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Tematica şi bibiografia pentru colocviul de admitere la doctorat, sesiunea septembrie 2020

Nr. crt.	TEMA	BIBLIOGRAFIA
1	**Cercetări privind caracterizarea mecanică şi termică a materialelor compozite utilizate în ingineria materialelor**	1. Webb, R. L., Principles of Enhanced Heat Transfer, Wiley, New York 1994. 2. Webb, R. L., Bergles, A. E., Heat Transfer Enhancement: Second Generation Technology, Mech. Eng., 105(6), pp. 60–67, 1983. 3. Pop I., Ingham D. B., Convective Heat Transfer: Mathematical and Computational Modelling of Viscous Fluids and Porous Media, Elsevier, USA, 2001. 4. Bejan, A, Krauss A, Heat transfer handbook, Willey and sons, USA 2003. 5. Janna W.S., Engineering Heat Transfer – second edition, CRC Press, 2001. 6. Kakac S., Vasiliev L. L, Bayazitoglu Y., Yener Y., eds., Microscale Heat Transfer - Fundamentals and Applications, Springer, 2005.
2	**Cercetări avansate privind utilizarea de noi fluide în operaţii industriale**	1. Minea A.A., Advances in industrial heat transfer, Ed. A. A. Minea, CRC press Taylor & Francis, ISBN: 9781439899076, 2012 2. Andreozzi A; Manca O; Naso V, Natural convection in vertical channels with an auxiliary plate, International Journal of Numerical Methods for Heat & Fluid Flow, 12(6), pp. 716 -734, 2002 3. Bergles, A. E., Jensen, M. K., Somerscales, E. F. C., Manglik, R. M., Literature Review of Heat TransferEnhancement Technology forHeat Exchanges in Gas-Fired Applications, Report GRI 91-0146, Gas Research Institute, Chicago, 1991. 4. Bergles, A. E., Jensen, M. K., Shome, B., Bibliography on Enhancement of Convective Heat and Mass Transfer, Report HTL-23, Heat Transfer Laboratory, Rensselaer Polytechnic Institute, Troy, NY, 1995. 5. Kakac¸, S., Bergles, A. E., Mayinger, F., Yuncu, H., Heat Transfer Enhancement of Heat Exchangers, Kluwer Academic, Dordrecht, The Netherlands 1999. 6. Bhatnagar, R. K., Manglik, R. M., Enhanced Heat and Mass Transfer Literature: Case for a Digital Library with Intelligent Information Retrieval, Thermal Fluids and Thermal Processing Laboratory, Report TFTPL-CS1, University of Cincinnati, Cincinnato, OH, 2002.
3	**Echipamente termice utilizate pentru procesarea materialelor**	1. Vizureanu, P., Echipamente şi instalaţii de încălzire, Editura PIM, Iaşi, 2009, 316pg., ISBN 978-606-520-349-5. 2. ASHRAE HVAC Systems & Equipment Handbook, 2004, IP Edition, Publisher: ASHRAE, ISBN 1-931862-47-8. 3. Brunklaus, J.H., Cuptoare industriale, Editura Tehnică, Bucureşti, 1977. 4. Method for remote monitoring heating furnace combustion state of adjustable furnace decision expert system, involves performing adjustable furnace technique, and calculating negative pressure value of air pressure, Patent Number(s): CN103017560-A, Inventor(s): LI C, LI T, WANG Y, GAO L, CHEN Z, ZHANG L, SUN Q, YANG P, MIAO J, Patent Assignee Name(s) and Code(s): CHINA PETROCHEMICAL CO LTD(SNPC-C), Derwent Primary Accession Number: 2013-P15025. 5. Modeling and Simulation of an Expert Heat Treatment System for Plain Carbon Steels, By:Mishra, N (Mishra, Natraj) ; Bharadwaj, D (Bharadwaj, Deepak)[1], Book Group Author(s):IEEE, 2013 4TH NIRMA UNIVERSITY INTERNATIONAL CONFERENCE ON ENGINEERING (NUICONE 2013), Book Series: Nirma University International Conference on Engineering, Published: 2013.

4	**Sisteme expert utilizate pentru obtinerea si procesarea materialelor**	1. Vizureanu, P., Expert Systems, published by Intech, Vukovar, Croatia, 2010, 238 pages, on-line edition, ISBN 978-953-307-032-2, http://www.intechopen.com/books/show/title/expert-systems 2. Ştefan, M., Vizureanu, P., Manole, V., Modelare, optimizare şi simulare la încălzirea materialelor metalice, Editura Tehnopress, Iaşi, 2005, 184 pg., ISBN 973-702-280-7. 3. Ştefan, M., Vizureanu, P., Bejinariu, C., Manole, V., Baze de date şi sisteme expert în selecţia şi proiectarea materialelor, vol. I, Editura Tehnopress, Iaşi, 2008, 298 pg., ISBN 978-973-702-514-2. 4. Vizureanu, P., Ştefan, M., Baciu, C., Ioniţă, I., Baze de date şi sisteme expert în selecţia şi proiectarea materialelor, vol. II, Editura Tehnopress, Iaşi, 2008, 262 pg., ISBN 978-973-702-515-9. 5. RULE-BASED EXPERT SYSTEM APPLICATION TO OPTIMIZING OF MULTISCALE MODEL OF HOT FORGING AND HEAT TREATMENT OF TI-6AL-4V, Maciol, P (Maciol, Piotr)[1] ; Krumphals, A (Krumphals, Alfred)[1] ; Jedrusik, S (Jedrusik, Stanislaw); Maciol, A (Maciol, Andrzej); Sommitsch, C(Sommitsch, Christof), Edited by:Idelsohn, S; Papadrakakis, M; Schrefler, B, COMPUTATIONAL METHODS FOR COUPLED PROBLEMS IN SCIENCE AND ENGINEERING V, Pages: 1237-1248, Published: 2013.
5	**Proiectarea, obţinerea şi caracterizarea (bio)materialelor metalice şi nemetalice**	1. Vizureanu P., Materiale refractare, Editura PIM, Iaşi, 2007, 320pg., ISBN 978-973-716-581-7. 2. Vizureanu P. Ba ltatu, M.S., Titanium-based Alloy for Biomedical Applications, Materials Research Forum LLC Publishing House, Millersville, PA, U.S.A., 2020, 154pg., ISBN 978-1-64490-078-9. 3. Ştefan, M., Vizureanu, P., Bejinariu, C., Bădărău, Gh., Manole, V., Studiul proprietăţilor termice ale materialelor, Editura Tehnopress, Iaşi, 2008, 294 pg., ISBN 978-973-702-566-1. 4. Vizureanu, P., Experimental Programming in Materials Science, Mirea Publishing House, Moscow, 2006, 116 pg., ISBN 5-7339-0601-4. 5. Uptake of silica covered Quantum Dots into living cells: Long term vitality and morphology study on hyaluronic acid biomaterials, D'Amico, Michele; Fiorica, Calogero; Palumbo, Fabio Salvatore; Militello, Valeria; Leone, Maurizio; Dubertret, Benoit; Pitarresi, Giovanna;Giammona, Gaetano, Materials science & engineering. C, Materials for biological applications, Volume:67, Pages:231-6, DOI:10.1016/j.msec.2016.04.082, Published:2016-Oct-1 (Epub 2016 May 05). 6. Adhesion aspects in biomaterials and medical devices, By:Antoniac, I (Antoniac, Iulian); Sinescu, C (Sinescu, Cosmin); Antoniac, A (Antoniac, Aurora), JOURNAL OF ADHESION SCIENCE AND TECHNOLOGY, Volume: 30, Issue: 16, Pages: 1711-1715, Special Issue: SI, DOI: 10.1080/01694243.2016.1170959, Published: AUG 17 2016.
6	**Analiza unor materiale metalice speciale cu aplicații medicale**	1. 1.Additive manufacturing of biodegradable metals: Current research status and future perspectives, Acta BiomaterialiaVolume 9815, 2019, 3-22, Yu Qin, Peng Wen, Hui Guo, Dandan Xia, Johannes Henrich Schleifenbaum. 2. Challenges in the use of zinc and its alloys as biodegradable metals: Perspective from biomechanical compatibility, Acta Biomaterialia, 971, 2019, 23-45, Guannan Li, Hongtao Yang, Yufeng Zheng, Xie-Hui Chen, Kazuki Takashima 3. In vitro degradation and biocompatibility evaluation of typical biodegradable metals (Mg/Zn/Fe) for the application of tracheobronchial stenosis, Bioactive Mat., 2019, 114-119. 4. Yangyang Li, Jianglong Yan, Wenhao Zhou, Pan Xiong, Yan Cheng 5. Laser powder bed fusion of titanium-tantalum alloys: Compositions and designs for biomedical applications, Journal of the Mechanical Behavior of Biomedical MaterialsVolume 108August 2020Article 103775, Sheng Huang, Swee Leong Sing, Geoff de Looze, Robert Wilson, Wai Yee Yeong

7	**Sisteme multistrat metalo-ceramice utilizate în controlul rezistenței la coroziune**	1. Handbook of Thin Films, Springer Book, 2002 2. , John D. Wachtman Richard A. Haber,Ceramic Films and Coatings 1st Edition Hardcover ISBN: 9780815513186, eBook ISBN: 9780815516323, 1993. 3. Junying Min, Hailang Wan, Blair E. Carlson, Jianping Lin, Chengcheng Sun Application of laser ablation in adhesive bonding of metallic materials: A review, Optics & Laser Technology, 2020, Article 106188, 4. Jing ZhangYeon-Gil Jung Advanced Ceramic and Metallic Coating and Thin Film Materials for Energy and Environmental Applications, Springer,
8	**Studii şi cercetări privind îmbunătăţirea şi procesarea metalelor şi aliajelor pentru industria auto**	1. Bejinariu, C., Extrudarea indirectă la rece a oțelului, Editura Tehnopress, Iaşi, 2008, ISBN 978-973-702-582-1 2. New Trends and Developments in Automotive Industry, Edited by Marcello Chiaberge, ISBN 978-953-307-999-8, 2011 3. Magnesium Alloys - Design, Processing and Properties, Edited by Frank Czerwinski, ISBN 978-953-307-520-4, 2011 4. Aluminium Alloys, Theory and Applications, Edited by Tibor Kvackaj, ISBN 978-953-307-244-9, 2011 5. Procedeu de fosfatare microcristalină a unor piese metalice pe bază de fier. Brevet de invenţie Nr. RO 125457 B1, Publicat in Buletinul Oficial al Proprietăţii Industriale, RO-BOPI 9/2014, din 30.09.2014.
9	**Efectul vitezei de deformare asupra microstructurii și proprietăților mecanice ale unor aliaje ușoare deformate plastic cu viteze ridicate**	1. COLE, B.N. et al., High speed impact extrusion of metals. Proc Instn Mech Engrs, 1965, Vol. 180, Pt. 1, No. 8, 191-215. 2. WÄLDER, J. et al., Numerical investigations for simultaneously processing metal and plastic using impact extrusion. MATEC Web of Conf 80: 16003, 2016, 618-625. 3. MAGLIARO, J., ALTENHOF, W., Energy absorption mechanisms and capabilities for magnesium extrusions under impact. Int J Mech Sci 2020; 179:105667. 4. ZHU, G., LIAO J., SUN, G., LI, Q., Comparative study on metal/CFRP hybrid structures under static and dynamic loading. Int J Impact Eng 2020; 141:103509. 5. ANDRÉ, N., DOS SANTOS, J., AMANCIO-FILHO, S., Impact resistance of metal-composite hybrid joints produced by frictional heat. Compos Struct 2020; 233:111754. 6. DU, Y. et al., The effect of double extrusion on the microstructure and mechanical properties of Mg-Zn-Ca alloy. Mater Sci Eng: A 2013; 583:69-77. 7. SONG, G., ATRENS, A., Understand magnesium corrosion - A framework for improved alloy performance. Adv Eng Mater 2003; 5(12):837-58. 8. FERRÁS, A.F. et al., Scrap production of extruded aluminum alloys by direct extrusion. Procedia Manufacturing 38 (2019) 1731-1740. 9. PARK YU, H. et al., Effects of extrusion speed on the microstructure and mechanical properties of ZK60 alloys with and without 1 wt% cerium addition, Materials Science & Engineering A, 583 (2013) 25-35. 10. LI, L.X., ZHOU, J., DUSZCZYK, J., Prediction of temperature evolution during the extrusion of 7075 aluminium alloy at various ram speeds by means of 3D FEM simulation, Journal of Materials Processing Technology, 145 (2004) 360-370. 11. CHENG J., GHOSH, S., A crystal plasticity FE model for deformation with twin nucleation in magnesium alloys. Int J Plast 2015; 67:148-170. 12. KUMAR, M., BEYERLEIN, I., A measure of plastic anisotropy for hexagonal close packed metals: application to alloying effects on the formability of Mg. J Alloys Compd 2017; 695(25):1488-1497. 13. WANG, H. et al., Strain rate sensitivities of deformation mechanisms in magnesium alloys. Int J Plast 2018; 107:207-222.

		14. KURUKURI, S. et al., Rate sensitivity and tension-compression asymmetry in AZ31B magnesium alloy sheet. Philos Trans R Soc A: Math Phys Eng Sci 2014; 372 (2015): 20130216. 15. ZHOU, R., ROY, A., SILBERSCHMIDT, V., A crystal-plasticity model of extruded AM30 magnesium alloy. Comput Mater Sci 2019; 170:109-140. 16. BISHT, A., YADAV, V., SUWAS, S., DIXIT, U., Deformation behavior of AM30 magnesium alloy. J Mater Eng Perform 2018; 27:4900-4910. 17. JIN, S., ALTENHOF, W., Control of load/displacement responses of AA6061-T6 and T4 circular extrusions under axial compressive loads. Int J Impact Eng 2011; 38(1):1-12. 18. Yu, J. et al., Microstructures of longitudinal/transverse welds and back-end defects and their influences on the corrosion resistance and mechanical properties of aluminum alloy extrusion profiles, Journal of Materials Processing Technology, 267 (2019) 1-16.
10	**Evoluția microstructurii la procesarea cuprului prin extrudare multiplă și laminare ulterioară**	1. MONTAZERI-POUR, M. et al., Microstructural and mechanical properties of AA1100 aluminum processed by multi-axial incremental forging and shearing. Materials Science and Engineering A, Vol. 639, 2015, 705-716. 2. LI, F., SHI, W., BIAN, N., WU, H.-B., Effect of accumulative strain on grain refinement and strengthening of ZM6 magnesium alloy during continuous variable cross-section direct extrusion. Acta Metallurgica Sinica (English Letters), Vol. 28, Issue 5, 2015, 649-655. 3. MONTAZERI-POUR, M., PARSA, M.H., MIRZADEH, H., Multi-axial incremental forging and shearing as a new severe plastic deformation processing technique. Advanced Engineering Materials, Vol. 17, Issue 8, 2015, 1197-1207. 4. LI, J. et al., Micro-structural evolution in metals subjected to simple shear by a particular severe plastic deformation method. Journal of Materials Engineering and Performance, Vol. 24, Issue 8, 2015, 2944-2956. 5. BINESH, B., AGHAIE-KHAFRI, M., RUE-based semi-solid processing: Microstructure evolution and effective parameters. Materials and Design, Vol. 95, 2016, 268-286. 6. GAO, W., XU, J., TENG, J., LU, Z., Microstructure characteristics and mechanical properties of a 2A66 Al–Li alloy processed by continuous repetitive upsetting and extrusion., Journal of Materials Research, Vol. 31, Issue 16, 2016, 2506-2515. 7. FARAJI, G., KIM, H.S., Review of principles and methods of severe plastic deformation for producing ultrafine-grained tubes. Materials Science and Technology, Vol. 33, Issue 8, 2017, 905-923. 8. RAHIMI, F. et al., Effect of pure shear strain on mechanical properties and microstructural evolution. By: Eivani, A.R, Jafarian, H.R., Bhattacharjee, T., Materials Science and Engineering A, Vol. 679, 2017, 133-142. 9. CHEN, Q. et al., Evolution of microstructure and texture in copper during repetitive extrusion-upsetting and subsequent annealing. By: Shu, D.Y., Lin, J., Wu, Y., Xia, X.S., Huang, S.H., Zhao, Z.D., Mishin, O.V., Wu, G.L., Journal of Materials Science & Technology, Vol. 33, Issue 7, 2017, 690-697. 10. SEGAL, V., Review: Modes and processes of severe plastic deformation (SPD). Materials, Vol. 11, Issue 7, 2018, 1-29. 11. YAO, Y. et al., Refining the microstructure, modifying the texture and enhancing the toughness of AZ31B alloy rod by the extrusion and upsetting. Journal of Alloys and Compounds, Vol. 764, 2018, 202-209. 12. LIPIŃSKA, M., OLEJNIK, L., LEWANDOWSKA, M., A new hybrid process to produce ultrafine grained aluminium plates. Materials Science and Engineering A, Vol. 714, 2018, 105-116. 13. CZERWINSKI, F., Thermomechanical processing of metal feedstock for semisolid forming: A review. Metallurgical and Materials Transactions B: Process Metallurgy and Materials Processing Science, Vol. 49, Issue 6, 2018, 3220-3257. 14. BAGHERPOUR, E., PARDIS, N., REIHANIAN, M., EBRAHIMI, R., An overview on severe plastic deformation: research status, techniques

		classification, microstructure evolution, and applications. International Journal of Advanced Manufacturing Technology, Vol. 100, Issue 5-8, 2019, 1647-1694. 15. WU, Y. et al., Microstructure and mechanical properties of copper billets fabricated by the repetitive extrusion and free forging process. Journal of Materials Engineering and Performance, Vol. 28, Issue 4, 2019, 2063-2070. 16. ZHANG, G. et al., Effects of repetitive upsetting-extrusion parameters on microstructure and texture evolution of Mg-Gd-Y-Zn-Zr alloy. Journal of Alloys and Compounds, Vol. 790, 2019, 48-57.
11	**Materiale si aplicatii specifice Selective Laser Melting (SLM)**	1. C.Y.Yap, C.K.Chua, Z.L.Dong et al. Review of selective laser melting: Materials and applications, in Applied Physics Reviews, vol.2, Issue 4, 2015, htpps://aip.scitation.org/doi/abs/10.1063/1.4935926 2. Thomas G.Spears and Scott A.Gold In-process sensing in selective laser melting (SLM) additive manufacturing, in Integrating Materials and Manufacturing Innovation, a Springer Open Journal, DOI 10.1186/s40192-016-0045-4 3. Tsung-Wen Tsai, Wai-Kwuen Choong et al. Selective Laser Melting of Metal Powders in Additive Manufacturing, Journal of Fluid Flow, Heat and Mass Transfer (JFFHMT), vol.5, pp.90-99, 2018, https;//jffhmt.avestia.com/2019/003.html
12	**Parametrii tehnologici de prelucrare SLM si influentele exercitate asupra proprietatilor si microstructurii aliajelor dentare**	1. Koutsoukis,T., Zinelis, S. Selective Laser Melting Technique of Co-Cr Dental Alloys: Review of Structure and Properties and Comparative Analysis with Other Available Techniques, in Journal of Prosthodontics, 24(4), 303-312, 2015, DOI: 10.1111/jopr.12268 2. Dongwei Sun, Xuxian Li et al. A parametric study on grain structure in selective laser melting process for stainless steel 316L, in Solid Freeform Fabrication Symposium- An Additive Manufacturing Conference-2017, 3. Hanzl, P., Zetek,M. et al. The of processing parameters on the mechanical properties of SLM parts, in Procedia Engineering, 100, pp.1405-1413, 2015 4. Yadroitsev, I., Smurov, I. Surface Morphology in Selective Laser Melting of Metal Powders, in Physics Procedia, 12 (2011), pp.264-270, doi:10.1016/j.phpro.2011.03.034
13	**Prelucrari termice aplicate post-procesare SLM a pulberilor metalice**	1. Frazier, W.E. Metal additive manufacturing: a review, in Journal of Materials Engineering and Performance, 23(6), pp.1917-1928, 2014 2. Kruth, J.P., Froyen, L et al. Selective laser melting of iron-based powder, in Journal of Materials Processing Technology, 149 (!), pp. 616-622, 2004 3. Dai,D and Gu, D., Thermal behavior and densification mechanism during selective laser melting of copper matrix composites: simulation and experiments, in Materials & Design, 55, pp.482 - 491, 2014
14	**Procesarea si caracterizarea unor aliaje cu memoria formei pentru aplicatii biomedicale**	1. Advances in Metallic Biomaterials. Eds N. Mitsuo, N. Takayuki, N. Masaaki. 2015. Springer-Verlag Berlin Heidelberg. ISBN 978-3-662-46841-8 2. Shape Memory Alloys for Biomedical Applications. Eds. T. Yoneyama, S. Miyazaki. 2009. Woodhead Publishing. ISBN 978-1-84569-344-2. 3. C. E. Wen, J. Y. Xiong, Y. C. Li, P. D. Hodgson. Porous shape memory alloy scaffolds for biomedical applications: a review. Physica Scripta 2010, T139, 014070 4. L. Petrini, , F. Migliavacca. Biomedical Applications of Shape Memory Alloys. Journal of Metallurgy 2011 Article ID 501483. 5. Y. X. Tong, B. Guo, Y. Zheng, C. Y. Chung, L. W. Ma. Effects of Sn and Zr on the Microstructure and Mechanical Properties of Ti-Ta-Based Shape Memory Alloys. Journal of Materials Engineering and Performance 2011 Corpus ID: 13873749. 6. A. Biesiekierski , J. Wang, M. Abdel-Hady Gepreel, C. Wen. A New Look at Biomedical Ti-based Shape Memory Alloys. Acta Biomater 2012;8(5):1661-9. 7. M. Niinomi , M. Nakai, J. Hieda. Development of New Metallic Alloys for Biomedical Applications. Acta Biomater 2012;8(11):3888-903. 8. P. Bassani , S. Panseri, A. Ruffini, M. Montesi, M. Ghetti, C. Zanotti, A. Tampieri, A. Tuissi. Porous NiTi Shape Memory Alloys Produced by SHS: Microstructure and Biocompatibility in Comparison With Ti2Ni and

		TiNi3. J Mater Sci Mater Med 2014 ;25(10):2277-85. 9. B. Yuan, M. Zhu, C. Y. Chung. Biomedical Porous Shape Memory Alloys for Hard-Tissue Replacement Materials. Materials (Basel) 2018 ;11(9):1716. 10. C Wen, X Yu, W Zeng, S Zhao, L Wang, G Wan, S Huang, H Grover, Z Chen. Mechanical behaviors and biomedical applications of shape memory materials: A review. AIMS Materials Science 2018, 5(4): 559-590. *pe bază de Fe*, Teză de doctorat, Universitatea Tehnică Iași, 2017