

# Curriculum Vitae



## Personal information

First name(s) / Surname

**Lucian TOMA**

Address

National University of Science and Technology Politehnica Bucharest, 313, Spl. Independentei, 060042, Bucharest, Romania

Mobile:

+4 0724711661

E-mail

lucian.toma@upb.ro

## Work experience

Occupation or position held

**Habilitation certificate** 3790 / 12.05.2022

Main activities and responsibilities

PhD supervision

Name and address of employer

National University of Science and Technology Politehnica Bucharest, Doctoral School in Energy Engineering

Type of business or sector

Scientific research

Dates

March 2021 – May 2024

Occupation or position held

**Vice-Dean**

Main activities and responsibilities

Responsible with the admission, scientific research and international relations

Name and address of employer

National University of Science and Technology Politehnica Bucharest, Faculty of Energy Engineering

Dates

2022 to date

Occupation or position held

**Professor (starting with October 2023), Associate Professor (2013 - 2023), Lecturer (2007-2013), Assistant (2002-2007)**

Main activities and responsibilities

Teaching

Name and address of employer

National University of Science and Technology Politehnica Bucharest, Faculty of Energy Engineering

Type of business or sector

Didactic and scientific research

## Education and training

Dates

2010-2013

2003-2010

Title of qualification awarded

Postdoctoral researcher

Doctorate

Principal subjects/occupational skills covered

Electrical Engineering

Power engineering

Name and type of organization providing education and training

University "Politehnica" of Bucharest

University "Politehnica" of Bucharest  
Power Engineering Faculty

Dates

2002-2003

1997-2002

Title of qualification awarded

Advanced studies (Master)

Engineer

Principal subjects/occupational skills covered

"Special topics in power systems"

Power systems

Name and type of organisation providing education and training

University "Politehnica" of Bucharest  
Power Engineering Faculty

University "Politehnica" of Bucharest  
Power Engineering Faculty

## Personal skills and competences

Mother tongue(s)

Other languages

Self-assessment

European level

English

French

Teaching experience

Romanian

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C1	Advanced user	C1	Advanced user	C1	Advanced user	C1	Advanced user	C1	Advanced user
B1	Independent user	C1	Advanced user	A2	Basic user	A1	Basic user	B2	Independent user

Courses:

- *Electrical networks*, in Romanian (2007 – 2021), in Romanian for the undergraduate cycle at the Power Engineering Faculty
- *Modelling and Simulation of the power electronic based power system installations*, in Romanian for the master program MS11 Applied Informatics in Power Engineering
- *Intelligent electrical networks - Smart Grids* (2010 – to date), for the master program in Electrical Power Systems at the Power Engineering Faculty
- *Smart Grids* (2024 – prezent) in English, for the Master program MS16 Power Systems Monitoring and Control
- *DC electrical networks* (2024 to date) in English, Master program MS16 Power Systems Monitoring and Control
- *Power system dynamics* (2024 to date) in English, Master program MS16 Power Systems Monitoring and Control
- *Production, Transmission and Distribution of Electricity* in English (since 2026) and Romanian (2008 to 2025) for the undergraduate cycle at the Faculty of Electrical Engineering

Projects and laboratory works:

- Electrical networks; Transmission and distribution of electrical energy; Electrical power systems; Power system dynamics; Numerical methods; High voltage direct current transmission; Advanced technologies in power systems: FACTS and Artificial Intelligence; Artificial Intelligence Techniques; Electricity Market.

Invited Professor

- 2015, 2021-2025 Technical University of Moldova in Chişinău, Course on „Intelligent Energy Networks” and “Power system dispatching”

Erasmus Mobilities

- INP Grenoble (2016, 2017), University of Cyprus (2017), Universite de Lorraine (2018), Politecnico di Torino (2018)

Technical expertise

- Sizing the transmission and distribution electrical networks
- Evaluation of the operating conditions of the electrical networks: load flow calculation, angular and voltage stability evaluation, contingency analysis, voltage regulation, frequency regulation, short-circuit currents calculation
- Electricity market: congestions management, ancillary services, market components
- Smart Grids: microgrids, virtual power plant, smart home, electrical vehicle
- Distributed Generation and Renewable Energy Sources
- Power electronics: HVDC and FACTS devices
- Application of artificial intelligence techniques in power systems

Organizational and leadership skills

Chair of IEEE Romania Section (2021 - 2025); Vice-Chair (2018 - 2020); Secretary (2014 - 2018); Treasurer (2010 - 2013)

Chair of IEEE PES Romania Chapter (since 2021); Treasurer of IEEE Power & Energy Society Romania Chapter (2005 – 2017)

Organizing conferences:

- Bucharest 2018 Symposium on Microgrids, 2-6 September 2018, Bucharest, University “Politehnica” of Bucharest.
- 7<sup>th</sup> International Conference on Deregulated Electricity Market Issues in South-Eastern Europe – DEMSEE 2012, University “Politehnica” of Bucharest, Bucharest, 20-21 September 2012.

## Member of committees and working groups

- International Conference 2009 IEEE Bucharest PowerTech, Parliament Palace, Bucharest, 28 June – 2 July 2009;
- International Conference Energy and Environment – CIEM, University “Politehnica” of Bucharest, Bucharest, 20-22 October 2005;

### *Co-organizing summer schools:*

- “Virtual Balkan Power Centre – Renewable Energy Systems Summer School”, VBPC-RES Summer School Bucharest, 10-16 October 2005;
- IRIDE Summer School: “Sustainable development of the future power systems”, University POLITEHNICA of Bucharest, 23-31 July 2007.

### *Technical support for round tables:*

- “Erasmus Students in the European Union” (2004, 2005 and 2009), within the ENERGETICA journal or IRE (Romania).

*Chair of the IEEE Romania Section (2020 to date)*

*Chair of IEEE Power & Energy Society Romania Chapter (2020 – to date)*

*Vice-Chair of IEEE Student Branch the University “Politehnica” of Bucharest (2004 – 2010)*

*Reviewer for journals:* Transactions on Power Delivery (IEEE); Transactions on Smart Grid (IEEE); Generation, Transmission and Distribution (IET); Electric Power Systems Research (Elsevier), International Journal of Electrical Power and Energy Systems (Elsevier), Energies (MDPI)

*Member of WG1 “Network Assets” within the FP7 – “Technological Platform for the Electricity Networks of the Future – SmartGrids”*

*Representative of Romania in the CIGRE C4 Study Committee on “Power system technical performance” as Observer Member (since 2022)*

*Representative of Romania in the CIGRE B4 Study Committee on “DC systems and Power Electronics” as Observer Member (2015-2021)*

### *Member of technical committee of conferences:*

- International Conference on Deregulated Electricity Market Issues in South-Eastern Europe – DEMSEE, member of the Steering Committee (2012 - 2013)
- 2013 IEEE Grenoble PowerTech, Grenoble – France, 16-20 June 2013
- 2015 IEEE Eindhoven PowerTech, Eindhoven – The Netherlands, 29 June - 20 July 2015
- 12th International Conference on Environment and Electrical Engineering - Wroclaw, Poland, 5 - 8 Mai 2013
- CIGRE South-East Europe Conference – RSEEC 2012, 2014, 2016, 2018

*Representative of the Youth Branch of IRE (2002 – 2005)*

### *Member of Romanian Committees*

- Member of the Romanian Standards Association ASRO, The Technical Committee CT 165 “Electrical Lines”.
- Co-author of the translated Romanian Standards SR EN 50341-1 “Overhead electrical lines of alternating voltage over 1 kV. Part 1: General rules. Common specifications”

*Delegated by IEEE Instrumentation & Measurement in the Initiative Grup “IEEE Smart Grid Initiative” (2018 to date)*

## Member of Professional Organizations

- IEEE (since 2004)
- IEEE Power & Energy Society (since 2004)
- IEEE Instrumentation & Measurement Society (since 2010)
- IEEE Industry Applications Society (2012-2018)
- CIGRE (since 2013)
- Romanian National Committee of CIGRE (since 2013)
- Romanian National Committee of the World Energy Council (since 2009)

## International and national recognition

- 2020 MPCE Excellent Associate Editor Award
- IEEE Senior Member (since 2019)
- Best Poster Award, Bucharest 2018 Symposium on Microgrids, Real-time simulation of small-scale power grids with software in-the-loop and hardware in-the-loop experiments, Authors: Radu Plamanescu, Abouzar Estebarsari, Edoardo Patti, Lucian Toma
- The anniversary award „Remus Răduleț” of the Romanian Academy of Technical Sciences for the book „Advanced Solutions in Power Systems: HVDC, FACTS, and Artificial Intelligence”, 2017
- IEEE Outstanding Engineer Awards presented by IEEE PES Romania Chapter in 2016.
- The 2016 medal awarded by the National Romanian Committee of the World Energy Council
- 2013 AGIR Award, in conjunction with the Romanian Academy for Technical Sciences for the book „Handbook of Electrical Power System Dynamics: Modeling, Stability, and Control”.
- Best paper award for a young author, FOREN 2010, Neptun, 13-17 June 2010.
- IEEE Outstanding Small Chapter Award 2005 (Treasurer) – Romania PES Chapter, awarded by IEEE Power & Energy Society
- Certificate of Achievement – awarded by IEEE Romania Section (2004)

## PhD theses supervised

2023     *Frequency Control Solutions in the Future Power Systems*  
Autor: Ing. Jaleel Ismail Jaber AL HASHEME

## Profiles

Web of Science: <https://www.webofscience.com/wos/author/record/B-4120-2011>  
ORCID: <http://orcid.org/0000-0002-1281-2650>

## Annex 1: PUBLICATIONS

### PhD Thesis

Ancillary Services management under power market conditions, University POLITEHNICA of Bucharest, 2010.

### Books:

1. Antonello Monti, Federico Milano, Ettore Bompard, Xavier Guillaud (editori), *Converter-Based Dynamics and Control of Modern Power Systems 1st Edition*, Elsevier Academic Press, 2020, ISBN: 9780128184912
  - Capitolul 3: *Classical grid control: Frequency and Voltage Stability*, Autori: Ettore Bompard, Andrea Mazza, **Lucian Toma**
  - Capitolul 4: *Modal Analysis*, Autori: **Lucian Toma**, Ettore Bompard, Andrea Mazza
2. Mircea Eremia, Mihai Sănduleac, **Lucian Toma**, Constantin Bulac, Alisa Manoloiu, *Dispozitive FACTS. Concepte și aplicații în electroenergetică (FACTS Devices. Concepts and applications in electrical power systems)*, AGIR Publisher, Bucharest, 2017, ISBN: 978-973-720-682-4. (in Romanian)
3. Mircea Eremia, Chen-Ching Liu, Abdul-Aty Edris (editors) et al., *Advanced Solutions in Power Systems: HVDC, FACTS, and Artificial Intelligence*, Wiley & IEEE Press, Power Engineering Series, October 2016, ISBN 978-1-119-03569-5.
  - Chapter 4: VSC-HVDC Transmission, Authors: Mircea Eremia, José Antonio Jardini, Guangfu Tang, **Lucian Toma**
  - Chapter 5: Static VAR Compensator - SVC, Authors: Mircea Eremia, Aniruddha Gole, **Lucian Toma**
  - Chapter 7: Phase shifting transformer: mechanical and static devices, Authors: Mylavarapu Ramamoorthy, **Lucian Toma**
4. Mircea Eremia, Mohammad Shahidehpour (editors), et al. – *Handbook of Electrical Power System Dynamics: Modeling, Stability, and Control*, Wiley & IEEE Press, Power Engineering Series, 2013, ISBN 978-1-1184-9717-3.
  - Chapter 3 - Modeling The Main Components of the Classical Power Plants, Authors: *Mohammad Shahidehpour, Mircea Eremia, **Lucian Toma***
  - Chapter 5 - Short-Circuit Currents Calculation, Authors: *Nouredine Hadjsaid, Ion Triștiu, **Lucian Toma***
  - Chapter 8 - Background of Power System Stability, Authors: *Mani S.S. Venkata, Mircea Eremia, **Lucian Toma***
5. Eremia M. (editor), et al. – “*Electric Power Systems, Volume I, Electric Networks*” (in English), Publishing House of the Romanian Academy, Bucharest, 2006, ISBN 973-27-1324-0.
  - Chapter 1 - Electric Power Systems Configuration and Parameters, Authors: *Adrian Buta, Maria Tudose, **Lucian Toma***
  - Chapter 6 - Electrical Power Quality, Authors: *Adrian Buta, **Lucian Toma***

### Technical Brochures

1. Jef Palermo (Convenor), **Lucian Toma** et al., *The Potential Roles of Energy Storage in Power Systems*, TB CIGRE WG C1.51, no. 970, September 2025, ISBN 978-2-85873-675-1.

### Invited Speaker

1. **Lucian Toma** – *Solutions for power system stability by applications of power electronics*, 2025 9th International Symposium on Electrical and Electronics Engineering, Galați, Romania, 30 October – 1 November 2025. **(PLENARY SPEAKER)**
2. **Lucian Toma** – *Promoting Microgrids And Local Energy Community To Support The Renewable Energy Sources* (Plenary speaker) în cadrul The 1st International Conference On Electrical Engineering and Modern Technologies ICMEET'22, organized by Mohamed-Cherif Messaadia University - Souk Ahras, Algeria, 18 - 19 February 2022. **(PLENARY SPEAKER)**
3. **Lucian Toma** – *Challenges and solutions towards green and resilient power systems*, (Plenary speaker), 13th International Conference on Electromechanical and Energy Systems 2021, Chișinău, Moldova, 7-8 October 2021. **(PLENARY SPEAKER)**
4. **Lucian Toma**, Mihai Sănduleac – *Solutions for power system stability under renewables dominated operating conditions*, 2021 International Conference on Applied and Theoretical Electricity, Craiova, 27-29 May 2021. **(PLENARY SPEAKER)**
5. Mircea Eremia, **Lucian Toma**, Alisa Manoloiu, Mihai Sănduleac – *Advanced power systems using power electronics: from smart grids to smart cities* (Sisteme electroenergetice performante folosind electronica de putere: de la smart grids la smart city), Tutorial within the 13th Edition of WEC Central & Eastern Europe Energy Forum - FOREN 2016, World Energy Council, Costinești, Romania, 12-16 June 2016. **(KEYNOTE SPEAKER)**
6. Mircea Eremia, **Lucian Toma** – *Smart Grids: The Electrical Networks of the Future*, International Conference on Condition Monitoring, Diagnosis and Maintenance 2011, Bucharest, Romania, 19-23 September 2011. **(KEYNOTE SPEAKER)**

1. Teodora Mîndra, Oana Chenaru, Radu Dobrescu, **Lucian Toma** – Modular microgrid technology with a single development environment per life cycle, *Energies* 2024, 17(19), 5016, ISSN 1996-1073; Online: <https://doi.org/10.3390/en17195016>.
2. Jaleel Al Hasheme, Murtadha Al-Kaabi, **Lucian Toma** – *Optimal allocation of distribution generator for radial distribution network using grey wolf optimizer*, *Buletinul U.P.B, Seria C*, Vol. 83, Nr. 3, 2024, pag. 371-390, ISSN 2286-3540.
3. Mircea Eremia, **Lucian Toma**, Mihai Sanduleac, Ioan-Cătălin Damian – Aspects regarding the resilience concept in power system Part I: Challenges and resilience in power systems, *Journal of Engineering Sciences and Innovation*, Volume 9, Issue 1 / 2024, p. 69-92, ISSN-L2537-320X, March 2024. Online: [https://jesi.astr.ro/wp-content/uploads/2024/04/7\\_Mircea-Eremia.pdf](https://jesi.astr.ro/wp-content/uploads/2024/04/7_Mircea-Eremia.pdf)
4. Mihai Sănduleac, Irina Ciornei, **Lucian Toma**, Ana-Maria Dumitrescu, Radu Plămănescu, Mihaela Albu – *High reporting rate smart metering data for enhanced grid monitoring and services for energy communities*, *IEEE Transactions on Industrial Informatics*, pp. 4039-4048, Vol. 18, Iss. 6, June 2022, print ISSN: 1551-3203, online ISSN: 1941-0050, DOI 10.1109/TII.2021.3095101.
5. Mircea Eremia, Ioan C. Damian, **Lucian Toma**, Mihai Sănduleac – *Overview of offshore wind turbines: foundations, connections to grid and perspective in the Romanian coastal environment*, *Journal of Engineering Sciences and Innovation*, Volume 7, Issue 2 / 2022, pp. 203-230, ISSN 2601-6699, ISSN-L 2537-320X.
6. Murtadha Sami, Stefan Gheorghe, **Lucian Toma** – *Voltage security improvement in transmission networks using SVC device*, *Buletinul U.P.B, Seria C*, Vol. 84, Nr. 3, 2022, pag. 310-323, ISSN 2286-3540.
7. Murtadha Sami, Stefan Gheorghe, **Lucian Toma** – *Analysis of the influence of renewable energy sources on the power system operation*, *EMERG*, Volume VIII, Issue 2/2022, ISSN 2668-7003, ISSN-L 2457-5011.
8. Irina Picioroagă, Andrei Tudose, Dorian Sidea, Constantin Bulac, **Lucian Toma** – *Power supply restoration in active distribution networks with high photovoltaic penetration based on soft open points*, *Rev. Roum. Sci. Techn.– Électrotechn. et Énerg*, Vol. 66, 3, pp. 181–186, Bucurest, 2021.
9. Adrian-Toni Radu, Mircea Eremia, **Lucian Toma** – *Use of battery storage systems in EV ultra-fast charging stations for load spikes mitigation*, *U.P.B. Bulletin, Series C*, Vol. 83, No. 2, 2021, pp. 283-294, ISSN 2286-3540.
10. **Lucian Toma**, Mihai Sanduleac, Dorian-Octavian Sidea – *Participation of the Virtual Power Plants to the frequency control in power systems*, *U.P.B. Bulletin, Series C*, Vol. 83, No. 2, 2021, pp. 259-270, ISSN 2286-3540.
11. Ioan-Cătălin Damian, Mircea Eremia, **Lucian Toma** – *Fault Simulations in a Multiterminal High Voltage DC Network with Modular Multilevel Converters using Full-Bridge Submodules*, *Energies* 2021, 14(6), 1653; <https://www.mdpi.com/1996-1073/14/6/1653> .
12. Constantin Ghinea, Mircea Eremia, **Lucian Toma** – *Power system security of the power flow computation on distribution electric network using renewable energy sources*, *U.P.B. Bulletin, Series C*, Vol. 83, No. 1, 2021, pp. 287-298, ISSN 2286-3540.
13. Oana Chenaru, **Lucian Toma**, Teodora Mîndra, Ștefănel Simin, Ștefan Fleancu - *Development of smart microgrids, a smart grid base*, *EMERG*, Volume VII, Issue 4/2021, ISSN 2668-7003, ISSN-L 2457-5011.
14. Mihai Sanduleac, **Lucian Toma**, Mircea Eremia, Irina Ciornei, Constantin Bulac, Ion Triștiu, Andreea Iantoc, João F. Martins, Vitor F. Pires, *On the electrostatic inertia in microgrids with inverter-based generation only – An analysis on dynamic stability*, *Energies* 2019, *Energies* 2019, 12(17), 3274; <https://www.mdpi.com/1996-1073/12/17/3274>.
15. Mihai Sanduleac, João Martins, Irina Ciornei, Mihaela Albu, **Lucian Toma**, Fernao Pires, Lenos Hadjidemetriou, Rooktabir Saub - *Resilient and Immune by Design Microgrids using Solid State Transformers*, *Energies* 2018, 11(12), 3377; doi: 10.3390/en1123377, <https://www.mdpi.com/1996-1073/11/12/3377>
16. Dorian Sidea, Mircea Eremia, **Lucian Toma**, Constantin Bulac – *Optimal placement of phase-shifting transformer for active power flow control using genetic algorithms*, *U.P.B Sci. Bulletin, Series C*, Vol. 80, No. 1, 2018, pp. 205-216, ISSN 2286 – 3540.
17. Mihai Sănduleac, Mihaela Albu, **Lucian Toma** – *Unbundled smart meters in the new smart grid era assessment on compatibility with European standardisation efforts*, *EMERG 7, AGIR & CNR-CME*, year IV, 2018, pp.76-89, ISSN 2457-5011.
18. Mihai Sanduleac, Irina Ciornei, Mihaela Albu, **Lucian Toma**, Marta Sturzeanu, Joao Martins – *Resilient Prosumer Scenario in a Changing Regulatory Environment - The UniRCon Solution*, *Energies* 2017, 10(12), 1941; doi:10.3390/en10121941, <http://www.mdpi.com/1996-1073/10/12/1941>
19. Mihai Sănduleac, Mircea Eremia, **Lucian Toma** – *Towards a Romanian power system based on high renewables penetration – The case study of BESS usage*, *Journal of Engineering Sciences and Innovation*, B. Electrotechnics, Electronics, Energetics, Automations, AGIR Publishing House, Vol. 2., No. 2, pp. 9-15, 2017.
20. Mihai Sanduleac, Gianluca Lipari, Antonello Monti, Artemis, Voulkidis, Gianluca Zanetto, Antonello Corsi, **Lucian Toma**, Giampaolo, Fiorentino, Dumitru Federenciu – *Next generation real-time Smart Meters for ICT based assessment of grid data inconsistencies*, *Energies* 2017, 10(7), 857; doi:10.3390/en10070857. <http://www.mdpi.com/1996-1073/10/7/857>.

21. Adrian Toni Radu, Mircea Eremia, **Lucian Toma** – *Charging Electric Vehicles in the Smart City: Optimal location for charging station and charging control strategies*, Scientific Bulletin of “Petru Maior” University of Târgu Mureș, ISSN-L 1841-9267 (Print), ISSN 2285-438X (Online), ISSN 2286-3184 (CD-ROM), vol. 14 (XXXI), no. 1, 2017.
22. Ali Abdulwahhab Abdulrazzaq, Mircea Eremia, **Lucian Toma**, Corneliu Alexandru Mandiș, *Optimal distributed generators placement in a radial distribution network*, U.P.B. Sci. Bull., Series C, Vol. 78, Iss. 2, 2016, pp. 261-272, ISSN 2286 – 3540.
23. Cristea Cristian, Mircea Eremia, **Lucian Toma** - *Wind power forecasting accuracy assessment for multiple timescales*, U.P.B Sci. Bulletin, Series C, Vol. 77, Iss. 4, 2015, pp. 393-404, ISSN 2286 – 3540.
24. Costel Constantin, Mircea Eremia, Iulia Cristina Constantin, **Lucian Toma** – *Application of shunt FACTS devices for a secure and efficient operation of The Romanian power system*, Sc. Bulletin of U.P.B, Series C, Vol. 76, No. 4, 2014, pp 225-234, ISSN 2286-3540.
25. Valeriu Iulian Presadă, Mircea Eremia, **Lucian Toma** – *Modified state estimation in presence of PMU measurements*, U.P.B. Scientific Bulletin, Series C, Vol. 76, No. 1, pp. 237-248, 2014, ISSN 1454-234x.
26. Bogdan Otomega, **Lucian Toma**, Constantin Bulac, Thierry Van Cutsem – *Combined control actions to counteract long-term voltage instability*, Sc. Bulletin of U.P.B, Series C, Vol. 74, No. 1, pp. 197-206, 2012, ISSN 1454-234x.
27. Bogdan Otomega, **Lucian Toma**, Constantin Bulac, Thierry Van Cutsem – *Automatic load reconnection after emergency undervoltage load shedding*, Sc. Bulletin of U.P.B, Series C, Vol. 74, No. 1, pp. 207-214, 2012, ISSN 1454-234x.
28. Florin Ionescu, Constantin Bulac, Ioana Pisică Ion Tristiu, **Lucian Toma** – *An evolutionary programming application to optimal reactive power dispatch*, Bulletin of University “Politehnica” of Bucharest, Series C, Vol. 72, No. 1, pp. 91-101, 2010, ISSN 1454-234x.
29. Daniel Radu, **Lucian Toma** – *Impact of the UPFC device on oscillations damping in power systems*, Sc. Bulletin of U.P.B, Series C, Vol. 66, No. 2-4, pp. 145-154, 2004.

#### Conference papers

1. Lucian Toma – *Solutions for power system stability by applications of power electronics*, 2025 9th International Symposium on Electrical and Electronics Engineering, Galați, Romania, 30 October – 1 November 2025.
2. Bogdan-Petru Dobrin, Lucian Toma, Nicolae Anton, Mihai Sanduleac – *Modelling and simulation of local energy communities – A technical point of view*, 12th International Conference on Energy and Environment CIEM2025, Bucharest, Romania, 23-24 October 2025.
3. AG Coteanu, S Gheorghe, L Toma, – *FACTS solutions implemented in the transmission power grid to enhance the integration capacity of renewable energy sources*, 2025 25th International Conference on Control Systems and Computer Science (CSCS), Bucharest, Romania, 27-30 May 2025.
4. Daniela Lupu, Ion Necoara, Lucian Toma – *Deep unfolding primal-dual architectures: application to linear model predictive control*, 2025 33rd Mediterranean Conference on Control and Automation (MED), Tangier, Morocco, 10-13 June 2025.
5. Ana-Maria Apostoiu, Lucian Toma, Costel Constantin – *Control of power circulation in the transmission power grid using the Series Synchronous Static Compensator (SSSC)*, CIGRE Regional South-East European Conference RSEEC 2024 (7th edition), Timisoara, Romania, 8th-10th October 2024.
6. Roxana Istrate, Costel Constantin, Lucian Toma – *Protection Schemes for Renewable Energy Sources Integration in Romanian Power Grid*, CIGRE General Meeting, Paris, 25-30 August 2024.
7. Murtadha Al-Kaabi, Virgil Dumbrava, Mircea Eremia, **Lucian Toma**, Cristian Lazaroiu, Bahaa Hussein Al Igeb – *A slime mould algorithm to solve multi-objective optimal power flow problems*, 11th International Conference on Energy and Environment, Bucharest, Romania, 26-27 October 2023.
8. Murtadha Al-Kaabi, Virgil Dumbrava, Mircea Eremia, **Lucian Toma**, Cristian Lazaroiu, Haitham Aljanabi – *Multi objective optimal power flow problems using hunger games search algorithm*, 11th International Conference on Energy and Environment, Bucharest, Romania, 26-27 October 2023.
9. Bogdan-Petru Dobrin, **Lucian Toma**, Roxana-Alexandra Istrate, Nicolae Anton, Mihai Sănduleac – *On the local energy communities*, 11th International Conference on Energy and Environment, Bucharest, Romania, 26-27 October 2023.
10. Jaleel Al Hasheme, **Lucian Toma**, Mircea Eremia, Mihai Sănduleac – *Integrating batteries into automatic generation control (AGC) for enhanced frequency control*, 11th International Conference on Energy and Environment, Bucharest, Romania, 26-27 October 2023.

11. Nicolae Anton, Constantin Bulac, **Lucian Toma**, Radu Porumb, Bogdan-Petru Dobrin, Dorian O. Sidea – *Optimal placement of phasor measurement units using deterministic and metaheuristic algorithms*, 11th International Conference on Energy and Environment, Bucharest, Romania, 26-27 October 2023.
12. Yassine Nabou, **Lucian Toma**, Ion Necoara – *Modified projected Gauss-Newton method for constrained nonlinear least-squares: application to power flow analysis*, 2023 European Control Conference (ECC), București, România, 13-16 June 2023.
13. Teodora Mîndra, Luiza Ocheană, **Lucian Toma** – *Vulnerabilities and predictive maintenance of systems for advanced anomaly detection in smart microgrids*, 6th International conference on emerging technologies in materials engineering, 9-10 November 2023, Bucharest, Romania.
14. Bogdan-Petru Dobrin, **Lucian Toma**, Hooman Farhang, Roxana-Alexandra Istrate, Nicolae Anton, Mihai Sănduleac – *Modelling and Simulation of Virtual Power Plants*, 12th International Conference and Exposition on Electrical and Power Engineering (EPE2022), Iasi, Romania, 20-22 October 2022.
15. Roxana-Alexandra Istrate, **Lucian Toma**, Bogdan-Petru Dobrin – *Impact of Mechanical Inertia on the Power System Stability*, 12th International Conference and Exposition on Electrical and Power Engineering (EPE2022), Iasi, Romania, 20-22 October 2022.
16. Murtadha Sami, Ștefan Gheorghe, **Lucian Toma** – *Transient stability improvement and voltage regulation in power system hosting renewables by SVC*, 2022 International Conference on Electrical, Computer and Energy Technologies (ICECET), Praga-Cehia, 20-22 July 2022.
17. Teodora Mindra, Gheorghe Florea, Oana Chenaru, Radu Dobrescu, **Lucian Toma** – *Combined peak shaving/time shifting strategy for microgrid controlled renewable energy efficiency optimization*, 2022 21st International Symposium INFOTEH-JAHORINA (INFOTEH), Sarajevo, Bosnia & Herzegovina, 16-18 April 2022.
18. Teodora Mîndra, Gheorghe Florea, Oana Chenaru, Radu Dobrescu, **Lucian Toma** – *Optimal Operation of a Microgrid for Energy-aware Buildings by Decision-based Algorithm*, 2021 International Conference on Computational Science and Computational Intelligence - CSCI'21, Las Vegas, USA, 15-17 December 2021.
19. Mihai Sănduleac, Eremia Mircea, **Lucian Toma**, Cătălin-Ionuț Damian, Mihai Gavrilăș, Gheorghe Grigoraș, Ion Stratan, Victor Gropa – *Islanded Microgrids control by using Grid Former and Synthetic Slack Bus concept - A preliminary analysis*, 13th International Conference on Electromechanical and Energy Systems 2021 - SIELMEN, Chișinău, Moldova, 7-8 October 2021.
20. Dorian Sidea, Andrei Tudose, Irina Picioroaga, **Lucian Toma**, Constantin Bulac – *Adapted Grey Wolf Optimizer for Dynamic Economic Dispatch in a Hybrid Microgrid*, 2021 10th International Conference on ENERGY and ENVIRONMENT (CIEM), Bucharest, 14-15 October 2021.
21. Constantin Ghinea, Mircea Eremia, Dorian Octavian Sidea, **Lucian Toma** – *Optimal location of a PV system using Grey Wolf Optimizer and operation analysis*, The 9th International Conference on Modern Power Systems, Cluj-Napoca, 15-17 June 2021.
22. Constantin Ghinea, Mircea Eremia, Dorian Octavian Sidea, **Lucian Toma** – *Optimal location and sizing of multiple PV systems in a distribution network using Marine Predators Algorithm*, 2021 International Conference on Applied and Theoretical Electricity, Craiova, 27-29 May 2021.
23. **Lucian Toma**, Radu Dobrescu, Oana Chenaru, Gheorghe Florea – *Battery energy storage based balancing of a microgrid*, The 12th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, Romania, 25-27 March 2021.
24. **Lucian Toma**, Bogdan Dobrin, Mihai Sanduleac, Andrea Mazza, Ettore Bompard, Dorian Sidea, Constantin Bulac, Nicolae Anton, – *Fuzzy logic based BESS control for frequency containment*, The 12th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, Romania, 25-27 March 2021.
25. Irina Picioroagă, Andrei Tudose, Dorian Sidea, Constantin Bulac, **Lucian Toma** – *Application of Soft Open Points For Increasing The Supply Restoration In Active Distribution Networks*, The 12th International Symposium on Advanced Topics in Electrical Engineering, București, România, 25-27 March 2021.
26. **Lucian Toma**, Mihai Sanduleac, Dorian-Octavian Sidea, *Participation of the Virtual Power Plants to the frequency control in power systems*, CIGRE Regional South-East European Conference - RSEEC 2020 (5th edition), Bucharest, 12-14 October 2020.
27. **Lucian Toma**, Mihai Sanduleac, Dorian-Octavian Sidea, Carmen Stanescu, Ciprian Diaconu, Mihaela Albu, Ana-Maria Dumitrescu, *Frequency dynamics in the Romanian power system under large perturbations*, 55th International Universities Power Engineering Conference, UPEC 2020, Torino, Italia, 1-4 September 2020.
28. Ionut-Catalin Damian, Mircea Eremia, **Lucian Toma**, *Detailed Modelling and Control of a Modular Multilevel Converter with Full-Bridge Submodules in a Multi-Terminal High Voltage DC Network*, 55th International Universities Power Engineering Conference, UPEC 2020, Torino, Italia, 1-4 September 2020.
29. **Lucian Toma**, Mihai Sanduleac, Mihaela Albu, Ciprian Diaconu, Carmen Stanescu, *Frequency analysis in the Romanian power system under major grid disturbances*, CIGRE General Meeting, Paris, August 2020.
30. Costel Constantin, Iulia-Cristina Constantin, **Lucian Toma**, *Advanced voltage control solutions for Romanian power system*, CIGRE General Meeting, Paris, August 2020.



31. **Lucian Toma**, Mihai Sănduleac, Mircea Eremia, Irina Picioroaga, Dorian O. Sidea, *On the feasibility of massive deployment of energy storage systems*, International Conference on Condition Monitoring, Diagnosis and Maintenance CMDM 2019 (5th edition), Bucharest, Romania, September 9th -11th, 2019.
32. Radu Adrian Toni, Mircea Eremia, **Lucian Toma** – *Participation of the Electric Vehicles to the Balancing Market*, IEEE Electrical Vehicles International Conference and Show, EV2019, Bucharest, Romania, 3-4 October 2019.
33. Harold R. Chamorro, Roozbeh Torkzadeh, Omar Kotb, Kumars Rouzbehi, Juan Manuel Escano, Francisco Gonzalez-Longatt, Oriol Gomis Bellmunt, **Lucian Toma**, Vijay K. Sood – *On the Optimization of Damping Enhancement in a Power System with a Hybrid HVDC Link*, IEEE International Conference on Innovative Smart Grid Technologies – IEEE ISGT Europe 2019, Bucharest, Romania, 29 September - 2 October 2019.
34. Roozbeh Torkzadeh, Harold R. Chamorro, Rebecca Rye, Mojtaba Eliassi, **Lucian Toma**, Francisco Gonzalez-Longatt – *Reactive Power Control of Grid Interactive Battery Energy Storage System for WADC*, IEEE International Conference on Innovative Smart Grid Technologies – IEEE ISGT Europe 2019, Bucharest, Romania, 29 September - 2 October 2019.
35. Dorian-Octavian Sidea, **Lucian Toma**, Mihai Sanduleac, Irina Picioroaga, Valentin-Adrian Boicea – *Optimal BESS Scheduling Strategy in Microgrids Based on Genetic Algorithms*, 2019 IEEE Milano PowerTech Conference, Milano, Italy, 23-27 June 2019.
36. Radu Adrian Toni, Mircea Eremia, **Lucian Toma** – *Optimal charging coordination of electric vehicles considering distributed energy resources*, 2019 IEEE Milano PowerTech Conference, Milano, Italy, 23-27 June 2019.
37. Hariss Nicorescu, **Lucian Toma**, Mircea Eremia – *Fast detection of grid faults using synchronized measurements*, The 11th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, Romania, 28-30 March 2019.
38. Mihai Sanduleac, **Lucian Toma**, Mircea Eremia, Valentin A. Boicea, Dorian Sidea, Alexandru Mandis - *Primary frequency control in a power system with battery energy storage systems*, 18th IEEE International Conference on Environment and Electrical Engineering (EEEIC), Palermo, Italia, 12-15 June 2018.
39. **Lucian Toma**, Mihai Sanduleac, Stefan Andrei Baltac, Francesco Arrigo, Andrea Mazza, Ettore Bompard, Aysar Musa, Antonello Monti - *On the Virtual Inertia Provision by BESS in Low Inertia Power Systems*, IEEE International Energy Conference, ENERGYCON 2018, Limassol, Cyprus, 3-7 June 2018.
40. Adrian Toni Radu, Mircea Eremia, **Lucian Toma** - *Promoting battery energy storage systems to support Electric Vehicle charging strategies in Smart Grids*, IEEE Electrical Vehicles International Conference and Show, EV2017, Bucharest, Romania, 5-6 October 2017.
41. Mihai Sanduleac, **Lucian Toma**, Constantin Bulac, Mircea Eremia, Nicolae Golovanov, Radu Porumb, Mihaela Albu, Stefan Gheorghe, Catalin Chimirel - *Energy storage for reaching 100% CO2 free and 100% RES – preliminary case study for Romania*, 8th International Conference on Energy and Environment (CIEM 2017), Bucharest, Romania, 19-20 October 2017.
42. Mihai Sanduleac, **Lucian Toma**, Gianfranco Chicco, Mihaela Albu – *Network Code on Requirements for Generators – A discussion. Resynchronizing with paradigm shifts*, IEEE International Conference on Innovative Smart Grid Technologies – IEEE ISGT Europe 2017, Torino, Italy, 26-29 September 2017.
43. Adrian Toni Radu, Mircea Eremia, **Lucian Toma** – *Optimal electrical vehicle charging strategy for operating conditions improvement in distribution electrical grid*, 4th International Conference on Condition Monitoring, Diagnosis and Maintenance – CMDM 2017, Bucharest, Romania, 25-27 September 2017.
44. Mihai Sanduleac, Mihaela Albu, **Lucian Toma**, João Martins, Anabela Gonçalves Pronto, Vasco Delgado-Gomes – *Hybrid AC and DC Smart home resilient architecture. Transforming prosumers in UniRCons*, IEEE 23rd International Conference on Engineering, Technology and Innovation, Madeira, Portugal, 27-29 June 2017.
45. Ion Necoară, Andrei Valentin Nedelcu, Dragos Nicolae Clipici, **Lucian Toma** – *On fully distributed dual first order methods for convex network optimization*, Proceedings of the 20th IFAC World Congress, Toulouse, France, 9-14 July 2017.
46. Dorian Sidea, **Lucian Toma**, Mircea Eremia – *Sizing a phase shifting transformer for congestion management in high wind generation areas*, Proceedings of 2017 IEEE PES Manchester PowerTech Conference, Manchester, UK, 18-22 June 2017.
47. Mihai Sănduleac, Ana-Maria Dumitrescu, **Lucian Toma**, Carmen Stănescu, Mihaela Albu – *On the frequency measurement in Wide Area Measurement and Control Systems*, The 10th International Symposium on Advanced Topics in Electrical Engineering, Bucharest, Romania, March 23-25, 2017.
48. Mircea Eremia, **Lucian Toma**, Mihai Sănduleac – *The smart city concept in the 21st century*, Procedia Engineering, Elsevier, ISSN:1877-7058, vol. 181, pp. 12-19, 2017.
49. Mihai Sănduleac, Catalin Chimirel, **Lucian Toma**, Lola Alacreu, Lucas Ponce - *National and inter-TSO balancing and ancillary services markets within a pyramid of energy services*, 10th Mediterranean Conference on Power Generation, Transmission, Distribution and Energy Conversion, Beograd, Serbia, 6-9 November, 2016.
50. Mihai Sănduleac, Catalin Lucian Chimirel, Mircea Eremia, **Lucian Toma**, Joao Martins – *Supporting Market Solutions by Calculating Ancillary Services and Quality of Service with Metrology Meters*, IEEE PES Innovative Smart Grid Technology Europe (ISGT-2016), Ljubljana, Slovenia, 9-12 October 2016.

51. Ion Necoară, **Lucian Toma**, Valentin Nedelcu – *Optimal voltage control for loss minimization based on sequential convex programming*, IEEE PES Innovative Smart Grid Technology Europe (ISGT-2016), Ljubljana, Slovenia, 9-12 October 2016.
52. Mihai Sănduleac, Mircea Eremia, **Lucian Toma**, Lola Alacreu, Lucas Ponce, Massimo Cresta, Marco Paulucci – *Energy Ecosystem in Smart Cities - Privacy and Security solutions for Citizen's engagement in a Multi-Stream Environment*, IEEE Second International Smart Cities Conference (ISC2 2016) – Improving the citizens' quality of life, Trento, Italy, 12-15 September 2016.
53. Mihai Sănduleac, Catalin Lucian Chimirel, Mircea Eremia, **Lucian Toma**, Cristea Cristian, Dorel Stănescu – *Unleashing Smart Cities efficient and sustainable energy policies with IoT based unbundled smart meters*, 2016 IEEE International Conference on Emerging Technologies and Innovative Business Practices for the Transformation of Societies (IEEE EmergiTech 2016), Balacava, Mauritius, 3-6 August 2016.
54. Mihai Sănduleac, Catalin Lucian Chimirel, Mircea Eremia, **Lucian Toma**, Joao Martins – *Metrology based measurement of voltage control services provided by advanced power generation modules*, 6th International Conference on Power Engineering Energy and Electrical Drives, (CPE-POWERENG 2016), Bydgoszcz, Poland, 29 June - 1 July 2016.
55. **Lucian Toma**, Ion Triștiu, Constantin Bulac, Andreea-Georgiana Neagoe-Ștefana – *Optimal generation scheduling strategy in a microgrid*, IEEE Transportation Electrification Conference and Expo Asia-Pacific (ITEC-BUSAN 2016), Busan, Korea, 1-4 June 2016.
56. Gheorghe Florea, Radu Dobrescu, Oana Chenaru, Mircea Eremia, **Lucian Toma** – *Methodology and framework for development of smart grid control, international workshop on service orientation in holonic and multi-agent manufacturing*, SOHOMA 2015; Cambridge; United Kingdom; 5-6 November 2015, Studies in Computational Intelligence, Springer, Volume 640, 2016, pp. 319-327.
57. Constantin Bulac, Ion Triștiu, Alexandru Mandiș, **Lucian Toma** – *On-line power systems voltage stability monitoring using artificial neural networks*, The 9th International Symposium on ADVANCED TOPICS IN ELECTRICAL ENGINEERING 2015, Bucharest, 7-9 May 2015.
58. Ali Abdulwahhab Abdulrazzaq, Mircea Eremia, **Lucian Toma**, Corneliu Alexandru Mandis – *Optimal location and size of SVC for power losses minimization and voltage security improvement*, The 9th International Symposium on ADVANCED TOPICS IN ELECTRICAL ENGINEERING 2015, Bucharest, 7-9 May 2015.
59. Ion Tristiu, Constantin Bulac, Sorina Costinas, **Lucian Toma**, Alexandru Mandis, Tudor Zabava – *An new and efficient algorithm for short - circuit calculation in distribution networks with distributed generation*, The 9th International Symposium on ADVANCED TOPICS IN ELECTRICAL ENGINEERING 2015, Bucharest, 7-9 May 2015.
60. Andreea-Georgiana Neagoe-Stefana, Mircea Eremia, **Lucian Toma**, Andrei Costin Neagoe – *Impact of charging electric vehicles in residential network on the voltage profile using Matlab*, The 9th International Symposium on ADVANCED TOPICS IN ELECTRICAL ENGINEERING 2015, Bucharest, 7-9 May 2015.
61. Ali Abdulrazzaq, Mircea Eremia, **Lucian Toma** – *Power system performance improvement by using an SVC device*, 2014 International Symposium on Fundamentals of Electrical Engineering (ISFEE), 28-29 Noiembrie 2014.
62. Valeriu Iulian Presadă, Cristian Cristea Virgil, Mircea Eremia, **Lucian Toma** – *State estimation in power systems with FACTS devices and PMU measurements*, 49th International Universities Power Engineering Conference, UPEC 2014, Cluj-Napoca, România, 2-5 September 2014.
63. Ciprian Păunescu, Tudor Zăbavă, **Lucian Toma**, Constantin Bulac, Mircea Eremia – *Hardware Home Energy Management System for Monitoring the Quality of Energy Service at Small Consumers*, The 16th IEEE International Conference on Harmonics and Quality of Power (ICHQP), Bucharest, 25-28 May 2014.
64. Valeriu Iulian Presadă, **Lucian Toma**, Mircea Eremia – *Improved State Estimation Algorithm in modern power systems*, 6<sup>th</sup> International Conference on Energy and Environment, CIEM-2013, Bucharest, 7-8 November 2013, ISSN 2067-0893.
65. Monica Ungureanu, Adrian Cîlcic, Ciprian Diaconu, Doina Ilișiu, **Lucian Toma**, Mircea Eremia – *Network strengthening by HVDC technology in the Romanian Power System in the context of Large Wind Capacities development*, Colloquium on "HVDC and Power Electronics to Boost Network Performance", 2-3 October 2013, Brasilia, Brazil.
66. **Lucian Toma**, Mircea Eremia, Dorin Bică – *Economic operation of distributed energy resources in a microgrid*, Proceedings of 2013 IEEE Grenoble PowerTech, ISBN 9781467356688, Grenoble, France, 16-20 June 2013.
67. Valeriu Iulian Presadă, **Lucian Toma**, Mircea Eremia – *An Algorithm for Improving the Power System State Estimation Using PMU Measurements*, Proceedings of 2013 IEEE Grenoble PowerTech, ISBN 9781467356688, Grenoble, France, 16-20 June 2013.
68. Constantin Mirea, Mircea Eremia, **Lucian Toma** – *Comparative analysis between conventional voltage control using reactors and continuous voltage control using TCR in the Romanian Transmission Grid*, Proceedings of 2013 IEEE Grenoble PowerTech, ISBN 9781467356688, Grenoble, France, 16-20 June 2013.
69. Constantin Costel, **Lucian Toma**, Mircea Eremia – *Power Flow Control Solutions in the Romanian Power System Under High Wind Generation Conditions*, Proceedings of 2013 IEEE Grenoble PowerTech, ISBN 9781467356688, Grenoble, France, 16-20 June 2013.

70. Mircea Eremia, **Lucian Toma** – *Către orașele inteligente ale viitorului – Smart Cities*, The 7th edition of International Conference on the Academic Days of the Academy of Technical Sciences of Romania, Bucharest, 11-12 October 2012, Agir Publisher, ISSN 2066-6585.
71. **Lucian Toma**, Bogdan Otomega, Constantin Bulac, Ion Tristiu – *Coordination of Distributed Generators Through the Virtual Power Plant Concept*, IEEE PES Innovative Smart Grid Technology Europe, ISGT-2012, Berlin, 14-17 October 2012.
72. Valeriu Iulian Presadă, Mircea Eremia, **Lucian Toma** – *Improving power system state estimation using synchrophasor measurements*, 11<sup>th</sup> WEC Central & Eastern Europe Energy Forum – FOREN 2012, Neptun-Olimp, Romania, 17-21 June 2012.
73. Mihai Sănduleac, Mircea Eremia, **Lucian Toma**, Paul Borza – *Integrating the Electrical Vehicles in the Smart Grid through Unbundled Smart Metering and multi-objective Virtual Power Plants*, IEEE PES Innovative Smart Grid Technology Europe, ISGT-2011, Manchester, 5-7 December 2011.
74. **Lucian Toma**, Mircea Eremia, Constantin Bulac, Ion Tristiu – *Optimizing the costs of reactive power for the coordinated voltage control service*, 2011 IEEE Trondheim PowerTech, 19-23 iunie 2011, Trondheim, Norway.
75. Mircea Eremia, **Lucian Toma**, Constantin Bulac, Ion Tristiu, Bogdan Otomega – *Legăturile la tensiune continuă: soluții moderne pentru transportul energiei electrice*, WEC Regional Forum – FOREN2010, Neptun, 13-17 June 2010, ISBN 978-973-720-327-4.
76. Florin Balașiu, Felicia Lazăr, Rodica Balaurescu, Florin Ciausiu, **Lucian Toma**, Mircea Eremia – *Future Improvements in the Romanian EPS Defence Plan*, 2010 IEEE General Meeting, Minneapolis, SUA, 25-29 June 2010.
77. Ioana Pistică, Constantin Bulac, **Lucian Toma**, Mircea Eremia – *Optimal SVC Placement in Electric Power Systems using a Genetic Algorithms based Method*, 2009 IEEE Bucharest PowerTech, București, 28 June – 2 July, 2009.
78. Constantin Bulac, Ciprian Diaconu, Mircea Eremia, Bogdan Otomega, Ioan Pop, **Lucian Toma** – *Power Transfer Capacity Enhancement using SVC*, 2009 IEEE Bucharest PowerTech, București, 28 June – 2 July, 2009.
79. Constantin Bulac, Mircea Eremia, Ion Tristiu, **Lucian Toma**, Bogdan Otomega – *Artificial neural networks applications for voltage stability monitoring*, International World Energy System Conference, Iași, 30 June – 2 July, 2008.
80. Mircea Eremia, **Lucian Toma**, Constantin Bulac, Ion Tristiu – *Intelligent Electrical Networks*, WEC Regional Forum – FOREN2008, Neptun, 16-19 June 2008.
81. Ion Tristiu, Mircea Eremia, Constantin Bulac, **Lucian Toma** – *Multi-criteria analysis for optimal placement of dispersed generators in distribution electric networks*. International Conference Energy Environment CIEM2007, Bucharest, 22-23 November 2007.
82. Aurel Chirilă, Dragoș Deaconu, Mihaela Albu, **Lucian Toma** – *Studies on LV DC network integrating various sources and loads with application to grid integration of dispersed generation*, 12<sup>th</sup> European Conference on Power Electronics and Applications – EPE2007, Aalborg, Denmark, 2-5 September, 2007.
83. **Lucian Toma**, Laurențiu Urluescu, Mircea Eremia, Jean-Marc Revaz – *Trading ancillary services for frequency regulation in competitive electricity markets*, IEEE PowerTech Conference, Lausanne, 1-5 July, 2007.
84. Cristea Cristian, João Peças Lopes, Mircea Eremia, **Lucian Toma** – *The control of isolated power systems with wind generation*, IEEE PowerTech Conference, Lausanne, 1-5 July, 2007.
85. Ion Tristiu, Mircea Eremia, Constantin Bulac, **Lucian Toma** – *Multi-criteria reconfiguration of distribution electrical networks for minimization of power losses and damage cost due to power supply interruption*, IEEE PowerTech Conference, Lausanne, 1-5 July, 2007.
86. Silviu Vergoti, Mircea Eremia, **Lucian Toma** – *Robust Load Flow Method based on an Optimal Multiplier*, CIGRE Symposium of Specialists in Electric Operational and Expansion Planning – X-SEPOPE, Florianopolis, Brazil, 21-25 Mai 2006 (**invited paper**).
87. Ion Tristiu, Mircea Eremia, Constantin Bulac, **Lucian Toma** – *The influence of distributed generation on power losses in distribution electrical networks*, International Conference Energy Environment CIEM 2005, Bucharest, 20-22 October 2005.
88. **Lucian Toma**, Constantin Bulac, Ion Tristiu – *Aspects considered in the modelling of the spot market of electrical energy and ancillary services*, International Conference Energy Environment CIEM 2005, Bucharest, 20-22 October 2005.
89. Constantin Bulac, Mircea Eremia, Ion Tristiu, **Lucian Toma**, Andreea Erbașu – *Load Flow Control in Power Systems Using SSSC and UPFC Devices*, National Symposium on Theoretical Electrotechnics – SNET, Bucharest, 12-14 May 2005.
90. Ion Tristiu, Mircea Eremia, Constantin Bulac, **Lucian Toma** – *Optimal Location of Dispersed Generators for Reliability Improvement of Distribution Networks*, CIGRE Symposium on Power Systems with Dispersed Generation, Athens, Greece, 13-16 April 2005.
91. Constantin Bulac, Mircea Eremia, Ion Tristiu, **Lucian Toma** – *STABTEN: A practical tool for fast voltage stability assessment in power systems*, IEEE&IEEE MedPower'04, Lemesos, Cyprus, 15-17 November 2004.
92. Adrian Bulac, Mircea Eremia, Constantin Bulac, **Lucian Toma** – *An improved method for implementation of the automatic learning systems on the voltage stability analysis of power systems*, International Symposium on Artificial Intelligence in Power Systems SIAE'04, Galați, Romania, 29-30 September 2004.

93. **Lucian Toma**, Mircea Eremia, Contantin Bulac – *Aspects of ancillary services*, Power Systems Conference PSC 2003, Timișoara, Romania, 6-7 November 2003.
94. **Lucian Toma**, Mircea Eremia, Constantin Bulac, Jacques Trecat – *Congestion management under the electricity market conditions*, International Conference on Energy and Environment 2003, Bucharest, 22-25 October 2003.

#### *Workshop talks*

7. **Lucian Toma** – Adapting the academic programs in UPB to comply with the smart grid requirements, IEEE International Forum “Smart Grids for Smart Cities”, Genk, Belgium, 26-28 November 2018.
8. Mircea Eremia, **Lucian Toma** – Conceptul Smart City, Expo-Conference Smart Cities of Romania, University „Politehnica” of Bucharest, 21-22 October 2015.
9. Mircea Eremia, Ciprian Diaconu, Monica Ungureanu, **Lucian Toma** – *SuperGrids for transmission of electrical energy in Europe*, Romanian Committee of WEC, Symposium on International Power Grid Interconnections, Bucharest, 20 November 2013.
10. **Lucian Toma** – *Developing and operating a microgrid*, Symposium on Intelligent Systems in Power Systems, Galați-Romania, 26-28 September 2012.
11. **Lucian Toma** – *Power Market Strategies of Synchronized Microgrids*, IntelliCIS 7th Workshop, COST Action IC0806, Riga, 10-11 September 2012.
12. Mircea Eremia, Constantin Bulac, Mihai Sănduleac, **Lucian Toma** – *Towards intelligent electrical networks from generation to consumers*, Tutorial within the 11th Edition of WEC Central & Eastern Europe Energy Forum - FOREN 2012, World Energy Council, Neptun-Olimp, Romania, 17-21 June 2012.
13. **Lucian Toma** – *Smart Metering for Intelligent Energy Cost Management*, Seminar “Service Links with R&D and Science Base” project POSDRU/86/1.2./S/5774, University “Politehnica” of Bucharest, 24 May 2012.
14. Mircea Eremia, **Lucian Toma**, Constantin Bulac, Ion Triștiu, Bogdan Otomega – *Smart-Grids: innovative solutions for distributions and transmission electrical networks*, Anniversary Symposium In Memoriam Martin Bercovici, University “Politehnica” of Bucharest, Romania, 18 January 2011.
15. Mircea Eremia, **Lucian Toma**, Constantin Bulac – *Smart Grids – A vision of the electrical networks of the future*, Conference Intelligent Power Systems - SIE 2010, Galați, Romania, 14-15 October 2010.
16. Mircea Eremia, **Lucian Toma**, Constantin Bulac – *Smart Grids – Smart Grids: concepts and applications*, Conference Smart Grids 2010, Sibiu, Romania, 21-23 September 2010.
17. Mircea Eremia, **Lucian Toma** – *SmartGrids: the future of electrical networks*, Round Table “Intelligent electrical networks and their cohabitation with other networks (water, gas, telecommunications)” within WEC Regional Forum – FOREN2010, Neptun, 13-17 June 2010.
18. Mircea Eremia, **Lucian Toma**, Constantin Bulac – *SmartGrids: a new approach of the electrical networks*, Conference Intelligent Power Systems - SIE 2008, Galați, Romania, 14-15 November 2008.
19. Mircea Eremia, Constantin Bulac, **Lucian Toma**, Bogdan Otomega – *Major blackouts in power systems: mechanisms, effects and preventive actions*, Symposium “Interconnected Power Systems”, organised by Romanian National Committee of the World Energy Council, Chamber of Commerce and Industry of the Bucharest, 30 October 2008.
20. Mircea Eremia, **Lucian Toma** – *Intelligent Electrical Networks – SmartGrids*, National Conference on New and Renewable Energy Sources, Romanian Academy, Bucharest, 23-25 October 2008.
21. Mircea Eremia, **Lucian Toma** – *Electrical networks of the future: Smart Grids*, Symposium on “Interconnected electrical systems: The development and management of large power systems” organized by National Committee of World Energy Council, Chamber of Commerce and Industry of Bucharest, 28 June 2007.
22. Mircea Eremia, **Lucian Toma** – *Electrical Networks of the Future*, IRIDE Summer School: “Sustainable development of the future power systems”, University POLITEHNICA of Bucharest, 23-31 July 2007.

## Annex 2: R&D contracts

### International research grants / projects:

Director/responsible:

1. *European Master in Dynamics of Renewables-based Power Systems (DREAM)*, ERASMUS-EDU-2021-PEX-EMJM-MOB, Grant nr. 101049647, 2022-2028. **Position: UPB Leader**
2. *Renewables in a Stable Electric Grid (RESERVE)*, H2020-LCE-2016-RES-CCS-RIA, Grant 727481, 2016-2019. Position: **Principal investigator from UPB** (Coordinator Ericsson, Germany), web: <http://re-serve.eu/>

Member:

1. *Smart and local reneWable Energy DISTRICT heating and cooling solutions for sustainable living (WEDISTRICT)*, H2020-LC-SC3-2019-RES-IA-CSA, Grant nr. 857801, 2019-2023. Position: Researcher.
2. *An ICT platform for sustainable energy ecosystem in smart Cities (ITCity)*, FP7 ERA-NET-LAC, 2017-2020. Position: Researcher.
3. *Energy Storage for Future Grids (Storage4Grid)*, Horizon 2020, Grant nr. 731155, 2016-2019. Position: Researcher.
4. *New Cost Efficient Business Models for Flexible Smart Grids (NOBEL GRID)*, H2020-LCE-2014-3, Grant nr. 646184, 2015-2018, Position: Researcher. (February-June 2018).
5. *Synchronized measurement technology for a higher degree of monitoring and control in the power systems of Cyprus and Romania (SyncPower)*, Bilateral project Romania-Cyprus, no. I01.14.01, 2014-2015. Position: Researcher.
6. *Virtual synchronous machines for frequency stabilization in future grids with a significant share of decentralized generation – VSYNC*, Frame Project 6 – EC Specific Targeted REsearch Project (STREP), FP6-2005-TREN-4, SUSTDEV-2005-1.1.7-1, (Project Coordinator: Energy research Centre of the Netherlands), 2007 – 2009. Position: Researcher.
7. *Virtual Balkan Centre for Advance Renewable Energy Source in Western Balkans*, Frame Project 6 – EC Framework Programme on Research, Technological Development and Demonstration, FP6-2002-INCO-WBC-1, No. 509205, (Coordinator: University of Ljubljana, Slovenia), 2005 – 2007. Position: Researcher.
8. GREPPEGE (Groupe de REcherche pour la Prévention des Pannes d'Electricité Généralisées) – Bilateral project France (Institut National Polytechnique de Grenoble) – Romania (University POLITEHNICA of Bucharest), No. 14915UJ, "Brâncuși" Program, Ministry of Education and Research – National Agency for Scientific Research, 2007-2008. Position: Researcher.
9. IRIDE (Italian – Romanian Initiative for Development of Sustainable Energy from renewable sources) – bilateral project Italy – Romania, 2006 – 2007. Position: Researcher.

### National R & D grants:

Director/responsible:

1. *Smart Digital Solution for Local Green Energy Management – SmartGEM*, Program 3 European International Cooperation, Digital Transformation for Green Energy, Project code COFUND-ENERDIGIT-SmartGEM, contract no. ERANET 290/2022 with UEFISCDI. **Position: UPB principal investigator.**
2. *Optimal dispatching algorithms of the microgrids for integrating renewable energy sources and electrical vehicle*. Research grant funded by University "Politehnica" of Bucharest, 2016-2017. **Position: principal investigator.**

Member:

3. *Learning to Optimise: from mathematical foundations to modeling and control (L2O-MOC)*; Institute of Mathematical Statistics and Applied Mathematics of the Romanian Academy (ISSMA); 2022-2024, Research project with UEFISCDI, PN-III-P4-PCE-2021-0720, No. 70/2022.
4. *Generic applications in the FIWARE environment for the integration of prosumers with energy storage facilities in environmentally responsible communities*, contract ERA-NET nr. 176/2020, internal no. ET01-20-03.
5. *Scale-free modeling and optimization techniques for control of complex networks – ScaleFreeNet*, Project PNIII-P4-ID-PCE-2016-0731, within UEFISCDI (Romanian Authority), 2017-2019. Position: Researcher.
6. *Solution for effective integration of the wind and photovoltaic power plants to the National Power Plants – INOVATION*. Project PN-III-CERC-CO-PTE-2016 funded by UEFISCDI, 2016-2018. Position: Researcher.
7. *Active distribution networks. Parameters identification and function analysis using synchronized measurement systems*, Project PN-II-ID-PCE-2011-3-0693 funded by CNCS, 2012-2014. Position: Researcher.
8. *Strategic program for promoting the innovation in services and open and continuous education (INSEED)*, Project POSDRU/86/1.2./S/5774 cofounded from the European Social Fund through the Sectoral Operational Programme Human Resources Development, 2010-2012. Position: Researcher.
9. *Advanced measurement solutions and parameter estimation techniques for active distribution networks*, TAMPERE, Grant CNCSIS IDEI 1402, 2009-2011. Position: Researcher.
10. *ENHIT – New solutions for energy supply of public and residential buildings*, National Authority for Scientific Research, PNCD II – Modules Partnerships, no. 21065/14.09.2007. Position: Researcher.

11. *Renewable energy sources and sustainable development* (PREDUR) Research and Development Project, CNCSIS – National Council of Scientific Research in Higher Education, CEEX Program, 2006-2008. Position: Researcher.
12. *DC microgrids for optimal integration of renewable energy sources – DCiDER*, R&D project by Ministry of Education and Research MEEdC – National Agency for Scientific Research, CEEX Program, Module 1: Complex Research and Development Projects, Code PC-D06-PT02-838, 2005-2007. Position: Researcher.
13. *DC distribution grids for industrial applications*, DCNET, Research project CNCSIS, GR 194 / 07.06.2006, 2006-2009. Position: Researcher.
14. *Researches concerning the sustainable development of power systems in the context of introduction of electricity market and distributed generation*, Research & Development contract no. 2159/21.10.2004 by RELANSIN, Ministry of Education and Research (2004-2006). Position: Researcher.

#### **Consultancy contracts for companies:**

Director/responsible:

1. *System Study on the maintenance of the voltage level in the economical operating band in the RED 110 kV network and optimization of reactive energy flows between RET and RED 110 kV in the geographical area of the DEER's network*, Contract no. 3267/19.07.2024 cu Distribuție Energie Electrică România (DEER) (**director-elaborator**)
2. Arc Circuit Breaker Reference Document (AFCl) for Photovoltaic Systems (AFCl), Scientific Research Contract no. 35172/31.10.2024 with Maravela, Popescu & Asociații | MPR Partners (for Huawei) (**director**).
3. *Smart Micro Grid Controller*, Research/consultancy contract No.6 / 30.03.2020 for Society Engineering Systems – Romania (**principal investigator**).
4. Study regarding realization of automation for unit shedding in critical conditions of evacuating the power produced in areas with rapidly developing renewable energy sources, Research contract no. C361/16.09.2014 in partnership with S.I.S. S.A. for C.N. Transelectrica S.A., 2014-2015 (**principal investigator from UPB**)
5. Study regarding increasing the safe operation of high voltage electrical network in the area of Tulcea: the feasibility of transforming the OHL 400 kV Isaccea - Tulcea Vest from simple circuit to double circuit. Research contract no. 485/26.02.2015 in partnership with SC Energy Design & Consulting SRL, for Transelectrica SA (**principal investigator from UPB**)
6. Study regarding the integration of the 44 MW Gataia Photovoltaic Power Plant and its impact on distribution and transmission networks, Contract elaborated for S.C. ELMET ENERGIE S.R.L., 2015. (**principal investigator from UPB**)

Member:

7. Study regarding "SUPERGRID" solutions to increase the transmission capacity in the Romanian Power System for integration of wind generation, Research contract no. C269/29.08.2012 for N.C. TRANSELECTRICA S.A., 2012-2013.
8. Study on adequate means for reactive power / voltage control in the national power system – 5 years period, Beneficiary: C.N. TRANSELECTRICA S.A., 2010-2011.
9. Grid connection of the wind power plant Chirnogeni, Constanța County, Beneficiary: S.C. EP Wind Project (ROM) SIX SRL, 2009.
10. Study case regarding the use of FACTS devices in a transmission network, Contract no. C239/01.11.2007 with C.N. TRANSELECTRICA S.A., 2007-2008:
11. Analysis of distribution electrical networks operation regimes of the city Moreni, Research project no. 713/05.09.2006 with S.D.F.E.E. Electrica Muntenia Nord, 2006.
12. Study concerning the improvement of distribution electrical network operation of the city Suceava by reconfiguration, Research contract no. 22/25.11.2005 with E.ON Moldova SA – S.D.F.E.E. Suceava, December 2005.
13. Influences of the distributed generation on the distribution electrical networks. Analysis and case study, scientific research contract, no. 352/2004, with the Distribution Company ELECTRICA S.A.

#### **Other R & D studies**

1. Research stage at *Centre de recherche énergétiques et municipales – CREM*, Martigny – Switzerland (affiliated to Ecole Polytechnique Fédérale de Lausanne), topic: Opportunity of introducing distributed generators in the distribution network of the Martigny town (October – December 2004)