

HIGH INTENSITY ELECTRIC FIELDS LABORATORY

Contact details

Name	High Intensity Electric Fields Laboratory	
Acronym	LCEI	
Logo		
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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.
It provides also consulting and technology transfer in these fields

Team

Prof. Dr. Eng. Adrian Samuila, Prof. Dr. Eng. Roman Morar, Prof. Dr. Eng. Alexandru Iuga, Prof. Dr. Eng. Lucien Dascalescu (Univ. Poitiers), Prof. Dr. Eng. Vasile Neamtu, Assoc. Prof. Dr. Eng. Ilie Suarasan, Assist. Dr. Eng. Sorin Budu, dr. st. ing. Andrei Catinean.

Representative projects

“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 Banc, Romanian Government, (2000-2002)
“Experimental researches on ozone influence in rehabilitation of wastewater from public sewerage networks”, Grant CNCSIS, (2001-2003)
“Researches on developing electrostatic separation technology of muscovite”, Grant CNCSIS, (2005-2006)
“Optimization of innovative methods of electrostatic separation applied in the industry of recycling materials”, (2005-2006)
“Quality Improvement of quartz sands by electrostatic separation in high intensity electric field”, Grant CNCSIS, (2005-2007)
“Fluidized bed tribocharging of multi-component mixtures of recyclable plastic materials”, Grant CNCSIS, (2005-2007)
“Recovery technologies of metals and plastics from wastes of informatics and telecommunications equipment”, CEEX, (2005-2007)

Significant results

The most representative publications of the past 5 years:

1. Buda, G., Samuila, A., Bilici, M., Atroune, S., Dascalescu, L. *Set Point Identification and Robustness Testing of a Triboelectrostatic Separation Process*. IEEE Transactions on Industry Application, Vol. 51(2), 2015, pp. 1153-1160.
2. Adrian Samuila, Mihai Bilici, Lucian Dascalescu: Recycling of PS/PVC Granular Waste Using a Fluidized-Bed Two-Insulated-Rolls-Type Tribo-Aero-Electrostatic Separator. The 9th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, 2015, pp. 254-259
3. Buda, G., Samuila, A., Bilici, M., Atroune, S., Dascalescu, L. *Set Point Identification and Robustness Testing of a Triboelectrostatic Separation Process*. IEEE Transactions on Industry Application, Vol. 51(2), 2015, pp. 1153-1160.
4. Adrian Samuila, Mihai Bilici, Lucian Dascalescu: Recycling of PS/PVC Granular Waste Using a Fluidized-Bed Two-Insulated-Rolls-Type Tribo-Aero-Electrostatic Separator. The 9th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, 2015, pp. 254-259
5. Al Hajjar Nadim, Pitu Flaviu, Nicodim FiÑ, Pitu Florina, Popa Calin, Suarāsan Ilie, Eموke Pall. Effect of aqueous ozone solution on pancreatic cells. Journal of Cell and Animal Biology Vol. 6(2), pp. 25-28, 30 January, 2012.
6. Al Hajjar Nadim, Flaviu Pitu, , Eموke Pall, Florina Pitu, Ilie Suarasan, Calin. Popa and Nicodim Fiña. n vitro effect of ozonated saline on microorganisms involved in pancreatic and peripancreatic necrosis infection in severe acute pancreatitis. African Journal of Microbiology Research Vol. 6(3), pp. 611-616, 23 January, 2012
7. A. Iuga, A. Samuila, V. Neamtu, R. Morar, R. Beleca, S. Das, L. Dascalescu, "Removal of Metallic Particles from Acrylonitrile Butadiene Styrene Wastes Using Electrostatic Separation Methods", in *IEEE Transactions on Industry Application*, vol. 47, no. 1, 2011, pp. 322-330
8. L. Dascalescu, M. Bilici, C. Dragan, A. Samuila, Y. Ramdani, A. Tilmatine, „Robust Design and Capability Evaluation of a Tribo-aerodynamic Charging Process for Fine Particle” in *IEEE Transactions on Industry Application*, vol. 47, no. 3, 2011, pp. 1086-1092
9. C. Dragan, O. Fati, M. Radu, L. Calin, A. Samuila, L. Dascalescu, “Tribocharging of Mixed Granular Plastics in a Fluidized-Bed Device”, in *IEEE Transactions on Industry Application*, vol. 47, no. 4, 2011, pp. 1922-1928
10. M. Bilici, L. Dascalescu, C. Dragan, O. Fati, A. Iuga, A. Samuila, “Tribocharging and Electrostatic Separation of Mixed Granular Solids in Fluidized Bed Devices”, in *IEEE Transactions on Dielectrics and Electrical Insulation*, vol. 18, no. 5, 2011, pp. 1476-1483

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, ELSMOD roll carrier pilot separator. The list of the research equipment of HIEFL includes: regulated high-voltage supplies (0-75)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, measuring sphere gaps, laboratory ozone-meter, TestPoint software, Modde -user-friendly software for the design of experiments, Superficial Charge Simulation Program.
Consulting & Training	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. Master and Doctoral studies in Electrostatics. Research and Development of experimental devices and industrial equipment using high-intensity electric fields. Promotion of new technologies in high intensity electric fields and orientation of research to medium and long term needs of the society. Scientific cooperation & integration in European Research Area. Quality in university education and scientific research.