

Nume Prenume: Avram Alexandru

Gradul didactic: Lector Universitar

Instituția unde este titular: Universitatea „1 Decembrie 1918” din Alba Iulia

Facultatea: Facultatea de Informatică și Inginerie

Departamentul: Departamentul de Informatică, Matematică și Electronică

L I S T A

lucrărilor științifice în domeniul disciplinelor din postul didactic

A. Selecție articole relevante (în ordine cronologică)

1. Frate, L., **Avram, A.**, Rișteiu, M., Purcar, M.I., *"Study of EMI Stress on DC-to-DC converter based on Software Simulations"*, Proceedings of 2023 10th International Conference on Modern Power Systems, MPS 2023, 2023, DOI: 10.1109/MPS58874.2023.10187527
2. Stoica, P.-C., **Avram, A.**, Szabo, I., Calin, P., Tulbure, A.A., *"Experimental validation of simulation models for the emitter coil of an WPT system"*, Proceedings of 2023 10th International Conference on Modern Power Systems, MPS 2023, 2023, DOI: 10.1109/MPS58874.2023.10187519
3. Bojiță, A., Dobre, L., Purcar, M., **Avram, A.** *"Comprehensive temperature characterization of a thermal system using distributed RC networks"* Proceedings of 2023 10th International Conference on Modern Power Systems, MPS 2023, 2023, DOI: 10.1109/MPS58874.2023.10187423
4. **Avram A.**, Bogdan R., Bojita A., Purcar M., *"Modelling of piezoelectric MEMS in biomedical applications"*, International Conference on Advancements of Medicine and Health Care through Technology (MEDITECH), Cluj-Napoca (2018), Romania, WOS:000493501100018
5. **Avram A.**, Bojiță A., Purcar M., Munteanu C., *"Numerical analysis of electro-thermal behavior and optimization of the cooling system in electronic power devices using CAD/CAE tools"*, 7th International Conference on Modern Power Systems (MPS), Cluj-Napoca (2017), Romania, WOS:000428462600063
6. Bojiță A., **Avram A.**, Purcar M., Munteanu C., Țopa V., *"Thermo-Mechanical Simulation of the Metal-Semiconductor Structures of Power Integrated Circuits"*, 7th International Conference on Modern Power Systems (MPS), Cluj-Napoca (2017), Romania, WOS:000428462600078
7. **Avram A.**, Purcar M., Țopa V., Munteanu C., *"An XFEM Based Algorithm for Numerical Optimization of Current Density in Electrochemical Applications"*,

Environmental Engineering and Management Journal, Volume: 15, Issue: 12, Pages: 2587-2594, (2016) DOI: 10.30638/eemj.2016.285

8. Purcar M., Munteanu C., **Avram A.**, Miron F., „CAD/CAE modeling of electromagnetic field distribution in HV substations and investigation of the human exposure”, 2016 International Conference on Applied and Theoretical Electricity (ICATE), Craiova (2016), Romania, WOS:000390767500096
9. Pop F., Munteanu C., **Avram A.**, et al., „Pre compliance test for conducted emissions”, 4rd International Conference on Quality and Innovation in Engineering and Management (QIEM), Cluj-Napoca (2016), Romania, WOS:000436122900032
10. **Avram A.**, Purcar M., Țopa V., Munteanu C., „Numerical Optimization of an Electrostatic Device Based on the 3D XFEM and Genetic Algorithm”, 49th International Universities Power Engineering Conference (UPEC), Cluj-Napoca (2014), Romania, WOS:000364087800151

B. Teza de doctorat (Susținere publică: 11 Martie 2014)

Contribuții la Proiectarea Optimală a Dispozitivelor Electromagnetice Utilizând Metoda Extinsă a Elementului Finit

Conducător științific: Prof. dr. ing. Vasile ȚOPA
Universitatea Tehnică din Cluj-Napoca

C. Brevete obținute în întreaga activitate

1. -

D. Cărți și capitole în cărți (în ordine cronologică)

1. Manuella Kadar, **Alexandru Avram**, *Vedere artificială în structuri de control. Teorie și aplicații*, 152 pagini, Editura Aeternitas, Alba Iulia, 2024, ISBN 978-606-613-267-1
2. Remus Dobra, Mircea Risteiu, **Alexandru Avram**, Marius Marcu, *Signals and Systems Analysis: Collection of experiments for Electromagnetic Compatibility*, 134 pagini, Universitas Publishing, Petroșani, 2024, ISBN 978-973-741-970-5
3. Nicolae Patrascoiu, Remus Dobra, Mircea Risteiu, **Alexandru Avram**, *Analysis and Synthesis of Digital Electronics. Collection of applications*, 152 pagini, Universitas Publishing, Petroșani, 2024, ISBN 978-973-741-970-5
4. Marius Purcar, Adrian Bojita, **Alexandru Avram**, *Instrumente CAD*, 136 pagini, Editura UTPRESS, Cluj-Napoca, 2020, ISBN 978-606-737-408-7
5. Remus Dobra, **Alexandru Avram**, Pasculescu Dragos, Mircea Risteiu, Florin Samoila, *Variable frequency drive (VFD): AC motor control*, 142 pagini, Editura Universitas, Petroșani, 2019, ISBN 978-973-741-619-3
6. Mircea Risteiu, **Alexandru Avram**, Pasculescu Dragos, Remus Dobra, Florin Samoila *Designing dedicated electronic systems - Mechatronics embedded systems*, 225 pagini B5, Editura Universitas, Petroșani, 2019, ISBN 978-973-741-618-6

E. Lucrări indexate ISI/BDI (în ordine cronologică)

Articole publicate în reviste indexate ISI (Web of Science):

1. M. Asif, .A. Zada, **A. Avram**, *Qualitative analysis of a coupled system with nonlinear mixed fractional integro-differential equation involving Caputo fractional derivative*, Journal of Mathematics and Computer Science (JMCS), Volume 38, Issue 1, pp 56—79 <https://dx.doi.org/10.22436/jmcs.038.01.05> (indexat Q1)
2. M. Risteiu, R. Dobra, **A. Avram**, F. Samoilă, G. Buică, R. Rizzo, D. D. Micu, „*Designing a Smart Gateway for Data Fusion Implementation in 2 a Distributed Electronic System Used in Automotive*”, Energies 2021, 14(11), 3300; <https://doi.org/10.3390/en14113300>
3. **Avram A.**, Purcar M., Țopa V., Munteanu C., „*An XFEM Based Algorithm for Numerical Optimization of Current Density in Electrochemical Applications*”, Environmental Engineering and Management Journal, Volume: 15, Issue: 12, Pages: 2587-2594, (2016) DOI: 10.30638/eemj.2016.285
4. Purcar M., Țopa V., Munteanu C., Cherecheș R., **Avram A.**, Grindei L., „*Optimization of the Layer Thickness Distribution in Electrochemical Process using the Level Set Method*”, IET Science, Measurement & Technology, Volume 6, Issue 5, pp. 376 – 385, (2012), DOI: 10.1049/iet-smt.2011.0147
5. Țopa V., Purcar M., **Avram A.**, Munteanu C., Cherecheș R., Grindei L., „*Simulation of the Electrode Shape Change in Electrochemical Machining Based on the Level Set Method*”, The European Physical Journal Applied Physics, Vol. 58, Issue 01, Article No. 11301, (2012), DOI: 10.1051/epjap/2012110461
6. Purcar M., Țopa V., Munteanu C., **Avram A.**, Grindei L, Cherecheș R., „*Optimization of the current density distribution in electrochemical cells based on the level set method and genetic algorithm*” The European Physical Journal Applied Physics, Volume 56, Issue 01, Article No. 11302, (2011), DOI: 10.1051/epjap/2011100305

Articole în conferințe internaționale indexate ISI Proceedings (Web of Science):

7. **Avram A.**, Bogdan R., Bojița A., Purcar M., “*Modelling of piezoelectric MEMS in biomedical applications*”, International Conference on Advancements of Medicine and Health Care through Technology (MEDITECH), Cluj-Napoca (2018), Romania, WOS:000493501100018
8. **Avram A.**, Bojița A., Purcar M., Munteanu C., „*Numerical analysis of electro-thermal behavior and optimization of the cooling system in electronic power devices using CAD/CAE tools*”, 7th International Conference on Modern Power Systems (MPS), Cluj-Napoca (2017), Romania, WOS:000428462600063
9. **Avram A.**, Purcar M., Țopa V., Munteanu C., „*Numerical Optimization of an Electrostatic Device Based on the 3D XFEM and Genetic Algorithm*”, 49th International Universities Power Engineering Conference (UPEC), Cluj-Napoca (2014), Romania, WOS:000364087800151

10. Bojiță A., **Avram A.**, Purcar M., Munteanu C., Țopa V., „*Thermo-Mechanical Simulation of the Metal-Semiconductor Structures of Power Integrated Circuits*”, 7th International Conference on Modern Power Systems (MPS), Cluj-Napoca (2017), Romania, WOS:000428462600078
11. Mociran B., Verde A., Oglejan R., **Avram A.**, „*Study and Optimization of Electromagnetic Field in a Vacuum Interrupter*”, 7th International Conference on Modern Power Systems (MPS), Cluj-Napoca (2017), Romania, WOS:000428462600056
12. Purcar M., Munteanu C., **Avram A.**, Miron F., „*CAD/CAE modeling of electromagnetic field distribution in HV substations and investigation of the human exposure*”, 2016 International Conference on Applied and Theoretical Electricity (ICATE), Craiova (2016), Romania, WOS:000390767500096
13. Purcar M., Munteanu C., **Avram A.**, Bojita A., „*A two layer ground computational model for the numerical simulations of the earthing systems*”, 2016 International Conference on Applied and Theoretical Electricity (ICATE), Craiova (2016), Romania, WOS:000390767500096
14. Pop F., Munteanu C., **Avram A.**, et al., „*Pre compliance test for conducted emissions*”, 4rd International Conference on Quality and Innovation in Engineering and Management (QIEM), Cluj-Napoca (2016), Romania, WOS:000436122900032
15. Purcar M., **Avram A.**, Munteanu C., „*B-spline surface approximation of triangulated data set patches*”, 3rd International Conference on Quality and Innovation in Engineering and Management (QIEM), Cluj-Napoca (2014), Romania, WOS:000346410700078
16. Purcar M., Țopa V., Munteanu C., **Avram A.**, Cherecheș R., „*Electrochemical Machining Simulations Based on the Level Set Method*”, 1st International Conference on Quality and Innovation in Engineering and Management, Cluj-Napoca (2011), Romania, WOS:000312344600104
17. Muntean F., **Avram A.**, Deconinck J., Purcar M., Topa V. et.al., „*Optimization of the Current Density Distribution in Electrochemical Reactors*”, 8th Conference on Scientific Computing in Electrical Engineering (SCEE), Toulouse (2010), Franța, WOS:000335745600020
18. **Avram A.**, Kadar M., Tulbure A., *A Study for Energy-Efficient NFC-RFID Tag Antennas Used in Asset Management Applications*, 8th European IEEE Conference on Electrical Engineering and Computer Science (ELECS 2024), IEEE Proceedings with AMCS (acceptat spre publicare)
19. Kadar M., Adamachi I., **Avram A.**, *PreProcMed: Automated Medical Image Processing Framework for Deep Learning Applications*, 8th European IEEE Conference on Electrical Engineering and Computer Science (ELECS 2024), IEEE Proceedings with AMCS (acceptat spre publicare)

Articole in reviste si volumele unor manifestări științifice indexate in alte baze de date internaționale (BDI) (Scopus, Elsevier, Springerlink, IEEE, EBSCO, etc.)

1. Frate, L., **Avram, A.**, Purcar, M.I., " *EMI numerical simulations and measurements of spread spectrum frequency modulation by an automotive boost LED driver*", International Symposium for Design and Technology in Electronic Packaging (SIITME), IEEE Explore 2024 (acceptat spre publicare)
2. Bojiță, A., Dobre, L., Purcar, M., **Avram, A.** "Comprehensive temperature characterization of a thermal system using distributed RC networks" Proceedings of 2023 10th International Conference on Modern Power Systems, MPS 2023, 2023, DOI: 10.1109/MPS58874.2023.10187423
3. Risteiu, M., **Avram, A.**, Dobra, R., Samoila, F., Candale, C. " *Designing a FPGA-based implementation of hardware-software instrument for in-site solar panels evaluation*", Proceedings of 2023 10th International Conference on Modern Power Systems, MPS 2023, 2023, DOI: 10.1109/MPS58874.2023.10187509
4. Frate, L., **Avram, A.**, Rîșteiu, M., Purcar, M.I., " *Study of EMI Stress on DC-to-DC converter based on Software Simulations*", Proceedings of 2023 10th International Conference on Modern Power Systems, MPS 2023, 2023, DOI: 10.1109/MPS58874.2023.10187527
5. Stoica, P.-C., **Avram, A.**, Szabo, I., Calin, P., Tulbure, A.A., " *Experimental validation of simulation models for the emitter coil of an WPT system*", Proceedings of 2023 10th International Conference on Modern Power Systems, MPS 2023, 2023, DOI: 10.1109/MPS58874.2023.10187519
6. **Avram A.**, Petruța V., „*An example of implementing ADAS systems on a small-scale mobileplatform*”, Annals of the University of Petroșani, Electrical Engineering, 24(11), p.95-102 (2022) ISSN 1582-5949
7. **Avram A.**, Samoilă L., Samoilă F., Afewerki D., DESIGNING VIRTUAL REALITY APPROACH FOR PLC APPLICATIONS DEVELOPMENT, Annals of the University of Petroșani, Electrical Engineering, 21 (2019) ISSN 1582-5949
8. Purcar M., Țopa V., **Avram A.**, Cherecheș R., „*CAD/CAE Integration of the 3D Electrode Shape Change Modeling For Electrochemical*”, Quality - Access to Success, Volume 13, Issue SUPPL.5, pp. 519-524, SRAC (2012) ISSN:1582-2559
9. **Avram A.**, Purcar M., Țopa V., Munteanu C., „*An example of applying eXtended Finite Element Method for the optimization of the electrical device*”, Acta Electrotehnica, Volume 54, Issue 5, (2013) ISSN 1841-3323
10. Oglejan R., **Avram A.**, „*An overview of coupling XFEM and LSM for modeling moving interfaces for the optimization of the electric field problems*”, Acta Electrotehnica, Volume 56, Issue 3, (2015) ISSN 1841-3323
11. Hebedean C., Munteanu C., Racasan A., Pacurar C., **Avram A.**, „*Planar transformers improvement in the conducted emissions frequency range*”, Acta Electrotehnica, Volume 56, Issue 5, (2015) ISSN 1841-3323

12. Țopa V., Purcar M., Cherecheș R., **Avram A.**, Munteanu C., Grindei L., "*Optimal Design of a Switched Reluctance Motor using the XFEM Method*", Acta Electrotehnica, Volume 52, Issue 4, (2011) ISSN 1841-3323
13. Cherecheș R., Țopa V., Purcar M., Grindei L., **Avram A.**, "*State of the Art in the Optimal Design of Electromagnetic Devices*", Acta Electrotehnica, Volume 52, Issue 4, (2011) ISSN 1841-3323
14. Purcar M., Țopa V., Munteanu C., **Avram A.**, Cherecheș R., Grindei L., „*Numerical Modeling of the Electrode Shape Change in Electrochemical Machining*”, Acta Electrotehnica, Volume 52, Issue 5, (2011) ISSN 1841-3323
15. Purcar M., Munteanu C., **Avram A.**, Țopa V., „*Modeling of the 3D Electrode Growth in Electroplating*”, Lucrările Simpozionului Național de Electrotehnică Teoretică (SNET '12), Volume 3, No.1, pp. 44-49, (2012), ISSN 2067-4147
16. Remus, D.; Rîșteiu, M.; **Avram, A.**; Aldea, M.; Pasculescu, D.; Micu, D. D.; Claudia, C.; Buică, G.; Florin, S. “Directional Relay SCADA-Based Upgrade for the Power Management Interface Improvement in Pumped Stored Energy.” Preprints 2024, 2024021704. <https://doi.org/10.20944/preprints202402.1704.v1>

F. Alte lucrări și contribuții științifice (în ordine cronologică)

Articole in reviste si volumele manifestări științifice neindexate (Google Scholar, etc)

1. Reider L., Ordean A., Cioroslan M., **Avram A.**, „*Determination of energy losses generated when connecting renewable energy producers to medium voltage distribution networks*”, Acta Electrotehnica, Volume 56, Issue 5, (2015) ISSN 1841-3323
2. Țopa V., Purcar M., Cherecheș R., Avram A., Munteanu C., Grindei L., „*Optimizing the Linearity Range of a LVDT Using the Level Set Method*”, 12th International Workshop on Optimization and Inverse Problems in Electromagnetism (OIPE), Gent (2012), Belgium
3. Purcar M., Munteanu C., Avram A., Țopa V., „*Modeling of the 3D Electrode Growth in Electroplating*”, Lucrările Simpozionului Național de Electrotehnică Teoretică (SNET '12), Volume 3, No.1, pp. 44-49, (2012), ISSN 2067-4147
4. Avram A., Purcar M., Țopa V., Munteanu C. – „*On the Extended Finite Element Method Use in Optimisation of Electrical Devices*”, The 13th International Workshop on Optimization and Inverse Problems in Electromagnetism (OIPE), Delft (2014), Olanda
5. Kästner M., Spieler C., Muller S., Avram. A., Ulbricht V. – „*XFEM modeling and multiscale analysis of magnetoactive composites*”, The International Conference on Extended Finite Element Methods (XFEM), Lyon (2013), Franta
6. Avram A., Țopa V., Purcar M., Kästner M., Munteanu C. – „*Numerical Optimization of the Current Density in an Electrochemical cell based on the XFEM and Genetic Algorithm*”, The 9th International Symposium on Electric and Magnetic Fields, (EMF), Bruges (2013), Belgia

7. Țopa V., Purcar M., Cherecheș R., Avram A., Munteanu C., Grindei, L., „Extending the Linearity Range of a LVDT Using the Extended Finite Element Method”, The 15th International Symposium on Electromagnetic Fields in Mechatronics (ISEF), Electrical and Electronic Engineering, Funchal (2011), Portugalia
8. Purcar M., Țopa V., Munteanu C., Avram A., „Electrode Shape Change Simulations based on the XFEM”, The 2nd International Conference on the eXtended Finite Element Method (XFEM), Cardiff (2011), UK
9. Purcar M., Țopa V., Munteanu C., Avram A., Cherecheș R., „Electrochemical Machining Simulations Based on the Level Set Method”, The 1st International Conference on Quality and Innovation in Engineering and Management (QIEM), Cluj-Napoca (2011), Romania

Proiecte de cercetare-dezvoltare pe baza de contract/grant

1. *Contribuții la proiectarea optimală a sistemelor de comunicații wireless pe distanță scurtă (NFC/RFID) cu consum redus de energie electrică*, Contract Cercetare cu Ag. Ec. - Nr. 870/2024 (**Director**)
2. *Dezvoltarea și testarea unei noi tehnologii pentru proiectarea configurațiilor optime a circuitelor imprimate – PCB RUN, CICDI - Nr. 1989/2017 (Director)*
3. *Parc fotovoltaic, județul Alba - Studiu de oportunitate*, Nr. 379 din 25.04.2023 (**Membru**)
4. *Simulator multiscalar-multigrad al proceselor electro-termo-mecanice din circuitele integrate de putere – SET4CIP, Bridge nr. PN-III-P2-2.1-BG-2016-0388 (Membru)*
5. *Dezvoltarea unui algoritm matematic de modelare a suprafețelor deformabile a electrozilor în cursul proceselor electrochimice, un nou instrument de proiectare virtuală*, CNCSIS IDEI Nr. 2538 (**Membru**)
6. *Acțiuni pentru dezvoltarea capacității pentru cercetare în Universitatea „1 Decembrie 1918” din Alba Iulia*, Contract nr. CNFIS-FDI-2022-0268 (**Membru**)
7. *Dezvoltare, afirmare, reușită la începutul studenției (DARIS)*, Contract ROSE AG 91/SGU/NC (**Expert**)
8. *Stagii integrate de practică și consiliere profesională pentru absolvenți competitivi pe piața muncii (SIPAC)*, Contract POCU/626/6/13/131603 (**Expert**)
9. *Program integrativ de creștere a echității sociale, acces la studii pe piața muncii pentru liceeni, studenți și absolvenți prin dezvoltarea parteneriatelor și a serviciilor de consiliere în cariera*, Contract nr. CNFSI-FDI-2019-025 (**Expert**)
10. *Educație și consiliere în carieră pentru scăderea ratei de abandon la Facultatea de Inginerie Electrica din Cluj-Napoca – Contract ROSE AG 39/SGU/NC/1 (Expert)*
11. *Creșterea calității studiilor doctorale în științe inginerești pentru sprijinirea dezvoltării societății bazate pe cunoaștere – Q-DOC*, Contract nr. POSDRU/107/1.5/S/78534 (**Membru**)