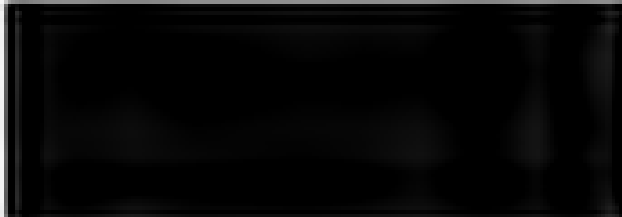
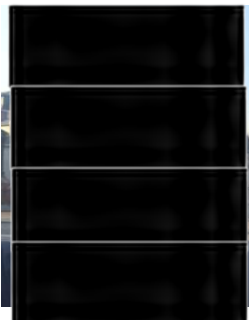


PERSONAL INFORMATION

IOAN MARIUS PURCAR



WORK EXPERIENCE

2012–Present

Associate Professor

Technical University of Cluj-Napoca, Electrical Engineering Faculty, Electrotechnics and Measurements Department, Gh. Barițiu 26-28, Cluj-Napoca (Romania)

Teaching activities: - courses: CAD tools, Modern CAD / CAE / CAM design techniques and tools, Numerical Modeling of Electromagnetic Field, Numerical Modeling of Electrical Circuits, Applied Electrotechnics

Research activities: - Optimal Design of Electromagnetic Devices, Electromagnetic Field Interferences, Numerical Simulation and Optimization of Manufacturing Technologies based on Electrochemical Processes.

2008–2012

Lecturer

Technical University of Cluj-Napoca, Faculty of Electrical Engineering, Dep. of Electrotechnical and Electrical Measurements, Gh. Barițiu 26-28, Cluj-Napoca (Romania)

Teaching and scientific research activities (Courses, laboratory work, seminars, coordination of diploma and / or dissertation projects)

2005–2009

Project Engineer

ELSYCA NV, Vaartdijk 3/603, B-3018 Wigmaal (Leuven), Belgium www.elsyca.com (Belgium)

Research, consulting, and training in Electrochemical Engineering

Research in electrochemical engineering (co-author of the commercial software package ECMMaster for 3D modeling of EDM processes)

Trainer for CAD/ CAE/CAM software tools applied in the numerical modeling of electrochemical process.

2001–2005

Researcher, PhD student

Faculty of Engineering, Department of Electrical Engineering (IR-ETEC Dienst), Pleinlaan 2, Vrije Universiteit Brussel, 1050 Bruxelles, Belgia, <http://etecmc10.vub.ac.be/>, Bruxelles (Belgium)

Research activities in international projects: 1) Development and evaluation of industrial electrochemical reactors (DESINER) 2001-2003; FP5 BRPR-CT98-0800, 2) Super precision electrochemical machining technology including recycling of useful materials (SPECTRUM); 2001-2004; FP5 G1RD-CT-2000-00421, 3) Flemish-Romanian bilateral project BIL/174B0697, 4) Flemish-Romanian bilateral project BSTC–BIL 37/00

1997–2001

Teaching assistant

Technical University of Cluj-Napoca, Faculty of Electrical Engineering, Dep. of

Electrotechnical and Electrical Measurements, Gh. Barițiu 26-28, Cluj-Napoca (Romania)
Teaching and research activities (laboratory work, seminars, coordinate bachelor degree and/ or dissertation thesis)

EDUCATION AND TRAINING

- 2001–2005 PhD in Electrical Engineering**
Faculty of Engineering, Department of Electrical Engineering (IR-EETEC Dienst), Pleinlaan 2, Vrije Universiteit Brussel, 1050 Bruxelles, Belgia, Bruxelles (Belgium)
The title of the doctoral thesis: Development and Evaluation of Numerical Models and Methods for Electrochemical Machining and Electrodeposition Applications
- 1995–1996 Master's degree in computer aided design in electrical engineering**
Technical University of Cluj-Napoca, Cluj-Napoca (Romania)
Analysis of electromagnetic fields with the network method and PSPICE simulation environment
- 1990–1995 Bachelor's degree**
Technical University of Cluj-Napoca, Cluj-Napoca (Romania)
Numerical Analysis of Electromagnetic Fields with the Network Method. 3D Electromagnetic Filed representation

PERSONAL SKILLS

Native language Romanian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	B2	B2	B2
Dutch	B2	B2	B1	A2	A2
French	B2	B2	B1	A2	A2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user

Communication skills Good communication competences due to: (i) given lectures in national and international scientific conferences, (ii) international research experience from multidisciplinary and multinational research teams, (iii) teaching and leading activities of students.

Organizational / managerial skills Extensive scheduling abilities, defining the objectives, goals and the priorities during projects, achieved from the following activities: (i) research activity performed during the international research projects, (ii) leading of research teams, (iii) teaching and leading activities of students.

Digital skills Computer programming and programming languages: C/C++, Fortran, Visual Basic
Advanced programming languages: MATLAB
CAD design software: SolidWorks, CATIA, PTC-CREO și AutoCAD
Multiphysics processes simulation in Ansys Multiphysics (Fluent, CFX and Electronics Desktop) and COMSOL Multiphysics
Development and validation of numerical analysis techniques for electro-chemical electrodes shape evolution; Optimal design by numerical simulation of electromagnetic devices; Numerical simulation of

electromagnetic field interferences; Numerical simulation of electro-thermo-mechanical processes in power integrated circuits.

Other skills Reviewer: MDPI Electronics, IET Science, Measurement & Technology, Electric Power Systems Research, International Journal of Computer Mathematics, International Communications in Heat and Mass Transfer, Journal of Materials Processing Technology, Micro and Nanosystems (Betham Science), Environmental Engineering and Management Journal.
Membership CIGRE and IEEE.

ADDITIONAL INFORMATION

Research projects

1. **Partner coordinator:** H2020-ECSEL-2017-1-IA-TWO STAGE, Nr. 122386, POC-A1-A1.1.3-H/2019, "Integrated Development 4.0", <http://www.idev40.eu/>.
2. **Project manager:** PN-III-P1-1.2-PCCDI2017-0652 „Innovative Technologies for Advanced Materials Recovery from IT and Telecommunication Waste(Trade-IT)", contract nr. 84PCCDI/2018, <https://tradeit.utcluj.ro/>.
3. **Project manager:** PN-III-P2-2.1-BG-2016-0388 „Multiscalar-multigrid simulator of electro-thermo-mechanical processes in integrated power circuits (Set4CIP)", contract nr. 83BG/2016, <http://set4cip.utcluj.ro/>.

Member of 10 national and international projects research teams

1. PNCDI III ID 386, "Supporting excellence in nanotechnology and advanced materials research" (ExNanoMat) 21PFE/17.10.2018, <https://exnanomat.utcluj.ro/>.
2. Novel multiscale approach to transport phenomena in electrochemical processes (MUTECH) 2005-2007; SBO <http://www.vki.ac.be/mutech/index.html>.
3. Super precision electrochemical machining technology including recycling of useful materials (SPECTRUM); 2001-2004; FP5 G1RD-CT-2000-00421, <https://cordis.europa.eu/project/rcn/54894/factsheet/en>.
4. Development and evaluation of industrial electrochemical reactors (DESINER) 2001-2003; FP5 BRPR-CT98-0800, <https://cordis.europa.eu/project/rcn/46792/factsheet/en>.
5. Development of new numerical analysis techniques and their implementation in a software package for 3D optimization of electromagnetic and electrochemical devices – DESIGN, BWS 04/03.
6. New methods of analysis and software for simulating the effects of electromagnetic interference between high voltage lines and underground metal pipes, BIL 37/2000.
7. Development and implementation of numerical methods for analysis and optimal design of electromagnetic devices, BIL 96/174B0697.
8. Virtual design tool for modeling deformable electrode surfaces during electrochemical processes - PROGRAM IDEI 2538/2008.
9. Integrated software package for analysis and prediction of the level of electromagnetic pollution produced by stations and lines in SEN on neighboring metal structures and their cathodic protection - PROGRAM IDEI 2539/2008.
10. Post-doc scholarship from the project: "Research and Innovation for Development and Progress of Post-Doctorate Activities in Engineering and Science – PRiDE", POSDRU/89/1.5/S/57083 (P, Title of research work "Development, validation and implementation of mathematical and numerical techniques for electrode shape prediction in electro-chemical processes.

Publications

Papers (10 selections):

1. **Purcar M.**, Bortels L., Van den Bossche B., Deconinck J. 3D electrochemical machining computer simulations, Journal of Materials Processing Technology, Volume 149, Pages 486-492 (2004), DOI 10.1016/j.jmatprotec.2007.09.082. Citations: 60
2. **Purcar M.**, Dorochenko A., Bortels L., Deconinck J., Van den Bossche B. Advanced CAD integrated approach for 3D electrochemical machining simulations, Journal of Materials Processing Technology, Volume 203, Pages 58-71, (2008), DOI 10.1149/1.1772782. Citations: 29.
3. **Purcar M.**, Van den Bossche B., Bortels L., Deconinck J., Nelissen G. Three-dimensional current density distribution simulations for a resistive patterned wafer, Journal of the Electrochemical Society, Volume: 151, Pages D78-D86 (2004), DOI 10.1149/1.1772782. Citations: 17

4. Vermeşan H., Tiuc A-E, **Purcar M.**, "Advanced Recovery Techniques for Waste Materials from IT and Telecommunication Equipment Printed Circuit Boards" SUSTAINABILITY, Volume: 12, Issue: 1, Article Number: 74, 2020, DOI: 10.3390/su12010074. Citations no: 17
5. Bortels L., **Purcar M.**, Van den Bossche B., Deconinck J. A user-friendly simulation software tool for 3D ECM, J Journal of Materials Processing Technology, Volume 149, Pages 589-598 (2004), DOI 10.1016/j.jmatprotec.2007.09.082. Citations: 16
6. Pantleon K., Van den Bossche B., **Purcar M.**, Bariani P., Floridor G. Simulation and experimental determination of the macro-scale layer thickness distribution of electrodeposited Cu-line patterns on a wafer substrate, Journal of Applied Electrochemistry, Volume 35, Pages 472-478 (2005), DOI 10.1007/s10800-005-2321-4. Citations: 9.
7. **Purcar M.**, Topa V., Munteanu C., Chereches R., Avram A., Grindei L. Optimization of the layer thickness distribution in electrochemical processes using the level set method, IET Science, Measurement & Technology, Volume 6, issue5, p. 376 – 385 (2012). Citations: 4
8. Bojita A., Boianceanu C., **Purcar M***, Florea C., Simon D. and Pleşa C., "A simple metal-semiconductor substructure for the advanced thermo-mechanical numerical modeling of the power integrated circuits", Journal of Microelectronics Reliability, Elsevier, Volume 87, pages 142-150, August 2018, <https://doi.org/10.1016/j.microrel.2018.06.013>. Citations no: 4
9. **Purcar M.**, Topa V., Munteanu C., Avram A., Grindei L., Chereches R. Optimization of the current density distribution in electrochemical cells based on the level set method and genetic algorithm, European Physical Journal-Applied Physics, Volume 56, Pages 11302-p1 -11302-p8, (2011), DOI 10.1051/epjap:2007098. Citations: 1
10. **Purcar M.**, Dorochenko A., Bortels L., Deconinck J., Van den Bossche B. Electroforming simulations based on the level set method, European Physical Journal-Applied Physics, Volume 39, Pages 85-94 (2007), DOI 10.1051/epjap:2007098. Citations: 3

Books (2 selections):

1. Purcar, M., Bojiţă, A., Avram A., CAD Tools, ISBN 978-606-737-408-7, 136 p., Editura UTPress Publishing, Cluj-Napoca 2019.
2. Purcar, M., Modeling the Electrode Shape Changes for Electroforming and Electrochemical Machining Processes, ISBN 978-973-713-272-7, 181 p., Editura Mediamira, Cluj-Napoca 2010.

International Patent:

DEVICE FOR ELECTROCHEMICALLY PROCESSING PLATE-SHAPED OBJECT E.G. PRINTED CIRCUIT BOARD HAS ROD-SHAPED COELECTRODES CONNECTED TO HOLDER, EXTENDS TOWARDS OBJECT AND WITH POLARITY OPPOSITE TO POLARITY OF COUNTER ELECTRODE IN USE" WO2008010090-A2, 24 JAN. 2008; NL1032174-C2 15 JAN 2008

13.12.2021

PURCAR IOAN MARIUS