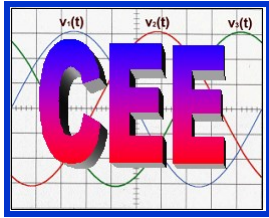


FACULTY OF ENGINEERING BAI-A-MARE - RESEARCH STRUCTURE

POWER QUALITY AND ENERGY EFFICIENCY

Contact details

Name	Power Quality and Energy Efficiency
Acronym	CEE
Logo	
Site	http://cee.ubm.ro/CEE
ERRIS	https://erris.gov.ro/Power-Quality-and-Energy-Eff
Address	62/A Dr. V. Babes Str., 430083, Baia Mare, Romania
Faculty Department	Engineering Faculty Electrical, Electronic and Computer Engineering Department
Telephone	+40 362 401265 int. 230
Fax	+40 262 276 153
Director	Assoc. Prof. Dr. Eng. Liviu Neamt
e-mail	email : Liviu_neamt@cunbm.utcluj.ro ; l.neamt@yahoo.com phone: +40746484821

Areas of expertise

- Modern computer aided design, analysis and optimization of electrical equipments, based on Finite Element Method.
- Energy efficiency through power circulation improvement, enhanced technologies and renewable energies integration;
- Photovoltaic potential estimation;
- Monitoring, analysis and improvement of power quality;
- Measurement, testing and diagnosis in electrical installations;
- Measurement of non-ionising electromagnetic radiation in order to assess electromagnetic fields for the purpose of comparison against limits for human exposure.

Team and key skills

- **Assoc. Prof. Dr. Eng. Liviu Neamt:** PhD. in electrical engineering from Transylvania University of Brasov, 2005; Lecturer in Electrical equipments, Electromagnetic compatibility and Renewable energies; Author of more than 60 articles, 4 books, 15 research contracts; Affiliations: IEEE, IEEE Mgn, ACER; Research topics: FEM analysis and optimization, Renewable energies, Power quality and energy efficiency.
- **Assist. Prof. Dr. Eng. Olivian Chiver:** PhD. in electrical engineering from Transylvania University of Brasov, 2009; Lecturer in Electrical machines, Numerical electromagnetic field computation, The efficient use of electrical energy; Author of more than 60 articles, 4 books, 11 research contracts; Affiliations: IEEE, IEEE PES, AGIR; Research topics: FEM analysis and optimization, High performance electrical machines.
- **Assoc. Prof. Dr. Eng. Mircea Horgos:** PhD. in industrial engineering from North University of Baia Mare, 2007; Associated Professor in Building Energy Efficiency Audit, Electromechanical systems, Electrical transportation; Author of more than 85 articles, 3 books, 12 research contracts; Affiliations: IEEE, AGIR; Research topics: Power quality and energy efficiency audit, Modelling and simulation of electromechanical systems, efficient electrical transportation.
- **Prof. Dr. Eng. Liviu Emil Petrean:** PhD. in electrotechnical engineering from Polytechnic Institute Traian Vuia Timișoara, 1983. Professor in Electrotechnics, Power quality, Electrical energy management; Author of more than 100 articles, 5 books, 34 research contracts; Affiliations: IEEE, AGIR; Research topics: Partial discharge in insulators, Electromagnetic field computation, Energy efficiency, Power quality.

Infrastructure

- Fluke 435 Power Quality Analyzer (three-phase) with Logger Function;
- PQA824 - Power quality analyser CAT IV with 4 CTs HTFLEX33

- Spectrum analyzer Pro Bundle 3 (incl. NF-5030 & HF-60100 V4) (1Hz -1MHz / 1MHz - 9,4GHz)
- Advanced infrared camera touch screen THT 47
- Chauvin Arnoux CA6547 10TΩ, 5kV Megohmmeter;
- Installation Tester Unilap 100 XE; Fluke 1653B Multi-Function Installation Tester;
- Fluke 1625 GEO Earth Ground Testers;
- Electrical Safety Tester, GPT-9803, 5kV c.a. 6 kV c.c.
- MagNet v7, 2D/3D ELECTROMAGNETIC FIELD SIMULATION SOFTWARE;
- ElecNet v7, 2D/3D ELECTRIC FIELD SIMULATION SOFTWARE;
- PSCAD 4.2.1 Professional;

Development strategy

- Increased collaboration with economy in R&D, but also in applied engineering services.
- Technological transfer and prototyping for R&D results.
- Collaboration with research groups from inside or outside TUCN, in applying for funding in EU with R&D in core areas projects.

Representative projects

- “Classical and innovative techniques in measurement and diagnosis of electrical installations”, Ierdan, 2017.
- “Electromagnetic field simulation of capacitive touch sensors”. Beneficiary: Electrolux, 2015
- “High Voltage switching equipment”, Electrosistem, 2015,
- “Investigation of the circumstances and causes of the LV electrical equipment failure due to HV commutation at CEFD Solaris 56 MWp Ciuperceeni”, Bester Generacion, 2015,
- “Consulting services and earthing system testing on overhead power line 400 KV Gădălin – Cluj Est”, S.C. EMSSENS, 2014;
- “Technical analysis of the power quality at UAC Dumbrăvița”, 2014;

Significant results (ISI publications in the last 5 years)

- Research, development and design of the 2+3 m³ gully emptier control and automation, S.C. ADISS SRL;
- Chiver, Olivian; Neamt, Liviu; Matei, Oliviu; et al., *Utilization of Finite Elements Programs and Matlab Simulink in the Study of a Special Electrical Motor*, International Journal Of Advanced Computer Science And Applications, Volume: 8, Issue: 4, Pages: 317-323, 2017.
 - Neamt, Liviu; Matei, Oliviu; Chiver, Olivian, *Finite Element Method Combined with Neural Networks for Power System Grounding Investigation*, International Journal Of Advanced Computer Science And Applications, Volume: 8, Issue: 2, Pages: 187-192, 2017.
 - Chiver, O.; Neamt, L.; Pop, E.; et al., *Single-phase PM synchronous motor simulation with Matlab/Simulink*, Book Series: IOP Conference Series-Materials Science and Engineering Volume: 163, 2017.
 - Costea, C., Petrovan, A., Neamt, L., Chiver, O., *On performing semantic queries in small devices*, Book Series: IOP Conference Series-Materials Science and Engineering, Volume: 144, 2016.
 - Neamt, L ; Chiver, O ; Erdei, Z; Barz, C, *Considerations about Medium Voltage SF6 Switch Disconnecter Framework Design based on 3D Electrostatic FEA*, IEEE 16th International Conference on Environment and Electrical Engineering (EEEIC), Florence, Italy, Jun 07-10, 2016.
 - Chiver, Olivian; Neamt, Liviu; Pop, Eleonora; Barz, Cristian; Pop, Adina Vadean, *Identification of parameters of single-phase PM synchronous Motor*, IEEE 16th International Conference on Environment and Electrical Engineering (EEEIC), Florence, Italy, Jun 07-10, 2016.
 - Chiver, Olivian; Neamt, Liviu; Pop Eleonora, *Transient analysis of wound rotor synchronous motor synchronisation using finite elements method*, Electrical and Power Engineering (EPE), International Conference and Exposition on, pp. 225-228, October 20-22, Iasi, Romania, 2016.
 - Costea, C; Neamt, L; Chiver, O; Cola, C; Sambor, V, *Distributed processing of data streams on the edge devices*, Electrical and Power Engineering (EPE), International Conference and Exposition on, pp. 001-004, October 20-22, Iasi, Romania, 2016.
 - Balan, H ; Neamt, L; Buzdugan, MI; Varodi, T; Pop, E, *Fault current limiter with solid-state circuit breakers*, Book Series: IOP Conference Series-Materials Science and Engineering, Volume: 144, pp. 1-9, 2016.
 - Neamt, Liviu; Matei, Oliviu; Chiver, Olivian, *Optimised Methodology for Stepper Motor Simulation*, IEEE 15th International Conference on Environment and Electrical Engineering Rome, pp: 1078-1082, 2015,
 - Neamt Liviu; Chiver Olivian; Bartis Madalin, *Capacitive Touch Sensors Sensibility For Different Ground Hatch And Shield Electrode Structures*, The 9th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, pp. 123-127, 2015,
 - Chiver, Olivian; Neamt, Liviu; Matei, Oliviu, *Comparative study on sudden short-circuit currents of a synchronous generator*, IEEE 15th International Conference on Environment and Electrical Engineering Rome, pp: 1688-1693, 2015,
 - Horgos Mircea; Neamt Liviu; Erdei Zoltan; Chiver Olivian; Barz Cristian; Zetea Ovidiu, *Determination Of System For Wireless Power Transfer*, The 9th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, pp. 223-227, 2015,
 - Neamt, L., Chiver, O., Barz, C., Costea, C., Erdei, Z., *Considerations about power system grounding for different soil*

structure, Proceedings of the 2014 International Conference and Exposition on Electrical and Power Engineering, pp. 1034-1038, 2014,

- Chiver, O., Neamt, L., Barz, C., Costea, C., *Frequency domain numerical analysis of rotor cage induction motor*, Proceedings of the 2014 International Conference and Exposition on Electrical and Power Engineering, pp. 327-331, 2014,
- Barz C, Oprea C, Chiver, O, Erdei Z, Neamt L, Pop Vadean Alina, *The Advantages of Numerical Analysis for Claw Pole Alternator*, Proceedings of the 2014 International Conference and Exposition on Electrical and Power Engineering, pp. 353-356, 2014,
- Pop Dumitru, Neamt L, Tirnovan A, Sabou D, *3D Finite Element Analysis of a Miniature Circuit Breaker*, The 8th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, pp. 1-6, 2013,
- Chiver, Olivian; Neamt, Liviu; Horgos, Mircea; et al., *Study of salient poles synchronous generator by finite elements analysis*, 12th International Conference on Environment and Electrical Engineering (EEEIC), Wroclaw, Poland, May 05-08, pages: 450-454, 2013.
- Neamt, Liviu; Chiver, Olivian, *A Simple Method for Photovoltaic Energy Estimation*, 12th International Conference on Environment and Electrical Engineering (EEEIC), Wroclaw, Poland, May 05-08, pages: 513-516, 2013.

The offer addressed to the economic environment

Research & development in core areas	<ul style="list-style-type: none"> • Electrical equipment analysis and optimization, based on Finite Element Method; • Energy efficiency and better power quality trough power circulation improvement, based on computer assisted simulation; • Development of enhanced technologies in energy conversion; • Development of new testing and diagnosis methods in electrical installations.
Research & development in applied fields	<ul style="list-style-type: none"> • Achievement of a software routine for simulating-validation of the electrical equipment and installations design results: high current and voltage, control systems; • Optimization of electrical equipment and installations performances based on client specification; • Development of a software platform structured on a data base with energy efficiency actions, usable on-line by consumers.
Consulting	<ul style="list-style-type: none"> • Audit, energy efficiency and power quality; • Renewable sources potential estimation for feasibility studies; • Renewable energy conversion systems integration; • Complicated measurements in electrical installations, data processing and results interpreting.
Applied engineering services	<ul style="list-style-type: none"> • Electrical equipment, installations and automation and control systems modern computer aided design; • Audit and energy efficiency improvement at the consumers; • Monitoring, analysis and improvement of power quality in distribution, supplying or at the consumers; • Measurement, testing and diagnosis in electrical installations (in Romanian Energy Regulatory Authority certification process); • Measurement of non-ionising electromagnetic radiation in order to assess electromagnetic fields for the purpose of comparison against limits for human exposure.
Training	<ul style="list-style-type: none"> • Romanian Energy Regulatory Authority certified courses for electricians,; project supervising, experts, • Romanian Energy Regulatory Authority certified courses for: energy auditors and managers; • Measurement, testing and diagnosis in electrical installations using modern equipment and techniques; • Renewable energies integration. • Energy efficiency and power quality at consumers.