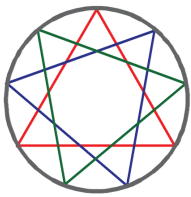


LIGHTING – ELECTRICAL - LABORATORY

Contact details

Name	Lighting - Electrical - Laboratory
Acronym	LEL
Logo	 L ighting E lectrical L aboratory
Site	http://users.utcluj.ro/~lec
Address	128-130 B-dul 21 Decembrie 1989, Cluj-Napoca, Romania
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Areas of expertise

Electric Lighting: 3D building simulations for the illumination levels using DIALux EVO; lighting measurements; energy efficiency lighting solutions;
Daylight: software building simulations for the daylight levels; lighting measurements; passive tubular daylight guidance systems;
Lighting Surveys: public lighting solutions for elderly people: on the use of LEDs; Carbon footprint LCA
Power quality: Power quality measurements for different end use devices, including LED luminaires;
Circular economy and regenerative Building: Studying the specific aspects related with green / active building services; carbon footprint reduction;
Renewable energies: hybrid lighting systems using photovoltaics; electrical design and testing of photovoltaic systems;

Team

Dr. Eng. Dorin BEU, Professor at the Technical University of Cluj-Napoca. Former President of Romanian Green Building Council RoGBC (www.rogbc.org) and of Romanian National Lighting Committee (www.cnri.ro). Chief Editor together with prof. Kim from Seoul Kyun Hee University of International Journal of Sustainable Lighting (www.lightingjournal.org); Prof. Dr. Eng. Mircea BUZDUGAN, Assoc. prof. Dr. Eng. Calin CIUGUDEANU, Lecturer dr.eng. Horatiu AL PhD student Eng. Angel CAMPIANU; dr.eng. Horatiu ALB.

Representative projects

OLGA hOListic & Green Airports (OLGA) is a Horizon 2020 project that aims to reduce the environmental impact of the aviation sector 2020-2026. For this project an innovative lighting solution was replicated and implemented at the Cluj Airport with tunable white solutions.
“CoME EAsy” 2018-2021 H2020 project for synchronizing EEA and Covenant of Mayor <https://www.european-energy-award.org/eu-project-come-easy>, finding the best KPIs for city energy and climate management and conversion tables for one system to another;
EXCITE! Implementarea sistemului de management European Energy Award in Bulgaria, Macedonia de Nord si Slovenia. Proiect International H2020 Contract nr. 892034 2020-2023. <http://www.excite-project.eu/>
COST RESTORE 2017-2021 CA 16114 www.eurestore.eu, in charge with Training School finding solutions for regenerative buildings – concept, design, tender, maintenance;
“Ensuring LEC maintenance by detecting defects with the method of real-time reflectometry”, Contract 171CI/2018, Cod PN-III-P2-2.1-CI-2018-1004, 2018;
“Procedures for testing the protection systems equipped with digital relays, when commissioning substations

in the national energetic system“ cod PN-III-P2-2.1- CI-2017-0799, NR. 147CI/2017;
 “LoNNE“ 2012-2016-member COST action ES 1204 – LoNNE Loss of Night Network (Manager of National Committee) <http://www.cost-lonne.eu/> study of the impact of Artificial Light At Night on humans and on environment;
 “Energy - Efficient Technologies for a Green University” in the program „Strategic research themes for young teams, Technical University of Cluj-Napoca,UTC-N”, 2014-2015;
 „Modernization and the Extension of Public Lighting System and the Modernization of the Lighting Sistem in two buildings of the City Hall” DALI and FPP, Contract nr. 380333/14.11.2013, UTC-N – City of Cluj-Napoca, cooperation program Switzerland-Romania;

Significant results

1. Albu H., Beu D., Rus T., Moldovan R., Domnița F., Vilčeková S., **Life cycle assessment of LED luminaire and impact on lighting installation – A case study**, Alexandria Engineering Journal, Volume 80, 2023, Pages 282-293, <https://doi.org/10.1016/j.aej.2023.08.068>, Published 2023
2. H. Albu, D. Beu, C. Ciugudeanu, Study on the Power Quality of LED Street Luminaires, August 2022 Sustainability 14(15):9671 DOI: 10.3390/su14159671
3. Ciugudeanu, C., Buzdugan, M., Beu, D., Campianu, A., Galatanu, CD, **Sustainable Lighting-Retrofit Versus Dedicated Luminaires-Light Versus Power Quality**, Sustainability, 11(24), 7125, DOI 10.3390/su11247125, Published: 2019
4. Ciugudeanu C, Buzdugan M, Beu D, Campianu A, Galatanu C, **Sustainable Lighting-Retrofit Versus Dedicated Luminaires-Light Versus Power Quality**, Sustainability, 2019, 11(24), 125; <https://doi.org/10.3390/su11247125>
5. Galatanu, CD ; Ashraf, M ; Lucache, DD; Beu, D, Ciugudeanu, C. **Optical Utilization Factor For Architectural Lighting**, LIGHT & ENGINEERING. Volume: 27 Issue: 6, Pages: 49-57 DOI: 10.33383/2017-101Published: 2019
6. Beu, D; Ciugudeanu, C; Buzdugan, M. **Circular Economy Aspects Regarding LED Lighting Retrofit-from Case Studies to Vision**, SUSTAINABILITY Volume: 10 Issue: 10 Article Number: 3674 DOI: 10.3390/su10103674, Published: OCT 2018;
7. Ciugudeanu, C; Beu, D; Rastei, E; **Living Building Laboratory - Educational Building Project in Cluj-Napoca**, EENVIRO-YRC 2015 – BUCHAREST, Edited by: Damian, RM Book Series: Energy Procedia Volume: 85 Pages: 125-131 DOI: 10.1016/j.egypro.2015.12.282 Published: 2016;
8. Ciugudeanu, C; Beu, D; **Passive Tubular Daylight Guidance System Survey**, 9TH INTERNATIONAL CONFERENCE INTERDISCIPLINARITY IN ENGINEERING, INTER-ENG 2015, Edited by: Moldovan, L Book Series: Procedia Technology Volume: 22 Pages: 690-696 DOI: 10.1016/j.protcy.2016.01.144 Published: 2016
9. Beu, D; Ciugudeanu, C; Maieran, M; Galatanu, C.D; **Introducing a New Profession: Lighting Specialist**, ECOLOGY, ECONOMICS, EDUCATION AND LEGISLATION CONFERENCE PROCEEDINGS, SGEM 2016, VOL III, Book Group Author(s): SGEM Book Series: International Multidisciplinary Scientific GeoConference-SGEM Pages: 863-869 Published: 2016;
10. Beu, D; Ciugudeanu, C; Gyulai, R; **Light Guiding Optical Lamellae System Simulations**, The 16th International Multidisciplinary Scientific Geoconference (SGEM 2016) Location: Albena, BULGARIA Date: JUN 30-JUL 06, 2016;

Significant solutions:

Hybrid Passive Tubular Daylight Guidance System;

Living Building Laboratory - build design for the first Romanian active building (a building that produce more energy than its own consumption), using traditional materials combined with the latest technologies;

Switzerland financial support approval (1.8 million euro) for the Final Project Proposal - Modernization and the Extension of Public Lighting System of the Cluj-Napoca City Hall;

The offer addressed to the economic environment

Research & development	Supporting local lighting businesses to be more competitively on the market by using applied research; Providing and evaluating the best available techniques on the market; Evaluating and testing different new luminaires and their power quality behaviour;
Consultancy	Consulting, design, research and prototyping towards the development of different energy efficiency lighting techniques.
Design	Preparing lighting/electrical documentations for all the design phases: feasibility studies, final project proposals, technical projects, specifications and As built;
Measurements	Lighting measurements with spectrophotometer; power quality measurements; electro-magnetic field measurements; thermo-visual surveys; earthing installation and earth resistivity; photovoltaics efficiency under different climatic conditions.
Training	Courses for Lighting Specialist. Energy efficiency lighting techniques, electrical design; lighting and power quality measurements.

Last update on January 2026