

RESEARCH CENTRE FOR ENVIRONMENTAL ENGINEERING

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Areas of expertise

clean technologies, waste recovery, recycling materials, ecological reconstruction, sustainable development, new materials, sustainable energy, structural modelling, risk assessment, impact studies, monitoring systems, landscape reconstruction, soil treatment and decontamination.

Team

Prof. Dr. Eng. Ovidiu Nemes, Prof. Dr. Eng. Valer Micle, Assoc. Prof. Dr. Eng. Ancuța Tiuc, Assoc. Prof. Dr. Eng. Ioana Sur, Assist. Prof. Dr. Eng. Dan Porcar, Assist. Prof. Dr. Eng. Ioana Deneș-Pop, Assist. Prof. Dr. Eng. Cristina Horju-Deac, Assist. Prof. Dr. Eng. Simona Avram, Assist. Prof. Dr. Eng. Timea Gabor, Assist. Prof. Dr. Eng. Bianca Soporan, Assist. Prof. Dr. Eng. Andrei Rusu, Assoc. Prof. Dr. Eng. Ancuța Tiuc

Representative projects

"Tehnologie inovativă de bioremediere ex-situ a solurilor poluate cu hidrocarburi, PN-II-PT-PCCA-2013-4-1717, 2014-2017
"Ecological method for recyclable wastes valorization", 2020, Transfer tehnologic la Fibrex.

Significant results

The most representative publications of the past 5 years:

1. Ancuța Elena Tiuc, Ovidiu Nemeș, Horatiu Vermesan, Adina Cristina Toma, New sound absorbent composite materials based on sawdust and polyurethane foam, Composites Part B: Engineering, Volume 165, 15 May 2019, Pages 120-130.
2. Ancuța Elena Tiuc, Ovidiu Nemeș, Horatiu Vermesan, Roxana Tamas-Gavrea, Ovidiu Vasile, New sound absorbing materials obtained from waste rigid polyurethane foam, Materiale Plastice, vol.56, No.4, 2019.
3. Olteanu, M., Septelean, R., Nemes, O., Deak, G., Baraitaru, A. Functionalization of mesoporous silica materials using Calix[4]arenes, Materiale Plastice, 56(3), pp. 554-558, 2019
4. Urian A.M., Ilies N.M., Nemes O.*, Nagy A.C., Clayey Soil Improvement with Polyethylene Terephthalate (PET) Waste, APPLIED SCIENCES-BASEL, 2023, Vol.13, Issue21
5. Moldovan A., Cuc S., Prodan D., Rusu M., Popa D., Taut A.C., Petean I., Bombos D., Dukeh R., Nemes O*., Development and Characterization of Polylactic Acid (PLA)-Based Nanocomposites Used for Food Packaging, POLYMERS, 2023, Vol. 15, Issue 13,
6. Tiuc A.-E*., Borlea S.I., Nemeș O*., Vermeșan H*., Vasile O., Popa F., Pințoi R., New Composite Materials Made from Rigid/Flexible Polyurethane Foams with Fir Sawdust: Acoustic and Thermal Behavior, POLYMERS, 2022, Vol. 14, Issue 17
7. Borlea (Muresan) I.S., Tiuc A.E*., Nemeș, O*., Vermesan, H., Vasile, O., Innovative Use of Sheep Wool for Obtaining Materials with Improved Sound-Absorbing Properties, MATERIALS, 2020, 13, 3, 694

8. Sur, I.M.; Hegyi, A.; Micle, V.; Gabor, T.; Lăzărescu, A.-V, Influence of the Extraction Solution on the Removal of Heavy Metals from Polluted Soils. *Materials* 2023, 16, 6189.
9. Ioana Monica Sur, Ana Moldovan, Valer Micle, Evelyn Terez Polyak, Assessment of Surface Water Quality in the Baia Mare Area, Romania, *Water* 2022, 14, 3118.
10. Smical, I.; Muntean, A.; Micle, V.; Sur, I.M., The Influence of Spent Portable Battery Waste on the Aquatic Environment, *Appl. Sci.* 2023, 13, 11658.

Significant solutions:

New technologies for waste recycling; New technologies for soil remediation; New and improved solution for water treatment

Products and technologies:

1. New materials from multi-layer packages, wood saw dust and vegetal wastes, new materials from mixed wastes (wood, natural fibers)
2. New technologies for soil remediation
3. New technologies for water treatment

Patents:

1. PROCESS AND DEVICE FOR MAKING PLATES OF POLYMERIC COMPOSITE MATERIALS REINFORCED WITH FIBERS, Patent Number(s): RO128093-A0; RO128093-B1; RO128093-A8, **INVENTOR(S)**: BERE P, BERCE P, NEMES O, BALC N, BERE P P, 2015.

2. SOUNDPROOFING COMPOSITE MATERIAL COMPRISES FIR SAWDUST GRAINS AND POLYURETHANE FOAM, Patent Number(s): RO129228-A0; RO129228-B1; RO129228-A8, 2015, Authors: Ancuța Tiuc, Tiberiu Rusu, Ovidiu Nemeș

3. Washing contaminated soils with heavy metals, by using soil polluted with washing solution containing potassium salts of humic acid, stirring soil mixture, evacuating soil with washing solution and carrying out gravitational separation, Patent Number(s): RO133822(A0), RO133822(B1), 2023, Authors: DAMIAN G E; MICLE V.

4. Biological method for extraction of hydrocarbons polluted solutions, involves sorting and homogenizing specific quantity of clay-polluted soil with hydrocarbons with initial concentration on concrete platforms, Patent Number(s): RO132554(A0), RO132554(B1), 2023, Authors: MICLE V; SUR I; MITREA M

5. Material with sound-absorbing properties using sheep wool and rigid two-component polyurethane foam as raw materials, has main portion which is meant to be used in field of civil and industrial constructions to reduce global noise level and ensure adequate acoustics in closed spaces, Patent Number(s): RO136050(A0,A3), RO136050(B1), 2024, Authors: NEMES O; TIUC A E; MURESAN I S; DEAK G

The offer addressed to the economic environment

Research & development	Research in development of new methods and technologies of soil remediation Research and development of new methods and technologies of water treatment Research in environmental risk assessments Research in waste recycling and new materials manufacturing
Consulting	Consulting in soil remediation Consulting in water treatment technologies Consulting in waste management and recycling technologies Consulting in risk assessments
Training	Training courses in waste management; Training courses in recycling technologies Training courses in soil remediation technologies; Training courses in water treatment

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