen selective catalytic reduction of NO on Pd/$Al_2O_3$, *Rev. Roum. Chim*, **2011**; 56(6): 659-665.
- O. Ardelean, G. Blanita, **M. Mihet**, I. Coldea, D. Lupu, P. Palade **–** Supported Pt and Pd catalysts for hydrogen adsorption in MOFs*, Rev. Roum. Chim*, **2011**; 56(6): 655-657.
- D. Lupu, O. Ardelean, G. Blanita, G. Borodi, M.D. Lazar, A. R. Biris, I. Coldea, **M. Mihet**, I. Misan, G. Popeneciu **–** Synthesis and hydrogen adsorption properties of a new iron based porous metal-organic framework, *Int. J. Hydrogen Energy*, **2011,** *36 (5)* 3586-3592. (http://dx.doi.org/10.1016/j.ijhydene.2010.12.043)

- **M. Mihet,** V. M. Cristea, P. S. Agachi **–** FCCU simulation based on first principle and artificial neural network models, *Asia-Pac. J. Chem. Eng*, **2009**, *4*, 878-884. (DOI: 10.1002/apj.312)
- **M. Mihet,** M.D. Lazar, V. Almasan **–** Mobility of hydrogen species on Ni supported catalysts, *J. Phys: Conf. Ser.* 182, **2009**, 012051. (doi:10.1088/1742-6596/182/1/012051)
- M.D. Lazar, **M. Mihet**, M. Dan, V. Almasan, P. Marginean **–** Preparation and characterization of nickel based multicomponent catalysts, *J. Phys.: Conf. Ser.* 182, **2009**, 012049. (doi: 10.1088/1742-6596/182/1/012049)
- J. Mattusch, **M. Cîmpean**, R. Wennrich, **–** „Enzyme – Assisted Extraction of Arsenic Species from Plant Material"*, Intern. J. Environ. Anal. Chem,* **2006**, *86 (9),* 629-640. (DOI: 10.1080/03067310600557489)