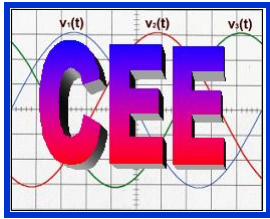


## FACULTY OF ENGINEERING BAI-A-MARE - RESEARCH STRUCTURE

### POWER QUALITY AND ENERGY EFFICIENCY

#### Contact details

Name	<b>Power Quality and Energy Efficiency</b>
Acronym	<b>CEE</b>
Logo	
Site	<a href="http://cee.ubm.ro/CEE">http://cee.ubm.ro/CEE</a>
Address	62/A Dr. V. Babes Str., 430083, Baia Mare, Romania
Faculty Department	<b>Engineering Faculty Electrical, Electronic and Computer Engineering Department</b>
Telephone	+40 362 401265 int. 230
Fax	+40 262 276 153
Director	Assist. Prof. Dr. Eng. Liviu Neamt
e-mail	email: <a href="mailto:Liviu_neamt@ubm.ro">Liviu_neamt@ubm.ro</a> ;

#### 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; Monitoring, analysis and improvement of power quality; Measurement, testing and diagnosis in electrical installations.

#### Team and key skills

**Assist. 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 40 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 40 articles, 2 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;
- Chauvin Arnoux CA6547 10TΩ Megohmmeter;
- Protek 9216A Digital LCR-meter;
- MTX 3352, 2 Channels 100 MHz digital oscilloscope with recorder and harmonic analyser mode;
- Installation Tester Unilap 100 XE; Fluke 1653B Multi-Function Installation Tester;
- Fluke 1623 & 1625 GEO Earth Ground Testers;
- 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

- “**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;
- “**Research, development and design of the 2+3 m<sup>3</sup> gully emptier control and automation**”, S.C. ADISS SRL, 2011;
- “**Design and consulting services in electrical installations**”, MFD ELAG SRL, 2011;

## Significant results

- Research, development and design of the 2+3 m<sup>3</sup> gully emptier control and automation, S.C. ADISS SRL;
1. Neamt L, Neamt Alina, Chiver O, Horgos M, A flexible design method for double-shell magnetostatic shields, Journal of Electrical and Electronics Engineering, volume 4 - nr. 1, pp. 135-138, 2011.
  2. Neamt L, Horgos M, Chiver O, Erdei Z, Estimation of power cables magnetic fields in mine tunnels, Journal of Sustainable Energy, pp. 20-25, volume II - nr. 4, 2011.
  3. Chiver O, Neamt L, Horgos M, Finite elements analysis of a shell-type transformer, Journal of Electrical and Electronics Engineering, vol4/nr.2, pp. 98-101, 2011.
  4. Chiver O, Neamt L, Horgos M, Oniga S and Buchman A, The study of transient regimes for a shell-type transformer, Carpathian Journal of Electronic and Computer Engineering, vol.4/nr.4, pp. 156-159, 2011.
  5. Pop D. D, Tirnovan R, Neamt L, Vaida T, Optimal design of a cylindrical magnetic shield against electromagnetic interferences, Acta Electrotehnica, Special issue: "Selected papers from the 4th international conferences on modern power systems, MPS 2011, pp. 362-365, Cluj Napoca, 2011.
  6. Neamt L, Coman Mirela, *Corrected simple solar irradiance model for mono-si photovoltaic potential estimation*, Carpathian Journal of Electronic and Computer Engineering, volume 4 - nr. 1, pp. 89-92, 2011.
  7. Neamt L, Pop D, Chiver O, Barz C., *Numerical Simulation of the Interactions between Low Voltage Network, Miniature Circuit Breaker and Mounting Technique*, 19th International Conference on the Computation of Electromagnetic Fields, Compumag 2013, Budapest, pc3-23, 2013.
  8. Pop D, Neamt L, Tirnovan R, Sabou D., *3D Finite Element Analysis of a Miniature Circuit Breaker*, The 8th International Symposium on Advanced Topics In Electrical Engineering, Bucharest, 2013, pp. 1-6, 2013.
  9. tteet Mihaela, Consumer protection in energy field, 12th International Conference on Environment and Electrical Engineering, IEEEIC 2013, pp. 513-516, 2013.
  10. Chiver O, Neamt L., Horgos M., Barz C, *Study of salient poles synchronous generator by finite elements analysis*, 12th International Conference on Environment and Electrical Engineering, IEEEIC 2013, pp. 450-454, 2013.
  11. Chiver O, Neamt L., Pop D., Barz C., *Torque-Slip Characteristic of Squirrel Cage Induction Motor by New FEA Technique*, 19th International Conference on the Computation of Electromagnetic Fields, Compumag 2013, Budapest, pc6-11, 2013.
  12. Pop D., Neamt L, Tirnovan A, Sabou D. , *Analysis of an Electrical Arc in a Low Voltage Miniature Circuit Breaker*, Acta Electrotehnica, Vol 54, nr. 5, pp 378-381, 2013.
  13. Neamt, L., Chiver, O., *A simple method for photovoltaic energy estimation*, in 12th International Conference on Environment and Electrical Engineering, IEEEIC, pp. 513-516, 2013,
  14. 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,
  15. 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,
  16. 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,
  17. 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,
  18. 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,
  19. 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,
  20. 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.

#### The offer addressed to the economic environment

Research & development in core areas	Electrical equipment analysis and optimization, based on Finite Element Method; Energy efficiency and better power quality through 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	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	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	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).
Training	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.