
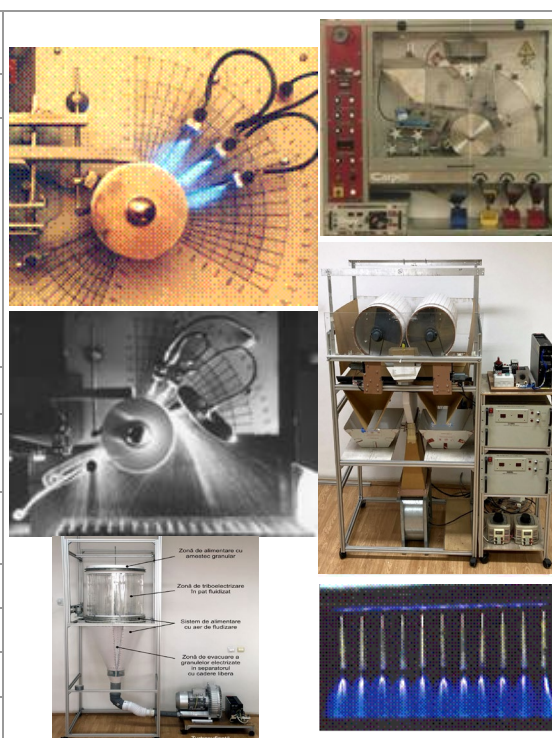


HIGH INTENSITY ELECTRIC FIELDS LABORATORY

Contact details

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Areas of expertise

Equipment and technologies for electrostatic separation
Modelling of electrostatic processes
Laboratory experiments on electrostatic separation
Consulting and technology transfer in electrostatic separation

Team

Prof. Adrian Samuila, Prof. Roman Morar, Prof. Alexandru Iuga, Prof. Lucian Dascalescu (Univ. Poitiers),
 s.l. Laur Calin, s.l. Mihai Bilici.

Representative projects

Optimized technologies with reduced impact on the environment for the advanced recovery of waste materials IT equipment" Proiect 84PCCDI - 01/03/2018 TRADE-IT (2018 – 2020)
Electrostatic procedures for the recovery of copper and plastic materials from micronized waste" BRANCUSI 88 BM Project, (2017-2018)
Recovery technologies of metals and plastics from wastes of informatics and telecommunications equipment", Proiect CEEX, (2005-2007)
Fluidized bed tribocharging of multi-component mixtures of recyclable plastic materials", Grant CNCSIS, (2005-2007)
Quality Improvement of quartz sands by electrostatic separation in high intensity electric field", Grant CNCSIS, (2005-2007)
Optimization of innovative methods of electrostatic separation applied in the industry of recycling materials", (2005-2006)
Research on developing electrostatic separation technology of muscovite", Grant CNCSIS, (2005-2006)
Experimental research on ozone influence in rehabilitation of wastewater from public sewerage networks", Grant CNCSIS, (2001-2003)
Program for promoting of electroseparation and ozonizing modern electrostatic technologies, training of human resources for research and infrastructure consolidation of the High-Intensity Electric Fields

Significant results

The most representative publications of the past 5 years:

1. Adrian Samuila, Lucian Dascalescu, Laur Calin, Mihai Bilici, Andrei Catinean. *Recent Research in Electrostatic Separation Technologies for the Recycling of Waste Electric and Electronic Equipment*. TIM 19 Physics Conference, 29-31 May 2019, Timisoara, Romania, pp. 1-10. Published in AIP Conference Proceedings, Vol. 2218. American Institute of Physics Inc. <https://doi.org/10.1063/5.0001074>
2. Catinean A, Dascalescu L, Lungu M, Dumitran L, Samuila A. *Improving the recovery of copper from electric cable waste derived from automotive industry by corona-electrostatic separation*. *Particulate Science and Technology*, vol. 39. Issue 4, 2021 DOI: [10.1080/02726351.2020.1756545](https://doi.org/10.1080/02726351.2020.1756545) ISSN:0272-6351.
3. L. Calin, A. Catinean, M. Bilici, A. Samuila, L. Dascalescu. *Electrostatic separation of plastic mixture ABS/HIPS and ABS-PC/HIPS from IT equipment using fluidized bed*. *Particulate Science and Technology*, Published online 13 May 2021, <http://doi.org/10.1080/02726351.2021.1922560> ISSN: 0272-6351.
4. L. Calin, A. Catinean, M. Bilici, A. Samuila. *A corona-electrostatic technology for zinc and brass recovery from the coarse fraction of the recycling process of spent alkaline and zinc-carbon batteries*. *Journal of Cleaner Production*, Volume 278, 1 January 2021, 123477. ISSN 0959/6526.
5. M. Bilici, A. Catinean, L. Călin, A. Samuila. *The Effect of Charged Granules Agglomerations on the Electric Field Distribution of a Tribo-aero-electrostatic Separator*. 11th International Symposium on Advanced Topics in Electrical Engineering (ATEE). Bucharest, Romania, 2019, pp. 1-6, DOI: 10.1109/ATEE.2019.8724939
6. Calin Florentin Laur, Bilici Mihai Alexandru, Samuila Adrian Paun. *Procedeu si instalatie de separare triboelectrostatica a unui amestec de materiale granulare neconductive*. Cerere de brevet de inventie a 2024 00035 din 06.02.2024.

The offer addressed to the economic environment

Research & development	<p>HIEFL is equipped with installations for electrostatic separations of granular materials, unique on a national scale and competitive on an international scale: ELSEP and ILES-1 roll carrier corona-electrostatic separators, SEP-1 plate type electrostatic separator, ILES-2 and TESS free fall separators, insulated rolls tribo-aero-electrostatic separator, free-fall corona electrostatic separator, ELSMOD roll carrier pilot separator. The list of the research equipment of HIEFL includes: regulated high-voltage supplies (0-100)kV, electromagnetic vibratory feeders for granular materials, tribocharging devices, experimental installation for liquids treatment (5 grams ozone/hour), Keithley digital electrometer, (30-100)kV resistive dividers, electrostatic kilo-voltmeter, Laboratory cutting mill RETSCH SM300, TestPoint software, Modde -user-friendly software for the design of experiments, Superficial Charge Simulation Program.</p>
Consulting & Training	<p>Fundamental and applied research by projects, grants, programs in the domains: equipment and technologies for electrostatic separation, modelling of electrostatic processes, ozonizing technologies for liquids, biological effects of electric fields.</p> <p>Master and Doctoral studies in Electrostatics.</p> <p>Research and Development of experimental devices and industrial equipment using high-intensity electric fields.</p> <p>Promotion of new technologies in high intensity electric fields and orientation of research to medium and long term needs of the society.</p> <p>Scientific cooperation & integration in European Research Area.</p> <p>Quality in university education and scientific research.</p>

Last update on January 2025