

Personal Data

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Birth day / Sex / Nationality	30 June 1962 / B / Romanian

Position

Professor at Electric Power Systems and Management Department (EPSMD), Electrical Engineering Faculty (EEF), Technical University of Cluj-Napoca (TUCN)

Education, diploma

May 1997	PhD in Electrical Engineering, delivered by TUCN, thesis title: "Contributions to the electrical vibrators analysis and vibrations monitoring")
1981 - 1986	Engineer, Electric profile, Polytechnic Institute of Cluj, Romania

Professional Experience

2004-present	Professor at TUCN, EPSMD Educational/ Power systems, Renewable, Fuel cells, Automation and Protection of Power Systems, Digital protection in power system
2009-present	PhD Theses Supervisor
1998 - 2004	Associate professor at TUCN, EPSMD Educational / Electrical equipment, Testing, Power systems, Unconventional technologies, Fuel cells, Vibrations
1994 - 1998	Lecturer at TUCN, EPSMD Educational / Electrical equipment, Testing, Power systems, Unconventional technologies, Vibrations
1991 - 1994	Assistant at TUCN, EPSMD Educational / Electrical equipment, Testing, Vibrations
1990 – September 1991	Scientific researcher, The Institute for Computers (ITC) Cluj, 109 Republicii, Cluj-Napoca, Romania Research and development / Control systems, electrical drives, data acquisition, PLCs
1986 – 1990	Engineer, The Institute for Computers (ITC) Cluj, 109 Republicii, Cluj-Napoca, Romania Research and development / Control systems, electrical drives, data acquisition, PLCs

Visiting Professor/Researcher

Between 2001 and 2010	(periodical) <i>University of Technology of Belfort-Montbéliard, France, Department of Electrical Engineering and Control Systems (GESCE) and Transportation Systems Laboratory (SET), Institute FC Lab.</i>
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Competences

Languages	Romanian (native language) English (independent user in listening, reading, speaking, writing) French (independent user in listening, reading, speaking, writing)
Organizational skills	- Member in the management bureau of the EPSMD, at EEF-TUCN since 2015; - Member of the Board of Faculty of Electrical Engineering (2003 – 2016, since 2020 - present); - Member of the Senate of Technical University of Cluj-Napoca (2012 – 2016); - Member of the Coordinating Council for Doctoral Programs in Electrical Engineering at UTCN (2015 - 2018).
Editorial activity	- Member of the editorial staff: Acta Electrotehnica - Reviewer: <i>Applied Energy, International Journal of Hydrogen Energy, IET Power Electronics, Cleaner Engineering and Technology, Electric Power Systems Research, Energy Science & Engineering, Sustainable Energy Technologies and Assessments, Heliyon, Journal of Energy Storage, Nonlinear Dynamics, International Journal of Electrical Power and Energy Systems, Journal of Building Engineering, Journal of the International Measurement Confederation, Transportation Research Interdisciplinary Perspectives, Energy and Built Environment , Energy Science & Engineering, Ionics, etc.</i>

Professional competences

Technical skills and competences: *Design, modelling, simulation, analysis: Power systems, Fuel cells systems, Renewable, Energy conversion, Electric Energy Transmission and Distribution, Protection and automation in power systems.*
Computer skills and competences: *Matlab / Simulink, Python, PSCAD / EMTDC, EDSA Paladin, Flux*

Published scientific papers

Articles indexed in WoS

(14 books in national edition, 13 journal ISI-WoS articles, over 90 conference/journal articles in WoS-Proc and IDB) – selective list:

1. Tirnovan R, Giurgea S, Efficiency improvement of a PEMFC power source by optimization of the air management, *International Journal of Hydrogen Energy* 37 (2012), 7745–7756, ISSN: 0360-3199, <https://doi.org/10.1016/j.ijhydene.2012.02.029>
2. Ciprian Cristea, Maria Cristea, Iulian Birou, Radu-Adrian Tirnovan, Economic assessment of grid-connected residential solar photovoltaic systems introduced under Romania's new regulation, *Renewable Energy* Volume 162, December 2020, Pages 13-29, <https://doi.org/10.1016/j.renene.2020.07.130>
3. Maria Cristea, Radu-Adrian Tirnovan, Ciprian Cristea, Cristian Făgărășan, Levelized cost of storage (LCOS) analysis of BESSs in Romania, *Sustainable Energy Technologies and Assessments*, Volume 53, Part C, October 2022, 102633, <https://doi.org/10.1016/j.seta.2022.102633>
4. Ciprian Cristea, Maria Cristea, Dan Doru Micu, Andrei Ceclan, Radu-Adrian Tirnovan, Florica Mioara Șerban, Tridimensional Sustainability and Feasibility Assessment of Grid-Connected Solar Photovoltaic Systems Applied for the Technical University of Cluj-Napoca, *Sustainability* 2022, 14(17), 10892; <https://doi.org/10.3390/su141710892>
5. Niste DF, Tirnovan R, Pavel S, Beleiu H, Andrei C, Misaroș M. Electricity Losses in Focus: Detection and Reduction Strategies—State of the Art. *Applied Sciences*. 2025; 15(7):3517. <https://doi.org/10.3390/app15073517>

Jury member in international PhD thesis

1. Member of the PhD jury (thesis reporter) for the PhD thesis : “*Contribution à la modélisation et au contrôle de compresseurs –Application à la gestion de l'air dans les systèmes piles à combustible de type PEM*”, Jérémie M'BOUA, 24th of November 2010 at l'Université de Technologie de Belfort-Montbéliard (France).
2. Member of the PhD jury (thesis reporter) for the PhD thesis : “*Modélisation, optimisation et conception d'un capteur hybride pour la détection des deux-roues-motorisés dans le trafic*”, Hamza KERBOUAL, 2nd of September 2015 at l'Université de Technologie de Belfort-Montbéliard (France).
3. President of the PhD jury for the PhD thesis : “*Solid Oxide Fuel Cell Modeling and Lifetime Prediction for Real-time Simulations*”, Rui MA, 20th of September 2018 at l'Université Bourgogne Franche-Comté (France).

Manager in Research projects

(over 30 as project member / responsible) – selective list:

1. Cross-border Network of Energy Sustainable Universities, Acronym: Net4Senergy, HUSKROUA/1702/6.1/0075, 2019 – 2021, member, TUCN 70910 Euro.
2. Holistics of the Renewable Energy Sources on Environment and Climate, Acronym: HORESEC, PN-III-P1-1.2-PCCDI-2017-0404, Nr. 31PCCDI/2017, 2018 – 2020, member, TUCN 318120 RON.
3. Electromechanically Systems and Power Electronics for Sustainable Applications Acronym: ESPESA, 2015 -2018, Twinning project, Horizon 2020, Contract No. 692224/2015, member/leader Research Topic: R2. „Optimized and systematic energy management on EV/HEV”. TUCN 451247 Euro. (member)
4. Research centre for testing, diagnosis and monitoring of the electrical equipments in high efficient power systems, type of project PNII, 2007-2009. (project member).
5. Continuous voltage micro-networks for optimal integration of the energy distribution sources (DCIDER), Excellency research program, mode 1, type of project P-CD, 2005-2008. (project member).

Prizes

1. Awarding research results:
 - PN-II-RU-PRECISI-2012-6-0183, Strategies for optimizing the opening of the outlet air circuit's nozzle to improve the efficiency of the PEMFC generator, *Applied Energy* Volume 88, Issue 4, April 2011;
 - PN-II-RU-PRECISI-2012-6-0752, Efficiency improvement of a PEMFC power source by optimization of the air management, *International Journal of Hydrogen Energy* 37 (2012);
 - PN-II-RU-PRECISI-2013-7-3936, An analysis of fluidic voltage statistical correlation for a diagnosis of PEM fuel cell flooding, *International Journal of Hydrogen Energy*, Volume 38, Issue 11, 15 April 2013;
 - PN-II-RU-PRECISI2014-8-7245, Commutation technique in the supply of electromagnetic actuators, *IET POWER ELECTRONICS* Volume: 7 Issue: 1 Pages: 132-140, Published: JAN 2014.
2. Best paper prize: Breaz, E., Fei Gao, Blunier, B., **Tirnovan, R.**, Mathematical modeling of proton exchange membrane fuel cell with integrated humidifier for mobile applications, *Transportation Electrification Conference and Expo (ITEC)*, 2012.

Professional organization

- IEEE/PES Member;
- Founding member and vice president of the Cluj Branch of "Romanian Association for Hydrogen Energy" – AEHR;
- Member of "Romanian National Institute for the Study of Planning and Use of Energy Sources" – IRE.

Date: September 2025

Prof. Eng. Radu-Adrian TÎRNOVAN, PhD