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RAPORTUL DE ACTIVITATE
pe 2008

I. Activităţi specifice în cadrul filialei

1. Prezentarea unor referate ştiinţifice şi tehnice în cadrul şedinţelor lunare ale filialei, pe teme de interes general, de către membrii filialei

1.1. Prof. dr. ing. Liviu Goraş, Aspecte privind dezvoltarea microelectronicii
1.2. Prof. dr. ing. Adrian Radu, Adaptarea tehnologiilor în contextul fenomenului de încălzire globală

2. Mese rotunde de specialitate, pe profilul secţiilor ASTR

2.1. Activităţi desfăşurate în cadrul Academiilor de Ştiinţe Tehnice din Uniunea Europeană
Organizatori: prof. dr. ing. Valentin Popa
2.2. Clasamentul Shanghai şi criteriile pentru evaluarea calităţii activităţilor de cercetare ştiinţifică din universităţile româneşti
Organizatori: prof. dr. ing. Octavian Păstrăvanu, prof. dr. ing. Mihail Voicu

3. Organizarea şi co-organizarea unor de manifestări ştiinţifice sub egida ASTR

3.1. Concursul profesional ştiinţific studenţesc REZMAT XV, faza universitară
Organizatori: prof. dr. ing. Adrian Radu, prof. dr. ing. Dan Precupanu

4. Participări cu comunicări la Zilele ASTR

4.1. Goraş L., Ungureanu P., Alecsandrescu I., Asupra formării pattern-urilor în arhitecturi analogice paralele
4.2. Păstrăvanu O., Matcovschi M., Voicu M., Contribuţii la tehnicile de analiză şi proiectare bazate pe mulţimi invariante
4.3. Popa V., Biomasa ca sursă de energie şi produse chimice
4.4. Precupanu D., Precupanu C., About the general stability of prestressed beams

II. Cercetare (publicaţii, proiecte)
II.A. Cărţi şi capitole în cărţi

1. Alexandru N.D., 2008, Sisteme de comunicaţii, CERMI, Iaşi, 268 p, ISBN 978-973-667-320-7
2. Diaconu, F., Alexandru N.D., Sisteme de comunicaţii. Îndrumător de laborator, STEF, Iaşi, 2008, pp.1-52, ISBN 978-973-1809-18-2
3. Matcovschi M.H., Pastravanu O., Invariance properties of recurrent neural networks, In: Intelligent Systems and Technologies - Methods and Applications (H.N. Teodorescu, Junzo Watada, and L. Jain, Eds.), Springer Verlag (2009), în curs de publicare
4. Matcovschi M.H., Pastravanu O., Teme de analiză şi sinteză a sistemelor cu evenimente discrete şi hibride, Editura Politehnium, Iaşi, 2008, ISBN: 978-973-621-025-1. (116 pagini, format academic, 40 rânduri/pg.)
5. Matcovschi M.H., Pastravanu O., Aplicaţii ale reţelelor neurale în automatică, Editura Politehnium, Iaşi, 2008, ISBN: 978-973-621-221-5. (180 pagini, format academic, 40 rânduri/pg.).
6. Matcovschi M.H., Pastravanu O., Petri Net Toolbox for MATLAB – Petri-net-based approaches to discrete event and hybrid systems in MATLAB-Simulink, Editura Politehnium, Iaşi, 2008, ISBN: 978-973-621-149-2. (160 pagini, format academic, 40 rânduri/pg.).
7. T. Malutan, V.I.Popa, Chimia celulozei, Ed. Politehnium, Iasi, 292p. 2008, ISBN 978-973-621-230-7.
8. I.Spiridon, V.I.Popa, Hemicelluloses: major sources, properties and applications , in Monomers, Polymers and Composites from Renewable Resources, Ed. Mohamed Belgacem and Alessandro Gandini, Elsevier, p.289-304, 2008.
9. Voicu M., Teoria sistemelor. Editura Academiei Române, Bucureşti, 2008; 416 pag.
10. Voicu M. (coordonator), Manualul procedurilor pentru evaluarea şi asigurarea calităţii educaţiei. Editura Politehnium (ISBN 978-973-621-179-9), Iaşi, 2008, 498 pp.
11. Voicu M., subcap. „Elemente de teoria distribuţiilor" (13 pag.), cap. „Proprietăţi structurale" (30 pag.) şi subcap. „Sinteza legii de conducere optimală" (15 pag.) din monografia „Automatica" realizată de 50 de coautori, coordonator fiind prof. univ. dr. ing. I. Dumitrache, m.c. al AR; în curs de editare în cadrul Editurii Academiei Române.
12. Voicu M., „Sisteme automate cu parametri distribuiţi", versiunea on-line a suportului cursului omonim, http://www.mvoicu.ac.tuiasi.ro/cv_voicu.htm

II.B. Articole în reviste
1. Alexandru, N.D. Alexandru, M.L. Spectral Shaping for Codes with P.S.D. Expressed by Rational Functions, Advances in Electrical and Computer Engineering, Vol. 8 (15), No.1 (29), pp.31-35, 2008 (indexată ISI Web of Science).
2. Alexandru, N.D., "Spectral Characterization of two Families of Fiber Optic Transmission Codes", Acta Technica Napocensis, Vol. 49, No. 1, pp.16-19, 2008.
3. D.Alexa, T.C.Goraş, A.Sîrbu, I.V.Pletea, C.Filote and F.Ionescu: „Analysisof the two-quadrant converter with rectifier with near sinusoidal input currents". IET Power Electronics, Anglia, Vol.1, No.2, June 2008, pp.224-234.
4. Alexa D, Alexandrescu Al., Filote C., Pletea I.V., Goraş T., Chiper R.: „Static frequency converter with two-quadrant converter at input for adjustable speed drive with regenerative braking". ISEEE-2008, Galaţi, România, pp.87-90, ISSN 1842-8046.
5. D.Alexa, I.V.Pletea, C.Filote, Al.Lazăr, M.Florea: „The Variant of Vectorial Self-control of the Induction Machine Supplied by a PWM Inverter". SCIENTIFIC BULLETIN of the

Politehnica Universityof Timişoara, România, Transactions on ELECTRONICS AND COMMUNICATIONS, Tomul 53 (67), Fascicola 1, 2008, ISSN 1583-3380, pp.23-26.

6. R.Chiper, D.Alexa, I.V.Pletea, A.Petrichei: „A Comparative Study between Classical Three Phase Rectifier Configuration with Passive Filters and Converter Configurations with Small Harmonic Contents Having Capacitors on the AC Side." Idem ca la poziţia 3: SCIENTIFIC BULLETIN of the Politehnica Universityof Timişoara, România, Tomul 53 (67), Fascicola 1, 2008, ISSN 1583-3380, pp.19-22.

7. A.Petrichei, D.Alexa, I.V.Pletea, M.Pletea, M.Ispir: „Frequency Converter with RNSIC Converterand with PWM Inverter for Vectorial Self-Control of the Induction Machine". Buletinul Inst. Politehnic Iaşi (lucrare acceptată spre publicare în septembrie 2008).

8. M. Fira, L. Goraş 2008 "An ECG signals compression method and its validation using NN's", IEEE Trans. On Biomedical Engineering TBME Vol. 55, No.4, April, 2008, pp 1319-1326. (indexată ISI Web of Science).

9. I. Alecsandrescu, L. Goras, 2008 "Gershgorin Circles Associated to Double Grid Second Order Cellular Neural Networks", Acta Technica Napocensis Electronics and Telecommunications, vol 49, nr. 1/2008, pp. 1-7.

10. C. Andriesei, L. Goras, 2008, "On the Tuning Performances of an Active RF Bandpass Filter", Acta Technica Napocensis Electronics and Telecommunications vol 49, no. 3, 2008, pp29-34.

11. C. Andriesei, L. Goras, F. Temcamani, "On an RF Bandpass Filter Tuning Method", Revue Roumaine de Sciences Techniques (to be published) (indexată ISI Web of Science).

12. L.Cantemir, D.Cuciureanu, Costica Nituca, Technology of technical creativity, Buletinul institutului politehnic Iasi TOM LIV (LVIII) Fasc.1-3 2008 p.517-526.

13. A.Alexandrescu, L.Cantemir, Ring windings use in linear induction engines, Buletinul institutului politehnic Iasi Tom.LIV (LVIII) Fasc.5. 2008.

14. Creţan, M., Gafiţanu, M., Munteanu, Fl. – Tribological Behaviour of Co-Cr-Mo and UHMPWE Components of Intervertebral Disc Prosthesis.In: Annals of the University „Dunărea de Jos" Galaţi, fasc.VIII, ISSN 2008 (în curs de publicare).

15. Creţan, M., Gafiţanu, M., Stamate, C.-The Optimization of the Human Intervertebral Disc Prosthesis, a New Mechanical Support and Drug Release System.In: Scientific Bulletin,, North University, Baia Mare, seria C, vol.XXII, p.439-445.ISSN 1224-3264.

16. Racocea, Cr.,Gafiţanu, M., Simion, Al., Nacu, I., Racocea, C.- Influence of Electric Capacitive Discharges Parameters on Noise Level in Rotary Machines Ball Bearings.In: Scientific Bulletin, North University, Baia Mare, seria C, vol.XXII, p.395-400, ISSN 1224-3264.

17. Creţan., Gafiţanu, M., Stamate, C.- Micro-structural Evolution of UHMPWE Biomaterial for Medical Applications.In: Bulet.Inst.Politehnic din Iaşi, Tom LIV (LVIII), fasc.4, 2008, p127-130.

18. D. Vrabie, O. Pastravanu, M. Abu-Khalaf and F. L. Lewis, Adaptive Optimal Control for Continuous-Time Linear Systems Based on Policy Iteration, Automatica, Elsevier, in press - doi:10.1016/j.automatica.2008.08.017, ISSN 0005-1098. (indexată ISI Web of Science).

19. M.H. Matcovschi, O. Pastravanu, and M. Voicu, Invariant sets with arbitrary time-dependence in the dynamics of linear systems with interval-type uncertainties, Control Engineering and Applied Informatics, vol. 9, no. 3-4, pp. 36-42, 2007 (apărut 2008).

20. O. Pastravanu and M. Matcovschi, Invariance properties of time-varying linear systems, The Annals of "Dunărea de Jos"University of Galati, Fascicle III, Electrotechnics, Electronics, Automatic Control, Informatics, pp 65-70, 2007 (apărut 2008).

21. M.H. Matcovschi, O. Pastravanu, Box-constrained stabilization for parametric uncertain systems, Annals of the University of Craiova, Series: Automation, Computers, Electronics and Mechatronics, **v**ol. 4 (31), no. 1, pp. 91-96, 2007, ISSN 1841-0626 (apărut 2008).

22. M.H. Matcovschi, O. Pastravanu, Stability and Set-Invariance Testing for Interval Systems, Control Engineering and Applied Informatics, vol.10, no.3, pp.18-26, 2008.

23. T. Malutan, R.Nicu and V.I.Popa, Lignin modification by epoxidation, Bio/Resources, **3** (4), 1371-1376 (2008).

24. A. M.Capraru, E.Ungureanu and V.I.Popa, Studies on the interaction between birch veneer and compounds with biocide potential action, Environmental Engineering and Management Journal, **7** (5), 525-530 (2008) (indexată ISI Web of Science)

25. E.Ungureanu and V.I.Popa, The impact of some protective agents on the wood biostability USAMV,Iasi, Lucrari stiintifice, Seria Horticultura, **LI (51),** 75-80   (2008), ISSN,1454-7376.

26. E. Ungureanu, V.I.Popa, V.Iacob and E.Ulea, Studies concerning the biological stability of some composite materials in the presence of some biocides USAMV, Iasi, Lucrari stiintifice, Seria,Horticultura, **LI(51),** 81-86 (2008), ISSN 1454-7376.

II.C. Articole în volume de conferinţe

1. Alexandru, N.D., Pohoaţă, S., "On a Class of Improved Nyquist Filters for DVB Use", Proc. ECUMICT 2008, March 13-14 2008, Gent, Belgium, 21-30, ISBN 9-78908082-553-6.

2. Onofrei, L.A., Alexandru, N.D., "A New Family of ISI-Free Pulses Investigated in Terms of ISI and ICI Properties", Proc. ECUMICT 2008, March 13-14 2008, Gent, Belgium, 297-307, ISBN 9-78908082-553-6.

3. Alexandru, N.D. Alexandru, M.L. Spectral Shaping for Codes with P.S.D. Expressed by Rational Functions, Proc. of 9th Int. Conference Development and Application Systems, Suceava, 23-25 May 2008, pp. 107-111.

4. Onofrei, L.A., Alexandru, N.D., Optimization of the Improved Nyquist Filter with a Piece-Wise Rectangular Characteristic, Proc. of 9th Int. Conference Development and Application Systems, Suceava, 23-25 May 2008, pp.128-137.

5. Alexandru, N.D., Spectral Properties of PF 3B/4B Code, International Conference COMMUNICATIONS' 2008, June 5-7, Bucharest, Romania, Workshop "New technologies and Trends in IT and Communications", pp.53-56.

6. Onofrei, L.A., Alexandru, N.D.,Improved Nyquist Filter Characteristic Using Spline Functions Interpolation, International Conference COMMUNICATIONS'2008, June 5-7, Bucharest, Romania, pp.115-118.

7. Alexandru, N.D., "Spectral Analysis of Paired DMT Codes", Proc. ISEEE 2008, Galaţi, Romania, pp.38-41.

8. C. Andriesei, L. Goraş, B. Delacressonnière, F. Temcamani 2008 "Accordabilite des Filtres RF Passe-Bande Integres", CMT 2008, Maroc

9. L. Goras, I. Alecsandrescu, P. Ungureanu, 2008, "Pattern Generation Using Feedback in CNN Architectures", Experimental Chaos Conference, June 3-6, 2008, Universita' degli Studi di Catania , Italy

10. L. Goras, I. Alecsandrescu, P. Ungureanu, 2008, "Pattern Generation Using Feedback in CNN Architectures", Experimental Chaos Conference, June 3-6, 2008, Universita' degli Studi di Catania , Italy

11. M. Fira, L. Goras, 2008 "On the Validation of an ECG Signal Compression Method using NN's", ECIT 2008, Iasi , 10-12 July.

12. P. Ungureanu, I. Alecsandrescu and Liviu Goras, 2008 "Texture Classification Using Cellular Neural Network Based Nonideal Circular Filters", ECIT 2008, Iasi, 10-12 July.

13. C. Andriesei, L. Goras, F. Temcamani, 2008 "Negative Resistance Based Tuning of an RF Bandpass Filter", International Conference on Circuits and Systems for Communications, ECCSC 2008, Bucharesst, July 10-12, 2008. (indexată ISI Proceedings)

14. C. Andriesei, L. Goras, B. Delacressonière, 2008 "Active RF Bandpass Filter with Wide Frequency Tuning Range", CAS 2008, Sinaia, 13-15 October, 2008.

15. L.Cantemir, D.Cuciureanu, A.Alexandrescu, The unexpected properties of the Induction linear machine which longitudinal axes of the inductive and induces magnetic fields have different spatial orientations, Proceedings of the 14 th National conference on electrical drives p.51-56, Timisoara 2008.

16. O. Păstrăvanu, M.H. Matcovschi, Componentwise stabilization of interval systems, Proc. of the 17-th World Congress of the Int. Fed. of Aut. Ctrl., Seoul, South Korea, July 6-11, 2008, DVD-ROM, 6pp.

17. O. Păstrăvanu, M.H. Matcovschi, State Feedback Design with CWEAS Constraints, 2008 IEEE-TTTC International Conference on Automation, Quality and Testing, Robotics AQTR 2008 (THETA 16), May 22-25, 2008, Cluj-Napoca, vol. 2, pp. 59 - 64. (indexată ISI Proceedings)

18. M.H. Matcovschi, O. Păstrăvanu, Contractive invariant sets in the dynamics of switched linear systems, Proc. of the 8-th Int. Conf. on Technical Informatics CONTI 2008, Timişoara, CD-ROM, 6 pp.

19. V.I.Popa, Biomass as a source of energy and chemicals, Proceedings of Third Conference of Romanian Academy of Technical Sciences, Cluj Napoca, Nov.,12-13,2008, p.329-336, ISBN 978-973-713-223-9.

20. E.Ungureanu, A.M..Capraru and V.I.Popa, The impact of bioprotection agents based on natural aromatic compounds and their copper complexes on biostability of birch veneer, Proceedings of The Days of faculty of Chemical engineering and Environmental protection, Nov.19-21, 2008, p.10-15, ISBN 978-973-621-255-0.

21. T.Todorciuc, V.I.Popa and I.Kratochilova, Scanning probe microscopy-a new possibility in characterization of thin lignin's layers, Proceedings of The Days of faculty of Chemical engineering and Environmental protection, Nov.19-21, 2008, p.79, ISBN 978-973-621-255-0

22. A.M.Capraru, G.Lisa, T.Malutan and V.I.Popa, The influence of lignin modification on its thermal stability, Proceedings of The Days of faculty of Chemical engineering and Environmental protection, Nov.19-21, 2008, p.109-114, ISBN 978-973-621-255-0

23. A.Balas, J.Hemming, S.Wilfor, B.Holmbom and V.I.Popa, Bioactive compounds from bark and knotwood of Norway Spruce (Picea abies), Proceedings of 10th European Workshop on Lignocellulosics and Pulp, Stockholm, Sweden, August 25-28, 2008, p.226-229.

24. N.Popa, R.Todirica and V.I.Popa, Composites based on natural resources: Lignocelluloses, Lignins and Furan resins, Proceedings of 10th European Workshop on Lignocellulosics and Pulp, Stockholm, Sweden, August 25-28, 2008, p.332-335.

25. T.Todorciuc, V.I.Popa and I.Kratochvilova, Monolayer analysis of unmodified and modified lignins by scanning probe microscopy, Proceedings of 10th European Workshop on Lignocellulosics and Pulp, Stockholm, Sweden, August 25-28, 2008, p.442-444.

26. E. Bobu, V.I.Popa and F.Ciolacu, Ecocycle of papermaking fibres: from forest to tree rising, Proceedings of ECOWOOD"08, 3rd International Conference on Environmentally - Compatible Forest Products, Oporto, Portugal, 2008, p.121-128, ISSN 978-989-643-016-0.

27. D.Ciolacu, F.Ciolacu and V.I.Popa, Supramolecular structure-A key parameter to, cellulose biodegradation, Macromolecular Symposia, **272** (1), 136-142 (2008) (indexată ISI Proceedings)

28. A. Iftene, D. Trandabat, L. Pistol, A. Moruz, A. Balahur, D. Cotelea, I. Dornescu, I. Draghici, D. Cristea, UAIC Romanian QA System for QA@CLEF, Lecture Notes In Computer Science, Volume: 5152, Pages: 336-343, Published: 2008 (indexată ISI Proceedings)

II.D. Coordonări / Participări în proiecte de cercetare-dezvoltare
Popa, V.
1. European Polysaccharides Network of Excellence, (2006-2008)
2. Lignina –sursa de materii prime pentru combustibili neconventionali, energie, produse chimice si materiale performante in conditiile dezvoltarii durabile, CEEX-CNCSIS, LIGNOMAT, 4153/2006-2008
3. ECOBINDERS-Furan and lignin based resin as eco-firendly and durable solutions for wood preservation, panel, board and design products"NMP2-CT2005-011734, CE, 2005-2008 (FP 6);
Alexa, D.
4. . Grant 77 GR/11.06.2008 acordat de CNCSIS, director D.Alexa.
Alexandru, N. D.
5. " TELEMON - Sistem integrat de telemonitorizare in timp real a pacientilor si persoanelor in varsta", CEEX nr. 10067/ 14.09.2007, 2007 – 2010, UTI – partner P1, Director Vlad Cehan.
6. "Sistem de comunicare cu persoane cu handicap neuro-locomotor major −TELPROT", CEEX, Director Vlad Cehan, 2006-2008.
Păstrăvanu, O.
7. „Tehnici avansate bazate pe vederea artificială pentru conducerea roboților, grant CNCSIS cod 232, tema 36, director prof. dr. ing. Corneliu Lazăr, (2006 – 2008).
8. „Tehnologii informatice de timp real pentru sistemele incorporate care asigura controlul lantului de transmisie a puterii la autovehicule (SICONA), CNMP – Programme prioritare, Contract finan are 12100, director prof. dr. ing. Corneliu Lazăr, (2008 – 2011).
Păstrăvanu, O., Voicu, M.
9. Dinamica sistemelor şi mulţimi invariante la flux: noi abordări conceptuale, instrumente teoretice şi software, grant CNCSIS cod 255, tema 36, director prof. dr. ing. Mihaela-Hanako Matcovschi, (2005 – 2008).

III. Activități invitate
Popa, V.
1. Comitet stiintific: The 14th International Symposium in the field of pulp, paper, packaging and graphics, Zlatibor, Cigota,Serbia, 2008;
2. Comitet stiintific: The Fifth International Symposium "Advanced Technologies for the Pulp and Paper Industry and Environment", Braila, 2008
3. Comitet stiintific: International Conference on industrial microbiology and applied biotechnology, Galati, 2008;
4. Profesor invitat STFI Suedia
Goras, L.
5. Conferinta invitata: Spatio-Temporal Dynamics in Analog Parallel Architectures (plenary talk), ISEE, Galati, Romania , 12-13 Sept. 2008.
Alexandru, N.D.
6. Comitet stiintific: IASTED International Conference on Communication Systems and Networks, CSN'2008 (Asia CSN), Apr 02- 04, 2008, Langkawi, Malaysia

7. Comitet stiintific: IASTED International Conference on Communication Systems and Networks, CSN'2008, Sept 01- 03, 2008, Palma de Mallorca, Spain
8. Comitet stiintific: ECUMICT 2008 European Conference on the Use of Modern Information and Communication Technologies, Gent, Belgium March 13-14, 2008
9. Comitet stiintific: International Symposium On Electrical And Electronics Engineering ISEEE'2008, University of Galați, Romania

Păstrăvanu, O.
10. Comitet stiintific: The 8th International Conference on Technical Informatics CONTI 2008
11. Comitet stiintific: The 11-th International Conference on Optimization of Electrical and Electronic Equipment OPTIM 2008
12. Comitet stiintific: The IEEE International Conference on Automation, Quality and Testing, Robotics AQTR 2008 - THETA 16th edition

Voicu, M.
13. Conferinta invitata: Qualitative analysis of dynamical system via flow-invariance method, 5th European Conference on Intelligent Systems and Technology (ECIT 2008), Iaşi, 10-12.07.2008
14. Comitet stiintific: The 8th International Conference on Technical Informatics CONTI 2008
15. Comitet stiintific: The IEEE International Conference on Automation, Quality and Testing, Robotics AQTR 2008 - THETA 16th edition

IV. Activități editoriale – referenti

Popa, V.
1. Cellulose Chemistry and Technology-Editor
2. Environmental Engineering and management Journal
3. Functional Plant Science and Biotechnology
4. Celuloza si Hartie
5. Buletinul stiintific al Institutului Politehnic Iasi – Sectia inginerie chimica
6. Industrial Crops and Products;
7. Journal of Biomechanics,
8. Biomedical and Biophysical Engineering,
9. Functional Plant Science and Biotechnology;
10. Journal of Applied Polymer Science

Voicu, M.
11. Zentralblatt für Mathematik
12. Mathematical Reviews
13. IEEE Transactions on Automatic Control
14. Numerical Functional Analysis and Optimization (Taylor & Francis)
15. Proceedings of the Romanian Academy
16. Control Engineering and Applied Informatics (SRAIT)
17. Memoriile Secțiilor Științifice ale Academiei Române
18. Buletinul stiintific al Institutului Politehnic Iasi – Sectia automatica si calculatoare

Păstrăvanu, O.
19. Zentralblatt für Mathematik
20. Mathematical Reviews
21. Control Engineering and Practice (Elsevier)
22. The Open Automation and Control System Journal (Bentham Science Publishers)
23. The Open Cybernetics & Systemics Journal (Bentham Science Publishers)
24. Control Engineering and Applied Informatics (SRAIT)

25. Buletinul stiintific al Institutului Politehnic Iasi – Sectia automatica si calculatoare

V. Contribuţii deosebite la creşterea vizibilitaţii internaţionale a cercetării ştiinţifice din domeniul tehnic în România

1. Elaborarea a cinci articole publicate / în curs de apariţie în reviste ISI – Web of Science.
2. Elaborarea a patru articole publicate în volume indexate ISI Proceedings
3. Participarea la două proiecte de cercetare cu finanţare internaţională.

Preşedinte,   **Secretar,**
prof. univ. dr. ing. Mihail Voicu   prof. univ. dr. ing. Octavian Păstrăvanu
m.c. al Academiei Române