

MINISTERUL EDUCAȚIEI NAȚIONALE



**UNIVERSITATEA TEHNICĂ**  
DIN CLUJ-NAPOCA

**Lecturer dr.ing. Mihaela CREȚU**

**Electrotechnics and Measurements Department, Electrical Engineering Faculty,  
Technical University of Cluj-Napoca**

#### **PHD THESIS**

##### **„CONSIDERATIONS REGARDING THE STUDY OF THE MAGNETIC FUNCTIONAL STIMULATION OVER THE SPINAL CORD”**

The PhD thesis developed is liable to be framed in the large context of the influence of electromagnetic fields over the living beings. On these lines, presently, a subject of interest in international prospecting has been approached, namely the functional stimulation. The functional stimulation forms a scientific department of the newly arrived interdisciplinary analysis, blending remarkable elements from engineering, mathematics, physics, informatics, and so on. It offers treatment solutions to persons who suffer of certain disabilities, determined by accidents, by stimulating the nervous lay-outs or, in case these are damaged, the muscles of the patient. There are two directions of functional stimulation: electrical way or magnetic way. The present essay studies especially the magnetic one, due to the extended application area, but, for comparison and in order to underline its utility and importance, some references to the electrical stimulation have been made here and there.

#### **BOOKS**

**Mihaela Crețu**, „*Modelarea numerică a circuitelor electrice. Îndrumător de Laborator*”, Editura UT Press, Cluj-Napoca, România, ISBN 978-973-662-871-9, 100 pagini, august 2013 (editura recunoscută CNCSIS).

## LIST OF PUBLICATIONS

I. ISI JOURNALS				
	TITLE	AUTHORS	JOURNAL	LINK SITE WEB OF SCIENCE (OBLIGATORIU)
	<i>ISI1. Magnetic Stimulation of the Spinal Cord: Evaluating the Characteristics of an Apropriate Stimulator</i>	<b>Crețu Mihaela,</b> Dărăbant A., Ciupa R.	Artificial Organs, <i>under press.</i>	
	<i>ISI2. Improved coil design for repetitive magnetic stimulation of the spinal cord</i>	<b>Crețu Mihaela,</b> Micu D. D.	COMPEL-the International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Vol. 34, Issue 4, pp. 1043-1053, ISSN: 0332-1649, DOI: 10.1108/COMPEL-10-2014-0253,2015	<a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=1&amp;SID=X2owljhGkeOK2I14o4o&amp;page=1&amp;doc=2">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=1&amp;SID=X2owljhGkeOK2I14o4o&amp;page=1&amp;doc=2</a>

<p><i>ISI3. Evaluation of Spinal Cord Response during Magnetic Stimulation of the Lumbar Area</i></p>	<p><b>Cretu Mihaela</b>, Darabant Laura, Ciupa R. V.</p>	<p>Biomedical Engineering- Biomedizinische Technik, Vol. 58, Suppl. 1, August 2013</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=1&amp;SID=S2IAT0zAT9ev1R199kb&amp;page=1&amp;doc=1">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=1&amp;SID=S2IAT0zAT9ev1R199kb&amp;page=1&amp;doc=1</a></p>
<p><i>ISI4. Magnetic Stimulation of the Spinal Cord: Experimental Results and Simulations</i></p>	<p>Darabant Laura, <b>Cretu Mihaela</b>, Darabant A.</p>	<p>IEEE Transactions on Magnetics, Vol. 49, Issue 5, pp. 1845-1848, May 2013</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=1&amp;SID=U15ZgkfmJxY96F45Ck&amp;page=1&amp;doc=2&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=1&amp;SID=U15ZgkfmJxY96F45Ck&amp;page=1&amp;doc=2&amp;cacheurlFromRightClick=no</a></p>
<p><i>ISI5. Assessment of the Electric Field Induced in the Human Tissue during Magnetic Stimulation of the Spinal Cord</i></p>	<p>Darabant Laura, <b>Cretu Mihaela</b>, Ciupa R. V., Micu D. D., Stet Denisa</p>	<p>COMPEL, Vol. 31, Issue 4, pp. 1164-1172, 2012</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=1&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=3">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=1&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=3</a></p>
<p><i>ISI6. Design Of Efficient Magnetic Coils For Repetitive Stimulation</i></p>	<p>Ciupa R. V., Darabant Laura, <b>Plesa Mihaela</b>, Cret O., Micu D. D.</p>	<p>Revue Roumaine d'Electrotechnique, Vol. 55, Issue 3, pp. 251-260, Jul.- Sep. 2010</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=2&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=8&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=2&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=8&amp;cacheurlFromRightClick=no</a></p>
<p><i>ISI7. Study of the factors that influence the effective permittivity of the dielectric mixtures</i></p>	<p>Cret Rodica, Darabant Laura, Micu D. D., <b>Plesa Mihaela</b>, Turcu A., Stet Denisa</p>	<p>Revue Roumaine d'Electrotechnique, Vol. 56, Issue 1, pp. 69-78, Jan.-March 2011</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=2&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=7&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=2&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=7&amp;cacheurlFromRightClick=no</a></p>
<p><i>ISI8. Energy Efficient Coils for Magnetic Stimulation of Peripheral Nerves</i></p>	<p>Darabant Laura, <b>Plesa (cas. Cretu) Mihaela</b>, Micu D. D., Stet Denisa, Ciupa R. V., Darabant A.</p>	<p>IEEE Transactions on Magnetics, Vol. 45, Issue 3, pp. 1690-1693, March 2009</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=2&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=9&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=2&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=9&amp;cacheurlFromRightClick=no</a></p>

## II. ISI PROCEEDINGS

	TITLE	AUTHORS	PROCEEDINGS	LINK SITE WEB OF SCIENCE
	<i>IP1. Evaluating the Efficiency of Stimulators used in Magnetic Stimulation of the Spinal Cord</i>	Dărăbant L., <b>Crețu Mihaela</b> , D. Rafiroiu, R. Ciupa	9th International Symposium on Advanced Topics in Electrical Engineering, ATEE 2015; Bucharest; Romania, pp. 275-280,	
	<i>IP2. Influence of the Electrical Parameters Variation of the Membrane Cell over the Nerve Fiber Activation</i>	<b>Mihaela Crețu</b> , R. V. Ciupa	International Conference on Advancements of Medicine and Health Care Through Technology, MEDITECH 2014,4-6 of June , Cluj-Napoca,IFBME Proceed. , Vol. 44, pp. 209-214	

<p><b>IP3.</b> <i>Magnetic Coil Design for Evaluating the Response of the Spinal Cord during Magnetic Stimulation</i></p>	<p><b>Mihaela Crețu, R. V. Ciupa</b></p>	<p>2014 International Conference and Exposition on Electrical and Power Engineering, (EPE 2014), 16-18 of October, Iasi</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=7&amp;SID=X2owljhGkeOK2I14o4o&amp;page=1&amp;doc=4">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=7&amp;SID=X2owljhGkeOK2I14o4o&amp;page=1&amp;doc=4</a></p>
<p><b>IP4.</b> <i>Assessment of the Electric Field Generated by Multilayered Coils during MS</i></p>	<p><b>Cretu Mihaela, Ciupa R. V., Cretu T</b></p>	<p>8th International Symposium on Advanced Topics in Electrical Engineering, (ATEE 2013), 23-25 May, Bucharest, pp. 1-4</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=3&amp;SID=X14CTtLXIImkmOSkBpcz&amp;page=1&amp;doc=7">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=3&amp;SID=X14CTtLXIImkmOSkBpcz&amp;page=1&amp;doc=7</a></p>
<p><b>IP5.</b> <i>Modeling the Activation of a Non-Homogenous Nerve Fiber by Magnetic Stimulation</i></p>	<p><b>Mihaela Crețu, Laura Dărăbant, R. V. Ciupa</b></p>	<p>12th IEEE International Conference on BioInformatics and BioEngineering (BIBE), pp. 651-656</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=12&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=6&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=12&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=6&amp;cacheurlFromRightClick=no</a></p>
<p><b>IP6.</b> <i>Matlab Modelling of Nerve Fiber Activation by Magnetic Stimulation</i></p>	<p><b>Plesa (cas. Cretu) Mihaela, Darabant Laura, Ciupa R. V., Nicu Anca, Curta C. S.</b></p>	<p>International Conference on Advancements of Medicine and Health Care Through Technology, IFMBE Proceedings Vol. 26, pp.: 327-332 DOI: 10.1007/978-3-642-04292-8_73,2009</p>	<p><a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=9&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=9&amp;cacheurlFromRightClick=no</a></p>

	<b>IP7.</b> <i>A medical application of electromagnetic fields: the magnetic stimulation of nerve fibers inside a cylindrical tissue</i>	<b>Plesa Mihaela,</b> Darabant Laura, Ciupa R. V., Darabant A	11th International Conference on Optimization of Electrical and Electronic Equipment	<a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=10&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=10&amp;cacheurlFromRightClick=no</a>
	<b>IP8.</b> <i>Positioning System for Transcranial Magnetic Stimulation</i>	Curta C., Nicu Anca Iulia, <b>Plesa (cas. Cretu) Mihaela</b> Vâlcu M., Ciupa R. V.	International Conference on Advancements of Medicine and Health Care Through Technology	<a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=8&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=8&amp;cacheurlFromRightClick=no</a>
	<b>IP9.</b> <i>Magnetic Coils Design for Localized Stimulation</i>	Cret Laura, <b>Plesa (cas. Cretu) Mihaela,</b> Duma Denisa, Ciupa R. V.	11th Mediterranean Conference on Medical and Biological Engineering and Computing	<a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=2&amp;doc=11&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=2&amp;doc=11&amp;cacheurlFromRightClick=no</a>
	<b>IP10.</b> <i>Magnetic Coils Design for Focal Stimulation of the Nervous System</i>	Cret Laura, <b>Plesa (cas. Cretu) Mihaela,</b> Micu D. D., Ciupa R. V.	International Conference on Computer as a Tool (EUROCON 2007)	<a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=2&amp;doc=12">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=13&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=2&amp;doc=12</a>
	<b>IP11.</b> <i>Mathematical Modeling of Human Ventricular Action Potentials</i>	Nicu Anca Iulia, Curta C., <b>Cretu Mihaela,</b> Ciupa R. V., Voinicu M.	International Conference on Advancements of Medicine and Health Care Through Technology	<a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=20&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=3">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=20&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=3</a>
	<b>IP12.</b> <i>Double Stimuli Paradigms Should Be Careful Interpreted When Applying Lumbar Magnetic Stimulation</i>	Darabant Laura, Krenn M., Minassian K., <b>Cretu Mihaela,</b> Mayr W., Ciupa R. V.	3rd International Conference on Advancements of Medicine and Health Care through Technology	<a href="http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=23&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=8&amp;cacheurlFromRightClick=no">http://apps.webofknowledge.com/full_record.do?product=UA&amp;search_mode=GeneralSearch&amp;qid=23&amp;SID=X2TfOM48bbTFhFVE74F&amp;page=1&amp;doc=8&amp;cacheurlFromRightClick=no</a>

**III. JOURNALS / PROCEEDINGS Indexed in International Data Bases (others than ISI Thomson)**

	TITLE	AUTHORS	JOURNALS / PROCEEDINGS	LINK SITE BDI
	<i>BDI1. Analysis of the temporal component of the electric field for the magnetic stimulation technique</i>	<b>Crețu Mihaela, Dărăbant L., Rafiroiu D. V.</b>	Acta Electrotehnica, Vol. 56, No. 1-2, pp. 5-9, ISSN 1841- 3323, 2015	
	<i>BDI2. Active Behavior of Peripheral Nerves during Magnetic Stimulation</i>	<b>Crețu Mihaela, Ciupa R.V., Darabant Laura</b>	12th Mediterranean Conference on Medical and Biological Engineering and Computing, MEDICON 2010	<a href="http://www.scopus.com/record/display.url?eid=2-s2.0-77957572513&amp;origin=resultslist&amp;sort=plf-f&amp;src=s&amp;st1=Active+Behavior+of+Peripheral+Nerves+during+Magnetic+Stimulation&amp;sid=9F78A40DD6A565039F85A3655D879870.aXczxbyuHHiXgaIW6Ho7g">http://www.scopus.com/record/display.url?eid=2-s2.0-77957572513&amp;origin=resultslist&amp;sort=plf-f&amp;src=s&amp;st1=Active+Behavior+of+Peripheral+Nerves+during+Magnetic+Stimulation&amp;sid=9F78A40DD6A565039F85A3655D879870.aXczxbyuHHiXgaIW6Ho7g</a>

	<p><b>BDI3.</b> <i>Remarks on the Electric Field Induced in Nerve Fibers by Magnetic Stimulation</i></p>	<p><b>Plesa (cas Cretu) Mihaela</b>, Cret Laura, Ciupa R. V., Antonescu Oana, Racasan, Claudia Racasan Adina, Man L.</p>	<p>Acta Electrotehnica, Vol. 46, No. 4/2005, pp. 225-231, ISSN 1841-3323</p>	<p><a href="http://scholar.google.ro/scholar?hl=ro&amp;q=Remarks+on+the+Electric+Field+Induced+in+Nerve+Fibers+by+Magnetic+Stimulation&amp;btnG=">http://scholar.google.ro/scholar?hl=ro&amp;q=Remarks+on+the+Electric+Field+Induced+in+Nerve+Fibers+by+Magnetic+Stimulation&amp;btnG=</a>  <a href="http://ie.utcluj.ro/Contents_Acta_ET/2005/Number%204/Paper12_Plesa.pdf">http://ie.utcluj.ro/Contents_Acta_ET/2005/Number%204/Paper12_Plesa.pdf</a></p>
	<p><b>BDI4.</b> <i>Magnetic neural stimulators - Geometry assessment</i></p>	<p>Curta C., Nicu Anca Iulia, <b>Plesa (cas. Cretu) Mihaela</b> Ciupa R. V., Crisan S.</p>	<p>Nonlinear Optics Quantum Optics, Volume 39, Issue 2-3, 2009, Pages 185-193</p>	<p><a href="http://www.scopus.com/record/display.url?eid=2-s2.0-70449369207&amp;origin=resultslist&amp;sort=plf-f&amp;src=s&amp;st1=Magnetic+neural+stimulators+-+Geometry+assessment&amp;sid=04EEA336C03E1301E4D390A8862D1761.CnvicAmOODVwpVrjSeqQ">http://www.scopus.com/record/display.url?eid=2-s2.0-70449369207&amp;origin=resultslist&amp;sort=plf-f&amp;src=s&amp;st1=Magnetic+neural+stimulators+-+Geometry+assessment&amp;sid=04EEA336C03E1301E4D390A8862D1761.CnvicAmOODVwpVrjSeqQ</a></p>
	<p><b>BDI5.</b> <i>Analysis of the Activation of Spinal Nerves during Magnetic Stimulation of the Lumbar Area</i></p>	<p>Darabant Laura, <b>Cretu Mihaela</b>, Aciu C.</p>	<p>8th International Symposium on Advanced Topics in Electrical Engineering, ATEE 2013</p>	<p><a href="http://www.scopus.com/record/display.url?eid=2-s2.0-84885212854&amp;origin=resultslist&amp;sort=plf-f&amp;src=s&amp;st1=Analysis+of+the+Activation+of+Spinal+Nerves+during+Magnetic+Stimulation+of+the+Lumbar+Area&amp;sid=04EEA336C03E1301E4D390A8862D1761.CnvicAmOODVwpVrjSeqQ">http://www.scopus.com/record/display.url?eid=2-s2.0-84885212854&amp;origin=resultslist&amp;sort=plf-f&amp;src=s&amp;st1=Analysis+of+the+Activation+of+Spinal+Nerves+during+Magnetic+Stimulation+of+the+Lumbar+Area&amp;sid=04EEA336C03E1301E4D390A8862D1761.CnvicAmOODVwpVrjSeqQ</a></p>
	<p><b>BDI6.</b> <i>Numerical Analysis of the Lightning Waves Propagation on High Voltage Lines</i></p>	<p>Antonescu Oana, Munteanu C., Topa V., Racasan Adina, Racasan Claudia, <b>Plesa (cas. Cretu) Mihaela</b>, Man L., Vermesan C., Pop I.</p>	<p>Acta Electrotehnica, Volum 46, Nr. 4/2005, ISSN 1841-3323, pp. 210-217</p>	<p><a href="http://scholar.google.ro/scholar?q=Numerical+Analysis+of+the+Lightning+Waves+Propagation+on+High+Voltage+Lines&amp;hl=ro&amp;as_sdt=0%2C5">http://scholar.google.ro/scholar?q=Numerical+Analysis+of+the+Lightning+Waves+Propagation+on+High+Voltage+Lines&amp;hl=ro&amp;as_sdt=0%2C5</a>  <a href="http://ie.utcluj.ro/Contents_Acta_ET/2005/Number%204/Paper10_Antonescu.pdf">http://ie.utcluj.ro/Contents_Acta_ET/2005/Number%204/Paper10_Antonescu.pdf</a></p>



	<b>BDI7.</b> <i>Techniques to Reduce ESL for EMI Filters Integration</i>	Racasan Adina, Munteanu C., Topa V., Racasan Claudia, Antonescu Oana, <b>Plesa (cas Cretu) Mihaela</b>	Acta Electrotehnica, Volum 47, Nr. 1/2006, ISSN 1841-3323, pp. 41-44	<a href="http://scholar.google.ro/scholar?q=Techniques+to+Reduce+ESL+for+EMI+Filters+Integration&amp;btnG=&amp;hl=ro&amp;as_sdt=0%2C5">http://scholar.google.ro/scholar?q=Techniques+to+Reduce+ESL+for+EMI+Filters+Integration&amp;btnG=&amp;hl=ro&amp;as_sdt=0%2C5</a> <a href="http://ie.utcluj.ro/Contents_Acta_ET/2006/Number%201/Paper07_Racasan.pdf">http://ie.utcluj.ro/Contents_Acta_ET/2006/Number%201/Paper07_Racasan.pdf</a>
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#### IV. B+ JOURNALS/CONFERENCE PROCEEDINGS

	TITLE	AUTHORS	JOURNAL/PROCEEDING	LINK SITE
	<b>ARI.</b> <i>Remarks on the propagation wave velocity of the nervous fiber</i>	<b>Plesa (cas Cretu) Mihaela</b> , Cret Laura, Ciupa R. V., Rafiroiu D. V., Curta C.	Acta Electrotehnica, ISSN 1841-3323, Vol. 47, No. 4, pp. 275-278, MPS, 2006	<a href="http://www.et.utcluj.ro/mps2006/">www.et.utcluj.ro/mps2006/</a>

<p><i>AR2. Numerical calculus of binary dielectric mixtures permittivity with inclusions of different geometrical shapes and sizes</i></p>	<p><b>Plesa (cas Cretu) Mihaela</b>, Cret Rodica, Cret Laura, Duma Denisa</p>	<p>International Congress on Advanced Electromagnetic Materials in Microwaves and Optics, METAMATERIALS 2007, Roma, Italia, 22-24 Oct., 2007, pp. 440-443, ISSN 1873-1988</p>	<p><a href="http://congress2007.metamorphose-vi.org/">http://congress2007.metamorphose-vi.org/</a></p>
<p><i>AR3. About the Determination of the Spatial and Temporal Distribution of the Electric Field Induced in Human Tissue During Magnetic Stimulation</i></p>	<p><b>Mihaela Pleșa (cas. Cretu)</b>, Laura Creț, R. V. Ciupa, T. Crețu, Adina Răcășan, Claudia Răcășan</p>	<p>Buletinul Științific al Universității Politehnica din Timisoara, Seria Energetică, Tom 50(64) 2005, Fascicola 1-2, ISSN 1582-7194, pp. 451-456</p>	
<p><i>AR4. Magnetic Stimulation – Experimental Study Concerning the Evaluation of Nerve Pathway Integrity</i></p>	<p><b>Plesa (cas Cretu) Mihaela</b>, Cret Laura, Ciupa R. V.</p>	<p>Acta Electrotehnica, ISSN 1841-3323, Vol. 48, No. 4, pp. 335-338, MediTech 2007</p>	<p><a href="http://www.et.utcluj.ro/MediTech2007/">www.et.utcluj.ro/MediTech2007/</a></p>

<p><b>AR5.</b> <i>2D Simulations for estimating the dielectric mixtures permittivity with different inclusions</i></p>	<p><b>Plesa (cas Cretu) Mihaela,</b> Cret Rodica, Cret Laura, Ciupa R. V., Racasan Claudia</p>	<p>Analele Universității din Oradea, Fascicola Electrotehnica (Secțiunea Inginerie Electrică), ISSN 1223-2106, pp. 111-114, 2007</p>	
<p><b>AR6.</b> <i>Modelling the Magnetic Stimulation of Nerve Fibers Inside a Cylindrical Tissue</i></p>	<p><b>Plesa (cas Cretu) Mihaela,</b> Darabant Laura, Ciupa R. V., Cretu T.</p>	<p>Acta Electrotehnica, Vol. 50, Nr. 2, 2009, pp. 165-168, ISSN 1841-3323</p>	
<p><b>AR7.</b> <i>On the Nervous Cell Subthreshold Response. Influence of Electric Parameters Variation</i></p>	<p><b>Plesa (cas Cretu) Mihaela,</b> Cret Laura, Rafiroiu D. V., Nicu, Anca Iulia Curta C.</p>	<p>Proceedings of the 5<sup>th</sup> European Symposium on Biomedical Engineering, ESBME, Patras, Grecia, pp. 232 - 235, ISBN 4-890578-00-3, 2006</p>	
<p><b>AR8.</b> <i>Magnetic Stimulation of Peripheral Nerves in a Cylindrical Volume Conductor</i></p>	<p><b>Plesa (cas Cretu) Mihaela,</b> Darabant Laura, Ciupa R. V., Racasan Adina, Racasan Claudia</p>	<p>13<sup>th</sup> Biennial IEEE Conference on Electromagnetic Field Computation CEFC 2008, publicat pe CD</p>	<p><a href="http://www.cefc2008.gr/">www.cefc2008.gr/</a></p>

<p><b>AR9.</b> <i>Magnetic Stimulation of Peripheral Nerves: Induced Electric Field in a Semi-Infinite Conducting Medium</i></p>	<p><b>Plesa (cas Cretu) Mihaela</b>, Darabant Laura, Ciupa R. V., Curta C., Racasan Adina</p>	<p>European Electromagnetics, EUROEM 2008, Lausanne, Elvetia, publicat pe CD</p>	<p><a href="http://indico.epfl.ch/archives/3/indico.epfl.ch/conferenceDisplaya77a.html">http://indico.epfl.ch/archives/3/indico.epfl.ch/conferenceDisplaya77a.html</a></p>
<p><b>AR10.</b> <i>Numerical Simulation of the Nerve Fibers' Active Behaviour During Magnetic Stimulation</i></p>	<p><b>Plesa (cas Cretu) Mihaela</b>, Darabant Laura, Ciupa R. V., Stet Denisa</p>	<p>ISEF 2009, ISBN 978-2-84832-111-0, pp.429-430</p>	
<p><b>AR11.</b> <i>Walking aid for people with Parkinson's disease</i></p>	<p><b>Mihaela Pleșa (cas Cretu)</b>, Laura Creț, Oana Antonescu</p>	<p>Acta Technica Napocensis, Series Applied Mathematics and Mechanics 49, Volum II, 2006, ISSN 1221 – 5872, pp. 365 – 368</p>	
<p><b>AR12.</b> <i>Numerical and analytical modeling of the subthreshold response of the membrane cell</i></p>	<p><b>Mihaela Pleșa (cas Cretu)</b>, Laura Creț, D. V. Rafiroiu, R. V. Ciupa, E. Simion</p>	<p>Buletinul Institutului Politehnic din Iași, Seria Electrotehnică. Energetică. Electronică, Fascicola 5B, Tomul LII(LVI), ISSN 1223-8139, pp. 737-742, 2006</p>	

	<i>AR13. Electric circuit representation and numerical simulation of the nerve cells' active behaviour</i>	Nicu Anca-Iulia, <b>Plesa (cas Cretu) Mihaela</b> , Cret Laura, Curta C., Rafiroiu D. V.	EPNC 2006, ISBN 83 – 9211340 -1 –X, pp. 165 – 166	<a href="http://ptetis.put.poznan.pl/XIXepnc/">http://ptetis.put.poznan.pl/XIXepnc/</a>
	<i>AR14. Numerical modelling of non-homogenous dielectrics with very different permittivities of the components</i>	Cret Rodica, <b>Plesa (cas Cretu) Mihaela</b> , Simion E., Micu D.	METAMATERIALS 2007, ISSN 1873-1988, pp. 189-192	<a href="http://congress2007.metamorphose-vi.org/">http://congress2007.metamorphose-vi.org/</a>
	<i>AR15. Analysis of the electric field induced in human tissues by magnetic stimulation</i>	Cret Laura, <b>Plesa (cas Cretu) Mihaela</b> , Micu D. D., Ciupa R.	Analele Universității din Oradea, 2004, pp. 19-21, ISSN 1223-	
	<i>AR16. Design Of Coils For Magnetic Stimulation</i>	Cret Laura, <b>Plesa (cas Cretu) Mihaela</b> , Micu D. D., Duma Denisa, Man L., Simion E.	5 <sup>th</sup> International Conference On Electromechanical And Power Systems, ISBN 973-716-208-0, pg. 1041-1044	<a href="http://www.sielmen.ee.tuiasi.ro/">www.sielmen.ee.tuiasi.ro/</a>
	<i>AR17. Study of On-Chip Inductance</i>	Racasan Claudia, Topa V.; Racasan Adina, Antonescu Oana, <b>Plesa (cas Cretu) Mihaela</b>	Acta Electrotehnica, Volum 47, Nr. 1/2006, ISSN 1841-3323, pp. 45-50	
	<i>AR18. Remarks on the optimal design of coils for magnetic stimulation of nerve fibers</i>	Cret Laura, <b>Pleşa (cas Cretu) Mihaela</b> , Micu D. D., Stet Denisa, Simion E.	Buletinul Institutului Politehnic din Iași, Seria Electrotehnică. Energetică. Electronică, Fascicola 5B, Tomul LII(LVI), ISSN 1223-8139, pp. 647-652, 2006	<a href="http://www.ee.tuiasi.ro/tag/epe-2006/">www.ee.tuiasi.ro/tag/epe-2006/</a>

	<p><i>AR19. On- chip inductance computation using Ansoft 2D Extractor</i></p>	<p>Racasan Claudia, Topa V. Racasan; Adina, Munteanu C., Antonescu Oana, <b>Plesa Mihaela</b></p>	<p>Buletinul Institutului Politehnic din Iasi, Seria Electrotehnică. Energetică. Electronică, Fascicola 5B, Tomul LII(LVI), ISSN 1223-8139, pp. 757-763, 2006</p>	<p><a href="http://www.ee.tuiasi.ro/tag/epe-2006/">www.ee.tuiasi.ro/tag/epe-2006/</a></p>
	<p><i>AR20. Solutions to Minimize the Equivalent Series Inductance and the Equivalent Parallel Capacitance for EMI Filters Integration</i></p>	<p>Racasan Adina, Munteanu C., Topa V., Racasan Claudia, <b>Plesa (cas Cretu) Mihaela</b></p>	<p>Proceedings of the 7th International Power Systems Conference, PSC 2007, pp.557-564 , ISSN 1582-7194</p>	
	<p><i>AR21. Magnetic Coils for Localized Stimulation of the Central Nervous System</i></p>	<p>Cret Laura, <b>Plesa (cas Cretu) Mihaela</b>, Micu D. D.</p>	<p>Acta Electrotehnica, ISSN 1841-3323, Vol. 47, No. 4, pp. 225-228, MPS 2006</p>	<p><a href="http://www.et.utcluj.ro/mps2006/">www.et.utcluj.ro/mps2006/</a></p>
	<p><i>AR22. Magnetic Neural Stimulators-Comparative Study</i></p>	<p>Curta C., Nicu Anca-Iulia, <b>Plesa (cas Cretu) Mihaela</b></p>	<p>Acta Electrotehnica, ISSN 1841-3323, Vol. 47, No. 4, pp. 233-236, MPS 2006</p>	

	<p><b>AR23.</b> <i>Energy Efficient Coils for Magnetic Stimulation of Peripheral Nerves</i></p>	<p>Cret Laura, <b>Plesa (cas Cretu) Mihaela</b>, Ciupa R. V., Micu D. D., Man L.</p>	<p>Acta Electrotehnica, Vol. 48, No. 4, pp. 339-342, ISSN 1841-3323, MediTech 2007</p>	<p><a href="http://www.et.utcluj.ro/MediTech2007/">www.et.utcluj.ro/MediTech2007/</a></p>
	<p><b>AR24.</b> <i>The Determination of the Anaerobic Threshold Using LabVIEW Environment</i></p>	<p>Beriliu I., <b>Plesa (cas Cretu) Mihaela</b></p>	<p>Acta Electrotehnica, Vol. 49, Nr. 2/2007, ISSN 1841-3323, pp. 150-153</p>	
	<p><b>AR25.</b> <i>Analyzing and Modeling of the Respiratory System</i></p>	<p>Beriliu I., <b>Plesa (cas Cretu) Mihaela</b></p>	<p>Acta Electrotehnica, Vol. 49, Nr. 2/2007, ISSN 1841-3323, pp. 154-159</p>	
	<p><b>AR26.</b> <i>Magnetic neural stimulator –Geometry optimization</i></p>	<p>Curta C., Nicu Anca –Iulia, <b>Plesa (cas Cretu) Mihaela</b>, Crisan S., Ciupa R. V.</p>	<p>Buletinul Institutului Politehnic Iași, Tomul LIV(LVIII), Fasc. 3, pp. 257-263, ISSN 1223-8139</p>	<p><a href="http://www.ee.tuiasi.ro/tag/epe-2006/">www.ee.tuiasi.ro/tag/epe-2006/</a></p>

]	<p><i>AR27. The Study of the Electromagnetic Interferences between HV Lines and Metallic Pipelines using a Professional Analysis Software</i></p>	<p>Șteț Denisa, Micu D. D., Ceclan A., Darabant Laura, <b>Plesa (cas Cretu) Mihaela</b></p>	<p>Acta Electrotehnica, ISSN 1841-3323, pp. 333-336, MPS 2008</p>	<p><a href="http://www.et.utcluj.ro/mps2008/">www.et.utcluj.ro/mps2008/</a></p>
	<p><i>AR28. Remarks on the optimal design of coils for magnetic stimulation</i></p>	<p>Cret Laura, <b>Plesa (cas Cretu) Mihaela</b> Ciupa R. V., Micu D. D.</p>	<p>International Symposium on Interdisciplinary Electromagnetic, Mechanic and Biomedical Problems, ISEM-Bad Gastein, Austria, 12-14 Sept. 2005, pp. 352-354, ISBN 3-902105-00-1</p>	
	<p><i>AR29. Modeling of On-Chip Inductance</i></p>	<p>Racasan Claudia, Topa V., Racasan Adina, Antonescu Oana, <b>Plesa (cas Cretu) Mihaela</b></p>	<p>ANCME 2005, ISBN 10 973 -686 -798 -6, pp. 110-119</p>	<p><a href="http://books.google.ro/books/about/ANCME_2005.html?id=bsi5PgAACAAJ&amp;redir_esc=y">http://books.google.ro/books/about/ANCME_2005.html?id=bsi5PgAACAAJ&amp;redir_esc=y</a></p>
	<p><i>AR30. Modelling Pulse Signals Propagation on High Voltage Lines using Non-Uniform Transmission Lines</i></p>	<p>Antonescu Oana, Munteanu C., Topa V., Racasan Adina, Racasan Claudia, <b>Plesa (cas Cretu) Mihaela</b>, Retegan V.</p>	<p>ANCME 2005, ISBN 10 973 -686 -798 -6, pp. 152-160</p>	<p><a href="http://books.google.ro/books/about/ANCME_2005.html?id=bsi5PgAACAAJ&amp;redir_esc=y">http://books.google.ro/books/about/ANCME_2005.html?id=bsi5PgAACAAJ&amp;redir_esc=y</a></p>



	<p><b>AR31.</b> <i>Interconnect Parameter Parasitics in Deep Sub-Micron Geometries</i></p>	<p>Racasan Adina, Munteanu C., Racasan Claudia, Topa V., Antonescu Oana, <b>Plesa (cas Cretu) Mihaela</b></p>	<p>ANCME 2005, ISBN 10 973 -686 -798 -6, pp.170-180</p>	<p><a href="http://books.google.ro/books/about/ANCME_2005.html?id=bsi5PgAACAAJ&amp;redir_esc=y">http://books.google.ro/books/about/ANCME_2005.html?id=bsi5PgAACAAJ&amp;redir_esc=y</a></p>
	<p><b>AR32.</b> <i>Design of Special Coils for Focal Magnetic Stimulation</i></p>	<p>Cret Laura Ciupa, R. V., <b>Plesa (cas Cretu) Mihaela</b>, Micu D. D., Nicu Anca Iulia</p>	<p>Proceedings of the 5<sup>th</sup> European Symposium on Biomedical Engineering, ESBME, pp. 220 - 223, ISBN 4- 890578-00-3</p>	
	<p><b>AR33.</b> <i>Experimental Study of the Power Factor Compensation Converter</i></p>	<p>Szombatfalvi F. T., Simion E., Micu D. D., Stet Denisa, <b>Plesa (cas Cretu) Mihaela</b>, Darabant Laura</p>	<p>Analele Universității din Craiova, Seria: Inginerie Electrică, Anul 32, nr. 32, 2008, pp. 289-293, ISSN 1842-4805</p>	
	<p><b>AR34.</b> <i>Energy Efficient Coils for Transcranial Magnetic Stimulation</i></p>	<p>Darabant Laura, <b>Plesa (cas Cretu) Mihaela</b>, Ciupa R. V., Cret O., Darabant A.</p>	<p>European Electromagnetics, EUROEM 2008, publicat pe CD</p>	<p><a href="http://indico.epfl.ch/archives/3/indico.epfl.ch/conferenceDisplaya77a.html">http://indico.epfl.ch/archives/3/indico.epfl.ch/conferenceDisplaya77a.html</a></p>

	<p><i>AR35. Numerical simulations and experimental analysis of polymer based non-homogeneous dielectrics</i></p>	<p>Cret Rodica, Darabant Laura, Turcu A., <b>Plesa (cas Cretu) Mihaela</b></p>	<p>Proceedings of Joint International Conference Materials for Electrical Engineering, Bucuresti, 2008, pp. 287-292, ISBN 978-606-521-028-8,</p>	
	<p><i>AR36. Electromagnetic modelling of Integrated L-C Structures for EMI Filters Implementation</i></p>	<p>Racasan Adina, Munteanu C., Topa V., Racasan Claudia, <b>Plesa (cas Cretu) Mihaela</b></p>	<p>Book of abstracts, EUROEM2008 European Electromagnetics, 21-25 July 2008, Lausanne, Elveția, pp. 396-397</p>	<p><a href="http://indico.epfl.ch/archives/3/indico.epfl.ch/conferenceDisplaya77a.html">http://indico.epfl.ch/archives/3/indico.epfl.ch/conferenceDisplaya77a.html</a></p>
	<p><i>AR37. Stimularea magnetică a țesutului nervos uman - metodă nouă de investigare și tratament</i></p>	<p>Ciupa R. V., Darabant Laura, <b>Plesa (cas Cretu) Mihaela</b>, Rafiroiu D. V., Curta C., Nicu Anca-Iulia</p>	<p>Volumul conferinței naționale de inginerie biomedicală INGIMED IX 2008, pag 27-34, Editura AISTEDA, București, ISBN :978-973-8408-27-2</p>	
	<p><i>AR38. Numerical computation of electrical characteristics of biphasic dielectric composites using the finite elements method (FEM)</i></p>	<p>Cret Rodica, Darabant Laura, Farcas C., Stet Denisa, <b>Plesa (cas Cretu) Mihaela</b></p>	<p>Joint MmdE – IEEE ROMSC International Conference, Iași, 6-8 iunie 2010</p>	

## RESEARCH GRANTS:

### A. NATIONALS

1. **Post Phd research grant:** POSDRU/159/1.5/S/137516-PARTING, „*Cercetări privind proiectarea eficientă a unui stimulator magnetic utilizat în activarea măduvei spinării*” (Research on effective design of a magnetic stimulator used in the activation of spinal cord)
2. Grant director: **Mihaela Pleșa**, Contract TD\_283, nr. Contract 601/2007, „*Contribuții privind studiul teoretic și experimental al stimulării magnetice funcționale*” (Contributions on theoretical and experimental study of functional magnetic stimulation)
3. Grant director: **Mihaela Pleșa**, Contract MC, Cod CNCSIS 102/2007, „*Numerical Calculus of Binary Dielectric Mixtures Permittivity with Inclusions of Different Geometrical Shapes and Sizes*”
4. Grant member: **Mihaela Pleșa**, Contract PN2 Idei ID\_1078, nr. Contract 342/2007, „*Stimulare magnetică neuronală – cercetări privind îmbunătățirea performanțelor echipamentului electric și a eficienței clinice în diagnostic și tratament*”, (Neuronal magnetic stimulation - research on improving the performance of electrical equipment and clinical efficacy in diagnosis and treatment), Director: Prof. dr. ing. Radu Ciupa.
5. Grant member: **Mihaela Pleșa**, Contract PN2 Idei ID\_1024, nr. Contract 344/2007, „*Model matematic pentru studiul influenței poluării electromagnetice în c.a. a conductelor metalice subterane de gaz, cu și fără protecție catodică, aflate în vecinătatea unei stații de transformare*”, (Mathematical model for studying the influence of electromagnetic pollution as underground metal gas pipes with and without cathodic protection, in the vicinity of a transformer station), Director: Prof. dr. ing. Emil Simion.
6. Grant member: **Mihaela Pleșa**, Contract CEEX, nr. X2C37/2006, „*Impactul câmpurilor electromagnetice de natură antropică asupra ecosistemelor*”, (Electromagnetic fields anthropic impact on ecosystems), Director: Prof. dr. ing. Claudia Popescu.
7. Grant member : **Mihaela Pleșa**, Contract CEEX, nr. 136/2006, „*Diagnoză și predicție inteligentă și activă a construcțiilor cu structură de rezistență în mediul înconjurător complex poluat*”, (Diagnosis and prediction of intelligent buildings and active resistance structure in complex environment polluted), Director: Prof. dr. ing. Dorin Isoc.
8. Grant member: **Mihaela Pleșa**, Contract CEEX, „*Cercetări teoretice și experimentale privind comportarea materialelor electroizolante în scopul fundamentării studiilor de diagnoză și predicție inteligente*”, (Theoretical and experimental research on the behavior of insulating materials in order to develop diagnostic studies and intelligent prediction), Contract nr. 264/12.09.2006, Director: Prof. dr. ing. Doina Gavrilă.
9. Grant member: **Mihaela Pleșa**, Grant CNCSIS de tip A, „*Influența câmpurilor electromagnetice asupra stabilității în funcționare și a performanțelor instalațiilor de ardere*”, (Influence of electromagnetic fields on operational stability and performance of combustion installations), Cod CNCSIS 1279/2006, Director de grant: Prof. Dr. ing. Emil Simion.
10. Grant member: **Mihaela Pleșa**, Grant CNCSIS de tip A, „*Dezvoltarea de aplicații software și investigații experimentale pentru studiul fenomenului cavitațional în valvele cardiace mecanice*”, (Developing software and experimental investigations to study the phenomenon of cavitation in mechanical heart valves), Cod CNCSIS 966/2005, Director de grant: Conf. dr. ing. Dan Rafiroiu.
11. Grant member: **Mihaela Pleșa**, Contract PARTENERIATE nr. 22122 din 01.10.2008, „*Sistem de predicție și diagnoză inteligentă pentru prevenirea avariilor la cablurile de energie*”, (Intelligent prediction and diagnosis system for prevent damage to power cables), Director: dr. ing. Carmen Ligvay.
12. Grant member: **Mihaela Cretu**, „*Protecția echipamentelor de la obiectivele DSNA Cluj și DR București Secția PNA/CNS Cluj la Supratensiuni și Impulsuri Electromagnetice cauzate de trăsnete în liniile de electroalimentare și în circuitele vocale și de date*”, (Equipment protection from DSNA

objectives Cluj and Bucharest DR Section PNA / CNS Cluj in Surge and lightning caused by electromagnetic pulses in power supply lines and voice and data circuits), ROMATSA\_3423/2013, Director: Conf. dr. ing. Dan. D. Micu

B. INTERNATIONAL

1. Grant member: *Mihaela Pleșa*, Bilateral Grant România-Austria, nr. Contract 224/2009, „*Stimularea Funcțională a Măduvei Spinării*”, (Functional Stimulation of the Spinal Cord), Director: Prof. dr. ing. Radu Ciupa.

2. Grant member: *Mihaela Crețu*, „*Meeting the energy professionals skills*”, H2020-EE-2014-CSA-649773, Coordonator UTCN: Conf.dr.ing.mat. Dan Doru Micu