THE POROUS MATERIALS AND COMPOSITES RESEARCH GROUP

Contact details

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Acronym	**COMPOR**
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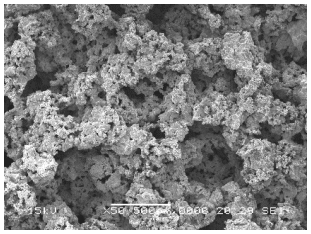

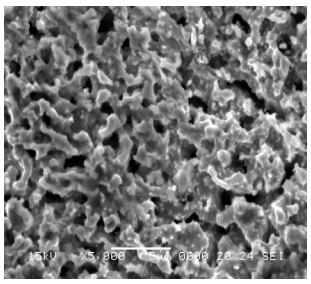

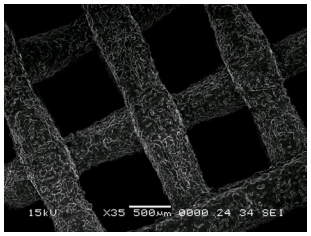

Areas of expertise

Field: Materials Science and Engineering
Expertise in Powder Metallurgy
- Sintered porous materials, cellular materials (metallic foams)
- Material metal and ceramic matrix composites produced by powder metallurgy.
- Cold sintering

Team

Lect. Dr. Eng. Gyorgy Thalmaier, Prof. Dr. Eng. Ioan Vida-Simiti , Lect. Dr. Eng. Niculina Sechel,

Representative projects

1. MATAVSUD: "Innovative Research on development of new materials for welding and other production processes" - CEEX Contract no. 8/2005-2008
2. BRONZINV 'Fundamental and applied research on 12-15% tin bronzes for obtaining anti-friction layers "_ CEEX Contract No. 11/2005-2008
3. "Manufacturing Aluminium - Graphite composites by casting and sintering", Contract CEEX Nr.2/2005-2008
4. NANOGRAD "Advanced research on the development of nanostructured graded composite materials for excessive wear applications " Contract CEEX Nr.91/2006: -2008
5. ELSUD “Multi-layered electrodes for electrical resistance spot and line welding” Program 4 Partnerships in priority areas, PNCDI 2 - 2007-2009
6. ELMOD – “Innovative technologies for the development of modular manufacture of forming tools”, Program 4 Partnerships in priority areas, PNCDI 2, 2007-2009
7. “Exploratory research projects. Studies and research on obtaining structurally graded materials by controlled sedimentation of metallic and ceramic powders” Program Ideas ID_214, no. 749 / 19.01.2009
8. "Development and support of multidisciplinary postdoctoral programs in priority technical areas of the national strategy for research - development - innovation 4D-postdoc” Postdoctoral research fellowship funded by the Managing Authority for Sectorial Operational Programme Human Resources Development under the project Contract Code: POSDRU/89/1.5/S/52603
9. *Research on the influence of chemical composition on dimensional variations of ceramic tiles* N-C-CDI 40087/24.11.2023, 2023
10. *Ti/(TiB+TiC) composites obtained by reactive sintering,* Romanian Alliance of Technical Universities - (nr. 37/01.07.2024): 2024-2025

Significant results

1. Thalmaier, G., Sechel, N. A., & Vida-Simiti, I. (2025). "Floatable Syntactic Magnesium Foam as a Marangoni-Induced Propulsion Microboat". Materials, 18(24), 5588. https://doi.org/10.3390/ma18245588
2. Cobirzan, N., Thalmaier, G., Cretu, M., Nasui, M., & Micu, D. D. (2025). "Properties of n-Octadecane PCM Composite with Recycled Aluminum as a Thermal Enhancer". Materials, 18(24), 5638. https://doi.org/10.3390/ma18245638
3. Nasui, M., Thalmaier, G., Sechel, N. A., Marinca, T. F., Risteiu, G. A., & Vida-Simiti, I. (2025). "A Cold Sintering Process for Manufacturing Zn Foams from Spherical Powders". Applied Sciences-Basel, 15(22), 12179. https://doi.org/10.3390/app152212179
4. Thalmaier, G., Cobirzan, N., Sechel, N. A., & Vida-Simiti, I. (2025). "Paraffin Graphite Composite Spheres for Thermal Energy Management". Materials, 18(7), 1482. https://doi.org/10.3390/ma18071482
5. Sechel, A. N., Prica, C. V., Popa, F., Marinca, T. F., Neamtu, B. V., & Hirian, R. (2026). "Structural Characterization of Ti/B4C/(±Ni) Composite Powders Obtained by Mechanical Milling". Crystals, 16(1), 22. https://doi.org/10.3390/cryst16010022
6. Sechel, A. N., Prica, C. V., Marinca, T. F., Popa, F., Baglaevschi, L. M., Thalmaier, G., & Vida-Simiti, I. (2025). "Characterization of Invar Syntactic Foams Obtained by Spark Plasma Sintering". Applied Sciences-Basel, 15(6), 2932. https://doi.org/10.3390/app15062932
7. Thalmaier, G., Cobîrzan, N., Fechete-Tutunaru, L. V., & Balan, M. C. (2025). "Recycled Aluminum Paraffin Composite for Passive Cooling Application in Buildings". Materials, 18(4), 728. https://doi.org/10.3390/ma18040728
8. Thalmaier, G., Sechel, N. A., Vida-Simiti, I., & Hegyi, A. (2024). "Exploring Antifungic Properties of Low Vacuum Dealloyed Recycled Brass Nanoporous Powder". IOP Conference Series: Materials Science and Engineering, 1319(1), 012030. https://doi.org/10.1088/1757-899X/1319/1/012030
9. Thalmaier, G., Sechel, N. A., Vida-Simiti, I., Nasui, M., & Cobirzan, N. (2023). "Micron porous copper powder through vacuum dealloying". Materials Today: Proceedings, 72, 560–564. https://doi.org/10.1016/j.matpr.2022.10.040
10. Thalmaier, G., Sechel, N. A., & Vida-Simiti, I. (2020). "Syntactic Aluminum Foam from Recycled Sawing Chips". JOM, 72(10), 3377–3382. https://doi.org/10.1007/s11837-020-04282-6
11. Vida-Simiti, I., Jumate, N., Thalmaier, G., Sechel, N., & Moldovan, V. (2012). "Study of gradual porous metallic membranes obtained by powder sedimentation". Journal of Porous Materials, 19(1), 21–27. https://doi.org/10.1007/s10934-010-9442-9
12. Vida-Simiti, I., Jumate, N., Moldovan, V., Thalmaier, G., & Sechel, N. (2012). "Characterization of Gradual Porous Ceramic Structures Obtained by Powder Sedimentation". J. of Materials Science & Technology, 28(4), 362–366.
13. Vannozzi, A., Thalmaier, G., Armenio, A. A., Augieri, A., Galluzzi, V., Mancini, A., Rufoloni, A., Petrisor, T., & Celentano, G. (2010). "Development and characterization of cube-textured Ni-Cu-Co substrates for YBCO-coated conductors". Acta Materialia, 58(3), 910–918. https://doi.org/10.1016/j.actamat.2009.10.006

The offer addressed to the economic environment

Research & development	1. Fundamental research on the process of sedimentation metallic and ceramic powders for achieving gradual sintered porous structures 2. Obtaining sintered porous media with porosity gradient for manufacturing filters for microfiltration. 3. Preparation and characterization of metal matrix composites and ceramics for various applications.
Consulting	Dimensioning filtering elements
Training	Powder metallurgy

Last update on February 2026