

ADRIAN SAMUILA

CURRICULUM VITAE

Personal information

Name, Surname:	Adrian SAMUILA		
Date of birth:	05.07.1955	Sex:	M
Nationality:	Romanian		
Researcher unique identifier(s) (BrainMap)	U-1700-027X-8028		
URL for personal website:			

Education

Year	Faculty/department - University/institution - Country
2008	Habilitation –Electrical Engineering - Technical University of Cluj-Napoca, Romania
1997	Ph.D. in Physics, Joseph Fourier University, Grenoble, France
1980	Electrical Engineer, Technical University of Cluj-Napoca, Romania

Positions - current and previous

(Academic sector/research institutes/industrial sector/public sector/other)

Year	Job title – Employer - Country
2015 (3 month)	Invited Researcher – Pprime Institute, Poitiers University, France
2002 – 2014 (6 month/year)	Invited Professor – IUT Angouleme, Poitiers University, France
2003 -2024	Professor, Electrical Engineering Dep., Technical University of Cluj-Napoca, , Romania
1998-2003	Ass. Professor, Electrical Engineering Dep., Technical University of Cluj-Napoca, , Romania
1991 - 1998	Lecturer, Electrical Engineering Dep., Technical University of Cluj-Napoca, , Romania
1980 -1991	Electrical Engineer, UNIREA S.A. Cluj-Napoca, Romania

Project management experience

(Academic sector/research institutes/industrial sector3/public sector/other. Please list the most relevant.)

Year	Project title - Role – Funder – Budget – link to project webpage
Academic sector grants: Project Manager	
2017-2018	Electrostatic Technology for metals and plastics recovery from micronized waste. 88BM Brancusi Cooperation Program, Romania-France
2005-2006	Research on the development of the electrostatic separation technology of muscovite. CNCSIS Research Grant 27702/2005/A26 and 2930/2006/A48.
2002-2003	Sustainable technology for the recovery of muscovite from the feldspathic pegmatite processing flow. CNCSIS Research Grant 15/2002, 232 / 2002 (MENER).
2001-2002	Research for the utilization of muscovite in the field of welding electrodes by separation in an intense electric field. CNCSIS Research Grant 7067GR/2001 and 33531/2002 (A13)
2001-2002	High Intensity electric field separation of muscovite from feldspathic pegmatites. CNCSIS Research Grant 34970/2001, (A36) and 33531/2002, (A55).

Academic sector grants: Team Member	
2018-2021	Innovative technologies for the advanced recovery of materials from IT and telecommunications equipment waste - TRADE-IT CNCSIS Research Grant 84 PCCDI/2018
2006-2007	Technologies for metals and plastics recovery from IT and telecommunications equipment waste (TEREMEP) CNCSIS Research Grant CEEEX 113/10.10.2005
2005-2007	Fluidized bed tribocharging of multicomponent mixtures from recyclable plastic waste CNCSIS Research Grant 27702/2005 (A14)
2005-2006	Optimization of the new electrostatic separation technologies with application in the recycling industry PAI Brancusi Grant RO-04, Romania-France
2000-2002	Research on triboelectrification and mineral particles separability in electrostatic field. CNCSIS Research Grant 37118 / 2000, (A 36 and 34970/2001, (A15)
1996-1998	Research on the high intensity electric field separation process of fine granular materials. CNCSIS Research Grant 118/1996, 447/1997 and 207/1998.

Other relevant professional experiences

(e.g. institutional responsibilities, organisation of scientific meetings, membership in academic societies, review boards, advisory boards, committees and major research or innovation collaborations, other commissions of trust in public or private sector)

2005.....	Director of the High Intensity Electric Fields Laboratory - HIEFL
2014	Invited lecturer and Section Chairman, <i>CNEA Conference</i> , Sidi-Bel-Abes, Algeria, 2014
2019	Invited lecturer and Section Chairman, <i>TIM Physics Conference</i> , West University of Timisoara, 2019
2020	Section Chairman, <i>MediTech Conference</i> , 2020, Cluj-Napoca
2022	Section Chairman, <i>MediTech Conference</i> , 2022, Cluj-Napoca
1997	Reviewer at <i>International ISI Journals</i> (IEEE Transactions on Industry Applications Society, Journal of Electrostatics, Waste Management, Particulate Science and Technology, , IEEE Transaction on Dielectrics and Electrical Insulation, Waste Management & Research, Journal of Material Cycles and Waste Management, European Physical Journal/Applied Physics)
2000....	External Examiner in 11 Ph.D. committees (7 doctoral committees abroad)
2014	James Melcher Prize Paper Award, IEEE/Electrostatic Processes Committee for the paper A. Urs, A. Samuila, A. Mihalcioiu and L. Dascalescu "Charging and Discharging of Insulating Particles on the Surface of a Grounded Electrode".
2014 ...	Awards at International Exhibitions of Research, Innovations and Inventions PRO-INVENT Cluj-Napoca (2014, 2020), INVENTIKA Bucuresti (2014), INVENTICA Iasi (2020), TRAIAN VUIA Timisoara (2020), INFOINVENT Chisinau (2022).
1992-2016	Member of the <i>Electrical Engineering Faculty Council</i> – Technical University of Cluj-Napoca

C.2 Track record of the last 10 years

A list of the most important scientific outputs (publications, patents), 2015-2023

ISI journal papers:

1. Gabriela Buda, Mihai Bilici, Lucian Dascalescu, **Adrian Samuila**. *Influence of Material Moisture on the Tribocharging Process of Plastic Granules*. Particulate Science and Technology, Vol 31, Issue 2, 2013, pp 162-167. ISSN 0272 – 6351.
2. A. Younes, M. Younes, H. Sayah, M. Bilici, **A. Samuila**, L. Dascalescu. *Effect of spark discharges on the trajectories of insulating particles in roll-type corona-electrostatic separators. Experimental and numerical study*, Journal of Electrostatics vol. 71, Issue 1, 2013, p. 84-91, ISSN: 0304-3886.
3. M. Younes, A. Younes, H. Sayah, A. Tilmatine, **A. Samuila**, L. Dascalescu *Numerical and Experimental Study of Insulating Particles Behavior in Roll-Type Corona-Electrostatic Separators*. Particulate Science and Technology, vol. 31, Issue 1, 2013, p. 71 – 80, ISSN 0272 – 6351
4. Gabriela Buda, **Adrian Samuila**, Salah Atroune, Mihai Bilici, Lucien Dascalescu. *Set point identification of a tribocharging process for mixed granular solids*. Journal of electrostatics, Vol.7, Issue 3, 2013, pp. 407 – 412, ISSN: 0304-3886.
5. Buda, G., Bilici, M., **Samuila, A.**, Atroune, S., Dascalescu L. *Experimental Study of Tribocharging Process of Plastic Granular Materials on a Vibratory Feeder Device*, IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 20, Issue 5, 2013, pp. 1489-1496, ISSN 1070-987.
6. Gabriela Buda, Adrian Samuila, Mihai Bilici, Salah Atroune, Lucian Dascalescu. *Premises for Statistic Control of a Tribocharging Process for Granular Materials* Particulate Science and Technology, Volume 32, Issue 2, 2014, pages 138-143. ISSN:0272-6351.
7. 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, ISSN 0093-9994.
8. Atroune, S., Tilmatine, A., Alkama, R., Samuila, A., Dascalescu, L. *Comparative Experimental Study of Triboelectric Charging of Two Size Classes of Granular Plastics*. Particulate Science and Technology Volume: 33 (6), 2015, Pages: 652-658. ISSN:0272-6351.
9. Younes, A., Younes, M., Sayah, H., Samuila, A., Dascalescu, L. *Experimental and Numerical Modeling of a New Tribo-Electrostatic Separation Process for Granular Plastics Mixtures*. Particulate Science and Technology, Volume 33(2), 2015, pp.: 189-196. ISSN:0272-6351.
10. Iuga, A., Samuila, A., Morar, R., Bilici, M., Dascalescu, L. *Tribocharging techniques for the electrostatic separation of granular plastics from waste electric and electronic equipment*. Particulate Science and Technology, Volume 34 (1), 2016, pp. 45-54. ISSN:0272-6351.
11. 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, pp. 449 – 456, DOI: 10.1080/02726351.2020.1756545 ISSN:0272-6351
12. L Calin, A Catinean, M Bilici, A Samuila, L Dascalescu. *Electrostatic separation of plastic mixtures ABS/HIPS and ABS-PC/HIPS from IT equipment using fluidized bed tribocharging*. Particulate Science and Technology, Published online: 13 May 2021, <https://doi.org/10.1080/02726351.2021.1922560> ISSN:0272-6351
13. Laur Calin, Andrei Catinean, Mihai Bilici, Adrian 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

Conference papers

14. Gabriela Buda, Adrian Samuila, Mihai Bilici, Salah Atroune, Lucien Dascalescu. *Set Point Identification and Robustness Testing of a Triboelectrostatic Separation Process*. Conference Record IEEE/IAS Annual Meeting, Orlando, USA, 2013, pp. 1-7, DOI: 10.1109/IAS.2013.6682442, ISBN: 978-1-4673-5203-1
15. Gabriela Buda, Adrian Samuila, Lucien Dascalescu. *Statistic Control of a Tribocharging Process for Granular Materials*, 8th International Symposium on Advanced Topics in Electrical Engineering, ATEE 2013, Bucharest, DOI: 10.1109/ATEE.2013.6563413, ISBN: 978-146735980-1

16. Adrian Samuila, Mihai Bilici, Vasile Ilies, Lucien Dascalescu. *Design and test of a novel fluidized-bed two-insulated-rolls-type tribo-aero-electrostatic separator for granular plastics*. 2014 Annual Meeting of the Electrostatic Society of America, June 17-19, 2014, University of Notre Dame, IN. Paper F5.
17. 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, DOI:10.1109/ATEE.2015.7133777
18. L. Calin, M. Bilici, A. Samuila. *Improvement of the Fluidized Bed Tribocharging Device for Electrostatic Separation of Plastics from Electronic Medical Waste*. 6th International Conference on Advancements of Medicine and Health Care through Technology; 17–20 October 2018, Cluj-Napoca, Romania. IFMBE Proceedings, vol. 71/2019, pp 341-346.
19. 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
20. Adrian Samuila, Lucian Dascalescu, Laur Calin, Mihai Bilici, Andrei Catinean. *Recent Researches in Electrostatic Separation Technologies for the Recycling of Waste Electric and Electronic Equipment*. TIM 19 Physics Conference, 29-31 May, Timisoara, Romania, pp. 1-10, published in AIP Conference Proceedings, Vol. 2218. American Institute of Physics Inc. <https://doi.org/10.1063/5.0001074>
21. L. Calin, A. Catinean, M. Bilici, L. Dascalescu, A. Samuila: *Electrostatic separation of HIPS/ABS and HIPS/ABS-PC plastic mixtures from IT equipment using fluidized bed tribocharging*. International Conference on Sustainable Solid Waste Management, 26-29 June 2019, Heraklion, Greece, pp. 1-12.
22. Laur Călin, Andrei Călinean, Mihai Bilici, Adrian Samuila. *Recovery of Zinc and Brass from Spent Alkaline and Zinc-Carbon Batteries* The 17th International Waste Management and Landfill Symposium, 30.09.2019 - 04.10.2019, Santa Margherita di Pula, Cagliari, Italy, pp. 1-14.
23. Mihai Bilici, Laur Calin, Andrei Catinean, Adrian Samuila. *Increasing The Recovery Rate of Metals From Weee By Corona-Electrostatic Separation*. The 12th International Symposium on ADVANCED TOPICS IN ELECTRICAL ENGINEERING. MARCH 25-27, 2021, Bucharest, Romania, pp. 1-6.

Patents

1. Iuga Alexandru-Iuliu, Dăscălescu Lucian-Doru, Morar Roman, Samuilă Adrian-Păun, Marian Romeo-Marin, Suărășan Ilie, Rafiroiu Dan-Viorel, Neamtu Vasile, *Procedeu și instalație de separare, în câmp electric, a materialelor granulare, cu conductivități electrice diferite. (Equipment and technology for high intensity electric field separation of different conductivity granular materials)*
Patent RO 109038B1/1994
2. Iuga Alexandru-Iuliu, Dăscălescu Lucian-Doru, Morar Roman, Samuilă Adrian-Păun, Mihailescu Michaela-Dora, Marian Romeo Marin, Biluca Stefan, Tăut Ioan. *Electrod corona. (Corona electrode)*
Patent RO 00115205B/1999
3. Samuilă Adrian-Păun, Bilici Mihai Alexandru, Iuga Alexandru-Iuliu, Dăscălescu Lucian-Doru, Calin Laur Florentin. *Procedeu si instalatie de separare electrostatica a unui amestec de materiale neconductoare. (Equipment and technology for electrostatic separation of a nonconductive materials mixture.)*
Patent RO 128979 B1/2019

*Total:

128 - Scientific papers published:
52 - ISI Journals
72 – International Conferences/ISI Proceedings
4 – Scientific Conferences in Romania
3 - Romanian Patents

C.3 Narrative CV

A narrative summarizing which work has had the greatest importance and impact.

Prof. Adrian SAMUILA's research activity takes place within the HIEFL and is focused on the direction of technologies and equipment for electrostatic separation of granular materials. The mineral substances concentration was one of the first applications developed in the laboratory, then the applications of electrostatic separation technologies were oriented towards the direction required by the recycling industry - the recovery of materials from industrial waste, mainly those from electrical and electronic equipment (WEEE).

A first category of electrostatic technologies uses corona discharge as the main method of charging solid granules and is used for the separation of conductor/insulator type mixtures. These technologies and their equipment were developed within the LCEI for the recovery of copper and insulation from electrical cable waste and for the purification of the metallic fraction (removal of non-metallic granules) obtained through other processes/equipment at WEEE recyclers.

A second category of electrostatic technologies is aimed at the separation of insulating/insulating granular mixtures and is based on the triboelectrification phenomenon – the charging of solid bodies by contact/collision/friction with other bodies.

Within LCEI, through research contracts funded by CNCSIS and published scientific papers, several types of tribocharging devices have been developed, adapted to various granular mixtures of two or more plastic materials originating from WEEE. Also, different electrostatic field configurations were numerically modeled and experimentally studied so that the solid granules of different material, carrying opposite sign charge, are deflected on distinct trajectories and recovered in separate fractions. Currently, the LCEI team is involved in R&D to improve the PVC/rubber separation process by triboelectrostatic separation, at an important Romanian plastic recycler.