
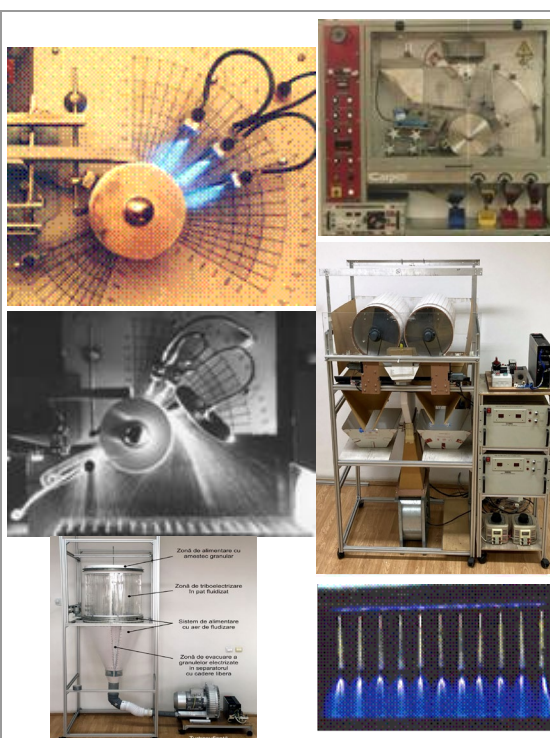


# HIGH INTENSITY ELECTRIC FIELDS LABORATORY

## Contact details

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## Areas of expertise

**Equipment and technologies for electrostatic separation**

**Modelling of electrostatic processes**

**Ozonizing technologies for liquids**

**Biological effects of high intensity electric fields.**

**Consulting and technology transfer in these fields**

## 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 Laboratory”, Major Grant, World Bank, Romanian Government, (2000-2002)**

## 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](https://doi.org/10.1109/ATEE.2019.8724939)

### The offer addressed to the economic environment

Research & development	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.
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 &amp; integration in European Research Area.</p> <p>Quality in university education and scientific research.</p>

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