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IN PROCESS INDUSTRY
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BOOK OF ABSTRACTS



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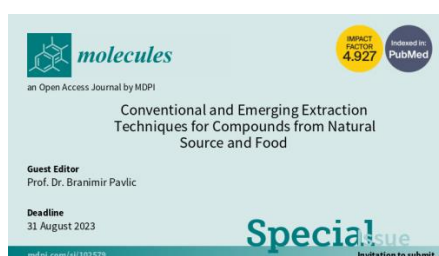
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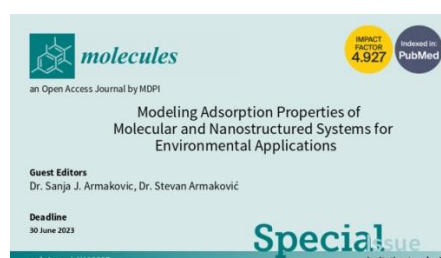
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PLE-01	<u>ADVANCES IN THE SYNTHESIS OF NEW MATERIALS WITH AN UNDERSTANDING OF UNIT OPERATIONS IN METALLURGICAL ENGINEERING</u>	38
	<u>Srecko Stopic, Bernd Friedrich</u>	
PLE-02	<u>TAILORING ACTIVE SITES IN ZEOLITE-BASED CATALYSTS</u>	39
	<u>Mariya Shamzhy</u>	
PLE-03	<u>CHROMATOGRAPHIC PARAMETERS AS PREDICTORS OF PHENYLACETAMIDE DERIVATIVES' BIOLOGICAL ACTIVITY</u>	40
	<u>Suzana Apostolov</u>	
PLE-04	<u>SEAWEED IN FOOD: OPPORTUNITIES AND CHALLENGES</u>	41
	<u>Rui Costa</u>	
PLE-05	<u>PHYSICAL FOUNDATIONS OF NON-EQUILIBRIUM PLASMAS AS THE BASIS FOR TECHNOLOGIES RANGING FROM NANOELECTRONICS TO PLASMA MEDICINE AND PLASMA APPLICATIONS IN AGRICULTURE</u>	42
	<u>Zoran Petrović</u>	
PLE-06	<u>SUSTAINABLE WASTE AND BIOWASTE MANAGEMENT</u>	43
	<u>M. Loizidou, D. Malamis, K. Moustakas, E.M. Barampouti, S. Mai, J. Novakovic</u>	



CHEMISTRY

CHE-01	<u>LAVANDIN (<i>Lavandula x intermedia</i>) ESSENTIAL OIL - ANTIMICROBIAL POTENTIAL AND OIL MICROENCAPSULATION BY FREEZE DRYING</u> <u>Jelena Bajac, Branislava Nikolovski, Ivana Mitrović, Milena Terzić, Branimir Bajac</u>	44
CHE-02	<u>HIGH MOLECULAR WEIGHT CHITOSAN FOR FLOCCULATION OF <i>Bacillus</i> sp. FROM FERMENTATION BROTH</u> <u>Selena Dmitrović, Ivana Pajčin, Vanja Vlajkov, Jovana Grahovac, Aleksandar Jokić, Nataša Lukić</u>	45
CHE-03	<u>GLYCEROL AS GREEN SOLVENT FOR ENCAPSULATION OF ESSENTIAL OIL INTO BETA CYCLODEXTRIN</u> <u>Amine Ez-zoubi, Yassine Ez-zoubi, Amal Ramzi, Mouhcine Fadil, Abdelhakim El Ouali Lalami, Abdellah Farah</u>	46
CHE-04	<u>CHEMICAL COMPOSITION AND ANTIMICROBIAL ACTIVITY OF WILD CARROT (<i>Daucus carota</i> L.) SEED ESSENTIAL OIL FROM SOUTHEASTERN SERBIA</u> <u>Aleksandra Milenković, Ljiljana Stanojević, Jelena Stanojević, Bojana Danilović, Irena Raca, Vladimir Randelović</u>	47
CHE-05	<u>ANTIOXIDANT ACTIVITY OF WILD CARROT (<i>Daucus carota</i> L.) FATTY OIL FROM SOUTHEASTERN SERBIA</u> <u>Aleksandra Milenković, Ljiljana Stanojević, Jelena Stanojević, Vladimir Randelović, Dragan Cvetković</u>	48
CHE-06	<u>ANTIBACTERIAL ACTIVITY OF <i>Allium sativum</i> AND <i>Allium ursinum</i> ON SELECTED FOODBORNE PATHOGENS</u> <u>Vesna Kalaba, Tanja Ilić, Dragana Kalaba, Dragan Knežević, Dragica Đurđević Milošević</u>	49
CHE-07	<u>ISOLATION OF COAGULASE-NEGATIVE STAPHYLOCOCCUS FROM SAMPLES OF RAW MILK AND THEIR RESISTANCE TO ANTIMICROBIAL DRUGS</u> <u>Vesna Kalaba, Tanja Ilić, Dragana Kalaba, Dragica Đurđević-Milošević</u>	50
CHE-08	<u>BACTERICIDAL EFFECTIVENESS OF ACTIVE CHLORINE SOLUTION WITH ESSENTIAL OILS</u> <u>Zorica Tomičić, Ivana Čabarkapa, Ljubiša Šarić, Predrag Ikonić, Olja Todorić, Marina Džomba, Ružica Tomičić</u>	51
CHE-09	<u>ESSENTIAL OILS AS ANTIMICROBIAL AGENTS AGAINST BACTERIA <i>Listeria monocytogenes</i></u> <u>Ružica Tomičić, Milica Nićetin, Vladimir Filipović, Biljana Lončar, Violeta Knežević, Zorica Tomičić</u>	52
CHE-10	<u>COMPARISON OF THE PERFORMANCE OF FT-RAMAN AND NIR FOR CHEMICAL SCREENING OF ACACIA PODS</u> <u>Soraia I. Pedro, Tiago A. Fernandes, Alexandra M. M. Antunes, José Carlos Gonçalves, Jorge Gominho, Eugenia Gallardo, Ofélia Anjos</u>	53
CHE-11	<u>DETERMINATION OF GLIADIN AND GLUTENIN PROTEINS FROM BISCUIT BY RP-HPLC AND FTIR METHOD AFTER TREATMENT WITH COLD ATMOSPHERIC PLASMA</u> <u>Vesna Gojković Cvjetković, Željka Marjanović-Balaban, Radoslav Grujić, Danijela Rajić, Dragan Vujadinović, Milan Vukić</u>	54
CHE-12	<u>STUDY OF LIPOPHILICITY AND TOXICITY OF SELECTED <i>N, N</i>-DISUBSTITUTED CHLOROACETAMIDES USING LIQUID CHROMATOGRAPHY</u> <u>Đendi Vaštag, Gorana Mrđan, Borko Matijević, Dragana Mekić, Suzana Apostolov</u>	55

CHE-13	<u>INFLUENCE OF HUMIC AND FULVIC ACIDS ON STABILITY OF LOBO® AND ITS PROLONGED ACTIVITY IN ONION PRODUCTION</u> Đorđe Vojnović, Maria Savanović, Andrijana Bilić, Boris Adamović, Žarko Ilin, Sanja Armaković, Igor Savić, Teodora Gajo, Stevan Armaković, Svetlana Pelemiš	56
CHE-14	<u>KINETIC INVESTIGATION OF THE STABILITY OF HYPERFORIN FROM HYPERICUM PERFORATUM L. UNDER UV-B IRRADIATION</u> Filip Jovanović, Sanja Petrović, Saša Savić, Jelena Zvezdanović	57
CHE-15	<u>ANALYSIS OF ANTIMICROBIAL ACTIVITY OF HYPERFORIN (HYPERICUM PERFORATUM L.) EXTRACTS</u> Filip Jovanović, Bojana Danilović, Saša Savić, Sanja Petrović	58
CHE-16	<u>SYNTHESIS, STRUCTURE CHARACTERIZATION AND SOLVATOCHROMISM OF SOME ARYL AZO PYRIDONE DYES</u> Borko Matijević, Gorana Mrđan, Jelena Lađarević, Nataša Valentić, Dušan Mijin, Aleksandra Mašulović, Suzana Apostolov, Đendi Vaštag	59
CHE-17	<u>SUNFLOWER OIL WITH VITAMIN D: PRELIMINARY INVESTIGATION OF ENRICHMENT POSSIBILITY</u> Tanja Lužaić, Kristina Kozomora, Milan Sredojević, Igor Antić, Ranko Romanić	60
CHE-18	<u>FOOD SUPPLEMENTS – IS THERE A RISK OF VITAMIN AND MINERAL OVERDOSAGE?</u> Maja Amidžić, Jelena Banović Fuentes, Ljilja Torović	61
CHE-19	<u>UNAUTHORISED SUBSTANCES IN FOOD SUPPLEMENTS - PHOSPHODIESTERASE-5 INHIBITORS</u> Maja Amidžić, Jelena Banović Fuentes, Ljilja Torović	62
CHE-20	<u>USAGE PHOSPHOMOLYBDENUM AND BRIGGS-RAUSCHER METHODS IN MEASURING ANTIOXIDANT ACTIVITY OF MARIGOLD EXTRACTS</u> Ajdin Mujezin, Jelena Ostojic, Lejla Klepo	63
CHE-21	<u>STUDY OF THE EFFECTS OF ACTIVE BROMINE SPECIES PRESENCE IN ELECTROLYTIC DESULFURIZATION OF SUBBITUMINOUS COAL</u> Katarina Pantović Spajić, Marijana Pantović Pavlović, Katarina Božić, Đorđe Gjumišev, Vladimir Panić, Miroslav Pavlović, Ksenija Stojanović	64
CHE-22	<u>ANTIMICROBIAL TREATMENT OF INSOLES WITH <i>Agrimonia eupatoria</i> EXTRACT FOR FEET PROTECTION AGAINST <i>Callositas et Clavus</i></u> Dragana Grujić, Aleksandar Savić, Ljiljana Topalić-Trivunović, Blanka Škipina, Branka Ružičić, Nikolina Kosić, Ana Velemir, Jovana Milanović, Mitja Kolar	65
CHE-23	<u>MERIPILUS GIGANTEUS (AGARICOMYCETES): NUTRITIONAL PROFILE AND CYTOTOXIC ACTIVITY AGAINST MCF-7 AND HEPG-2 CELLS</u> Aleksandra Novaković, Mirjana Beribaka, Maja Palangetić, Jelena Vulinović, Nenad Krsmanović, Jovana Mišković, Maja Karaman	66
CHE-24	<u>RESONANCE-ASSISTED HYDROGEN-BRIDGED RINGS: PARALLEL ALIGNMENT IN CRYSTAL STRUCTURES AND SIGNIFICANT NONCOVALENT ATTRACTION</u> Jelena P. Blagojević Filipović, Snežana D. Zarić	67



ENGINEERING AND TECHNOLOGY

ENG-01	<u>ENTRAINED FLOW GASIFICATION MODELING VIA INTEGRATED THERMODYNAMIC EQUILIBRIUM AND ARTIFICIAL NEURAL NETWORK APPROACH</u>	68
	<u>Jelena Lubura, Dario Balaban, Oskar Bera, Jelena Pavličević, Bojana Ikončić, Predrag Kojić</u>	
ENG-02	<u>SCREENING OF <i>CLOSTRIDIUM</i> SP. FOR BIO-HYDROGEN PRODUCTION POTENTIAL FROM LIGNOCELLULOSIC BIOMASS</u>	69
	<u>Yoong Kit Leong, Jiang-Sin Yu</u>	
ENG-03	<u>PARTICLE SIZE DISTRIBUTION OF WHITE CHOCOLATE WITH RESISTANT STARCH</u>	70
	<u>Ivana Lončarević, Biljana Pajin, Jovana Petrović, Ivana Nikolić, Nikola Maravić, Danica Zarić</u>	
ENG-04	<u>OAK/BEECH BIOCHAR POTENTIAL IN REMOVING PHENOLIC COMPOUNDS FROM WASTEWATER</u>	71
	<u>Aleksandra Adamović, Dragan Cvetković, Mirjana Petronijević, Sanja Panić, Nataša Đurišić-Mladenović</u>	
ENG-05	<u>OPTIMIZATION OF MEDIUM COMPOSITION FOR PRODUCTION OF BIOCONTROL AGENT TRICHODERMA HARZIANUM</u>	72
	<u>Ivana Mitrović, Sonja Tančić Živanov, Bojan Mitrović</u>	
ENG-06	<u>EXTRACTION OF PECTIN FROM SUGAR BEET WASTE AND DETERMINATION OF ITS FUNCTIONAL PROPERTIES</u>	73
	<u>Nataša Nastić, Fatmanur Demirbaş, Enes Dertli, Senka Vidović</u>	
ENG-07	<u>THE USE OF 3D-PRINTING TECHNOLOGY IN THE FOOD INDUSTRY</u>	74
	<u>Raquel Guiné</u>	
ENG-08	<u>ADSORPTION PROPERTIES OF CONJUGATES OF PLUM SEED PROTEIN ISOLATES AND CAFFEIC ACID</u>	75
	<u>Jadranka L. Fraj, Lidija B. Petrović, Jelena R. Milinković Budinčić, Sandra Đ. Bučko, Ljiljana M. Spasojević, Jelena S. Škrbić, Jaroslav M. Katona</u>	
ENG-09	<u>WINE PRODUCED FROM THE SERBIAN AUTOCHTHONOUS <i>PROKUPAC</i> VARIETY ENRICHED WITH SELENIUM</u>	76
	<u>Aleksandra Sknepnek, Dunja Miletić, Sonja Jović, Danka Mitrović, Mile Veljović, Milica Mirković, Aleksandar Petrović</u>	
ENG-10	<u>INTERACTIONS BETWEEN CHITOSAN AND NONIONIC SURFACTANT IN THE AQUEOUS MEDIUM</u>	77
	<u>Jelena Milinković Budinčić, Lidija Petrović, Jadranka Fraj, Sandra Bučko, Jaroslav Katona, Ljiljana Spasojević, Jelena Škrbić</u>	
ENG-11	<u>REMOVAL OF EMERGING COMPOUNDS IN POLLUTED WATERS BY RICE HUSK BIOCHAR</u>	78
	<u>Juan F. Saldarriaga, Katherine Herrera, Julián E. López</u>	
ENG-12	<u>ASSESSMENT OF THE REACTIVITY IN PASTES IN DIFFERENT MIXTURES OF LIME AND RICE HUSK BIOCHAR</u>	79
	<u>Juan F. Saldarriaga, Luisa F. Morales, Julián E. López</u>	
ENG-13	<u>CHARACTERIZATION OF STARCH ISOLATED FROM DIFFERENT POTATO VARIETIES</u>	80
	<u>Antun Jozinović, Mario Kovač, Valentina Zmaić, Ilija Klarić, Drago Šubarić, Jurislav Babić, Đurđica Ačkar, Borislav Miličević, Ante Lončarić, Stela Jokić, Tomislav Vinković</u>	

ENG-14	<u>VALORIZATION OF STRAW PULP FOR THE PAPER INDUSTRY BASED ON THE WATER RESISTANCE OF PRINTS MADE WITH DIFFERENT PRINTING TECHNIQUES</u>	81
	<u>Ivana Plazonić, Katja Petric Maretić, Maja Rudolf, Valentina Radić Seleš, Irena Bates</u>	
ENG-15	<u>FOOD STRUCTURE AND TEXTURE: INDUSTRIAL RELEVANCE AND MEASUREMENT TECHNIQUES</u>	82
	<u>Raquel Guiné</u>	
ENG-16	<u>DIFFERENTIATION BETWEEN FABA BEAN AND GRASS PEA FLOURS: HIERARCHICAL CLUSTERING OF LIPOSOLUBLE EXTRACTS</u>	83
	<u>Marko Ilić, Kristian Pastor, Đura Vujić, Aleksandra Savić, Mirjana Vasić, Marijana Ačanski</u>	
ENG-17	<u>POLYCYCLIC AROMATIC HYDROCARBONS IN SMOKED (GRILLED) MEAT AND MEAT PRODUCTS</u>	84
	<u>Vladimir Tomović, Snežana Škaljac, Marija Jokanović</u>	
ENG-18	<u>APPLICATION OF CRUDE FUNGAL LACCASE FROM <i>GANODERMA</i> SPP. IN DECOLORIZATION OF TRIPHENYLMETHANE DYECRYSTAL VIOLET</u>	85
	<u>Nevena Ilić, Marija Milić, Slađana Davidović, Suzana Dimitrijević-Branković, Katarina Mihajlovski</u>	
ENG-19	<u>IMMOBILIZATION OF CRUDE FUNGAL LACCASE FROM <i>GANODERMA</i> SPP. ON MODIFIED TITANIUM DIOXIDE NANOPARTICLES</u>	86
	<u>Nevena Ilić, Slađana Davidović, Miona Miljković, Neda Radovanović, Suzana Dimitrijević-Branković, Katarina Mihajlovski</u>	
ENG-20	<u>CADMIUM AND LEAD IN THE MEAT AND EDIBLE OFFAL – MAXIMUM LEVELS ACCORDING TO NEW EUROPEAN UNION REGULATIONS</u>	87
	<u>Vladimir Tomović, Snežana Škaljac, Dragan Vujadinović, Marija Jokanović</u>	
ENG-21	<u>MICROBIOLOGICAL AND CHEMICAL QUALITY OF LYOPHILIZED AND LIQUID GOAT WHEY ON SERBIAN MARKET</u>	88
	<u>Milica Mirković, Zorana Miloradović, Marina Hovjecki, Nikola Bajčetić, Nemanja Mirković, Ana Šatrić, Jelena Miočinović, Zorica Radulović</u>	
ENG-22	<u>DYEING OF COTTON FABRIC WITH UNCONVENTIONAL DYE</u>	89
	<u>Milena Nikodijević, Milica Zlatković, Dragan Đorđević, Valentina Nikolić, Sandra Konstantinović</u>	
ENG-23	<u>APPLICATION OF ALUMINA-SUPPORTED COOPER CATALYST PELLET ON ESTERIFICATION OF LACTIC ACID WITH 1-BUTANOL</u>	90
	<u>Panarat Rattanaphanee, Santisuk Hasin, Kanungnit Chawong, Boonpradab Daengpradab, Vatanavongs Ratanavaraha</u>	
ENG-24	<u>EFFECT OF STARCH CONTENT AND CALCINATION TEMPERATURE ON PREPARATION OF POROUS γ-ALUMINA BY STARCH CONSOLIDATION CASTING TECHNIQUE</u>	91
	<u>Panarat Rattanaphanee, Santisuk Hasin</u>	
ENG-25	<u>MONITORING THE GLAZING PROCESS IN FROZEN FISH. A PRACTICAL CASE</u>	92
	<u>Francisco Oliveira, Paula Correia</u>	
ENG-26	<u>UNDERSTANDING MECHANISMS AND KINETICS IN HETEROGENEOUS CATALYSIS USING MULTISCALE MODELLING</u>	93
	<u>Matej Huš, Taja Žibert, Žan Kovačić, Luka Skubic, Matic Pavlin, Reza Gholizadeh, Andraž Pavlišič, Blaž Likozar</u>	
ENG-27	<u>EXPERIMENTAL STUDY OF THE PERFORMANCE OF AN OPEN-TYPE REFRIGERATED DISPLAY CABINET</u>	94

ENG-28	<u>SPRAY DRYING OF MANDARIN PEEL EXTRACT OBTAINED BY ULTRASONIC PROBE</u> <u>Nataša Nastić, Aleksandra Gavarić, Zorana Mutavski, Senka Vidović</u>	95
ENG-29	<u>PYROLYSIS OF WOOD-BASED BLACK LIQUOR, AS AN EFFICIENT PROCESS FOR THE PRODUCTION OF ALTERNATIVE FUELS</u> <u>Florian Marin, Anca Maria Zaharioiu, Felicia Bucura, Roxana Elena Ionete, Ionut Spiridon, Marius Constantinescu, Simona Oancea</u>	96
ENG-30	<u>RAMAN SPECTROSCOPY APPLIED TO BIOBASED MINERAL FERTILIZERS</u> <u>Carmo Horta, Berta Riaño, Cláudia Vitória, María Cruz García-González, Ofélia Anjos</u>	97
ENG-31	<u>TRACE-ELEMENTAL PROFILING OF LEGUME SPECIES CONVENTIONALLY GROWN IN SERBIA</u> <u>Kristian Pastor, Marko Ilić, Marijana Ačanski, Adriana Skendi, Stefanos Stefanou, Maria Papageorgiou</u>	98
ENG-32	<u>THE STABILITY OF LIPOSOMES WITH ERGOSTEROL AND <i>THYMUS SERPYLLUM</i> L. EXTRACT</u> <u>Aleksandra A. Jovanović, Predrag M. Petrović, Danica Čujić, Sandra Stepanović, Marija Gnjatović, Aleksandar Marinković, Branko Bugarski</u>	99
ENG-33	<u>ULTRASOUND-ASSISTED EXTRACTION OF <i>ROSA CANINA</i> L. USING NATURAL DEEP EUTECTIC SOLVENTS</u> <u>Aleksandra A. Jovanović, Rada Pjanović, Jelena Živković, Katarina P. Šavikin, Marija Gnjatović, Aleksandar Marinković, Branko Bugarski</u>	100
ENG-34	<u>HETEROGENISATION OF THE ADIPIC ACID PRODUCTION FROM BIORENEWABLES USING A RHENIUM CATALYST</u> <u>Brigita Hočevar, Miha Grile, Matej Huš, Blaž Likozar</u>	101
ENG-35	<u>THEORETICAL BIOGAS POTENTIAL PREDICTION FROM ORGANIC FRACTION OF MUNICIPAL WASTE IN BANJA LUKA REGION</u> <u>Brankica Gegić, Draženko Bjelić, Dragana Nešković Markić, Siniša Dodić, Damjan Vučurović, Bojana Bajić</u>	102
ENG-36	<u>DETERMINATION OF TOTAL POLAR COMPOUNDS IN SUNFLOWER OIL AFTER ADSORPTION ON ALUMOSILICATES</u> <u>Ljubica Vasiljević, Sanja Dobrnjac, Stevan Blagojević, Dragan Tošković, Milica Balaban, Danijela Rajić</u>	103
ENG-37	<u>ATOMISTICA.ONLINE – MOLECULAR MODELING PLATFORM FOR RESEARCH AND TEACHING IN MATERIALS SCIENCE</u> <u>Stevan Armaković, Sanja J. Armaković</u>	104
ENG-38	<u>RISK ANALYSIS OF PRESENCE OF AFLATOXIN M1 IN PRODUCTION CHAIN OF MILK PRODUCTS</u> <u>Senad Krivdić, Dragan Vujadinović, Vesna Gojković Cvjetković</u>	105
ENG-39	<u>IN VITRO INVESTIGATION OF WATER EMULSIONS AND MICROCAPSULES WITH ESSENTIAL OILS AGAINST AFLATOXIGENIC MOULD</u> <u>Sunčica Kocić-Tanackov, Emilija Kovačević, Branislava Nikolovski, Ranko Romanić, Jelena Bajac, Snežana Kravić, Sandra Bulut, Jelena Pejcin</u>	106
ENG-40	<u>IN VITRO EVALUATION OF THE EFFICACY OF COLD PRESSED BLACKBERRY CAKE AS AN AFLATOXIN B1 ADSORBENT</u> <u>Jelena Miljanić, Branimir Bajac, Mihajlo Valuh, Jovana Kojić, Vanja Travičić, Lidija Perović, Bojana Radić, Jovana Kos, Ljubiša Šarić</u>	107

ENG-41	<u>TEXTURAL AND SURFACE CHARACTERIZATION OF SUGAR BEET PULP AS A BIOSORBENT FOR METAL IONS REMOVAL</u> Lidija Perović, Jelena Miljanić, Branislava Đermanović, Jovana Kojić, Branimir Bajac, Nikola Maravić, Zita Šereš	108
ENG-42	<u>THE USE OF CHOLINE BUTYRATE FOR THE EXTRACTION OF 5-HYDROXYMETHYLFURFURALE (HMF) FROM HONEY</u> Pavle Jovanov, Aleksandar Marić, Marijana Sakač, Jovana Kos, Milan Vraneš, Tatjana Trtić-Petrović, Slobodan Gadžurić	109
ENG-43	<u>THERAPEUTIC PROPERTIES OF HONEY FROM THE WESTERN BALKANS</u> Pavle Jovanov, Marijana Sakač, Aleksandar Marić, Aleksandra Novaković, Dragana Plavšić, Dubravka Škrobot, Bojana Šarić	110
ENG-44	<u>STUDIES ON IMPROVING THE QUALITY OF APPLE JUICE</u> Denisa Marica (Sopîrlă), Ovidiu Tița	111
ENG-45	<u>PROCESS PARAMETERS INFLUENCE ON BIODIESEL PRODUCTION FROM WTO</u> Duško Kostić, Nebojša Vasiljević, Vladan Mičić, Mitar Perušić, Goran Tadić, Mirko Radić, Marko Stajčić, Dragana Kostić	112
ENG-46	<u>OPTIMIZATION OF PLATE HEAT EXCHANGER OPERATION</u> Duško Kostić, Dario Balaban, Vladan Mičić, Nebojša Vasiljević, Mitar Perušić, Goran Tadić, Mirko Radić, Bojana Ašonja, Dragana Kostić	113
ENG-47	<u>INFLUENCE OF PROCESS PARAMETERS ON MORPHOLOGICAL CHARACTERISTICS OF FINELY PRECIPITATED HYDRATE</u> Sandra Petricevic, Aleksandar Došić, Radislav Filipović, Vladimir Damjanović, Zoran Obrenovic, Mitar Perusic, Vladislav Sekulic, Vladan Micic, Dusko Kostić	114
ENG-48	<u>DETERMINATION OF COPPER TRACES AROUND THE ENTRY BULLET HOLE</u> Vesna Matić, Mirjana Dragoljić, Ljiljana Simurdić, Mladen Novaković, Saša Jojić	115
ENG-49	<u>THE ROLE OF IRON ADDITION ON VIVIANITE FORMATION DURING ANAEROBIC SEWAGE SLUDGE DIGESTION</u> J. Novakovic, E. Hambou, D. Ntinopoulos, M. Kyriazi, K. Moustakas, D. Malamis, M. Loizidou	116
ENG-50	<u>INVESTIGATING THE POSSIBILITY OF USING SEWAGE SLUDGE ASH IN THE PRODUCTION OF COMPLEX MINERAL FERTILIZERS</u> Alija Salkunić, Slavko Smiljanić, Bajro Salkunić, Mikloš Tot	117
ENG-51	<u>DETERMINATION OF THE QUALITY PARAMETERS OF COMPOTE OBTAINED FROM DONE FRUITS</u> Jelena Marković	118
ENG-52	<u>FTIR ANALYSIS IN ASSESSMENT OF COMPLEX COACERVATION OF PUMPKIN LEAF PROTEINS AND NATURAL POLYSACCHARIDES</u> Bojana Balanč, Predrag Petrović, Tamara Đukić, Verica Đorđević, Aleksandra Jovanović, Branko Bugarski, Zorica Knežević-Jugović	119
ENG-53	<u>MACERATION AND HEAT-ASSISTED EXTRACTION OF POLYPHENOLS FROM ALOE VERA</u> Natalija Čutović, Aleksandra A. Jovanović, Muna Rajab Elferjane, Violeta Milutinović, Predrag Petrović, Aleksandar Marinković, Branko Bugarski	120
ENG-54	<u>THE INFLUENCE OF ULTRASOUND EXPOSURE TIME ON POLYPHENOL AND FLAVONOID YIELD AND ANTIOXIDANT POTENTIAL OF SATUREJA MONTANA L. EXTRACTS</u>	121

	<u>Natalija Čutović, Aleksandra A. Jovanović, Petar Batinić, Tatjana Marković, Dragoja Radanović, Aleksandar Marinković, Branko Bugarski</u>	
ENG-55	<u>CHEMICAL COMPOSITION AND ANTIOXIDANT CAPACITY OF THE ESSENTIAL OILS FROM TWO CHEMOTYPES OF <i>SATUREJA MONTANA</i> L.</u> <u>Petar Batinić, Aleksandra A. Jovanović, Natalija Čutović, Tatjana Marković, Dragoja Radanović, Aleksandar Marinković, Branko Bugarski</u>	122
ENG-56	<u>COMPARISON OF MACERATION AND ULTRASOUND-ASSISTED EXTRACTION OF ANTIOXIDANT COMPOUNDS FROM <i>VACCINIUM MYRTILLUS</i> L.</u> <u>Petar Batinić, Aleksandra A. Jovanović, Muna Rajab Elferjane, Natalija Čutović, Milena Milošević, Aleksandar Marinković, Branko Bugarski</u>	123
ENG-57	<u>OPTIMIZATION OF LINDANE SORPTION FROM AQUEOUS SOLUTION BY MACROPOROUS COPOLYMER USING EXPERIMENTAL DESIGN</u> <u>Tamara T. Tadić, Sandra S. Bulatović, Bojana M. Marković, Aleksandra B. Nastasović, Mila V. Ilić, Zorica M. Vuković, Antonije E. Onjia</u>	124
ENG-58	<u>KINETICS AND ISOTHERMS MODELING OF SILVER REMOVAL ONTO MACROPOROUS AMINO SORBENT</u> <u>Tamara T. Tadić, Zvezdana P. Sandić, Sandra S. Bulatović, Bojana M. Marković, Aleksandra B. Nastasović, Antonije E. Onjia</u>	125
ENG-59	<u>WHEAT STARCH WET-MILLING PRODUCTS AS POTENTIAL RAW MATERIAL FOR BIOETHANOL PRODUCTION</u> <u>Aleksandra Katanski, Vesna Vučurović</u>	126
ENG-60	<u>PRELIMINARY CHEMICAL ANALYSIS OF WILLOW LEAF EXTRACTS OBTAINED BY ULTRASOUND-ASSISTED EXTRACTION</u> <u>Emilia Gligorić, Ružica Igić, Ljiljana Suvajdžić, Branislava Teofilović, Nevena Grujić</u>	127
ENG-61	<u>GREEN EXTRACTION OF BIOACTIVE COMPOUNDS FROM LAMIACEAE PLANTS</u> <u>Branislava Teofilović, Saša Vukmirović, Milan Vraneš, Snežana Papović, Emilia Gligorić, Nevena Grujić</u>	128
ENG-62	<u>THE INFLUENCE OF SYNTHESIS METHODS ON PHOTODEGRADATION EFFICIENCY OF ZnFe BASED PHOTOCATALYSTS</u> <u>Djurdjica Karanovic, Milica Hadnadjev-Kostic, Tatjana Vulic, Marija Milanovic, Ognjen Govedarica, Vladana Rajakovic-Ognjanovic</u>	129
ENG-63	<u>REVIEW OF MICROBIOLOGICAL PURITY IN THE FOOD CHAIN</u> <u>Bojan Golić, Biljana Pećanac, Dragan Kasagić, Dragan Knežević</u>	130
ENG-64	<u>MICROBIOLOGICAL STATUS OF WATER IN THE FOOD INDUSTRY</u> <u>Bojan Golić, Dragan Kasagić, Biljana Pećanac, Dragan Knežević</u>	131
ENG-65	<u>QUALITY OF HONEY AND SUSPICION OF HONEY ADULTERATION</u> <u>Biljana Pećanac, Bojan Golić, Dragan Kasagić, Dragan Knežević</u>	132
ENG-66	<u>MICROBIOLOGICAL STATUS OF MINCED MEAT, MECHANICALLY SEPARATED MEAT AND SHAPED MINCED MEAT ACCORDING TO PROCESS HYGIENE CRITERIA</u> <u>Dragan Kasagić, Bojan Golić, Biljana Pećanac, Dragan Knežević</u>	133
ENG-67	<u>VARIATION OF THE CHEMICAL COMPOSITION OF RED WINE (<i>'Touriga Nacional'</i>) DURING THE FIRST SIX MONTHS OF MATURATION IN NEW AND REUSED OAK WOOD BARRELS</u> <u>Carlos A.L. Antunes, Pedro Carvalho, Fátima Peres, Cristina Canavarro, Cecília Gouveia, António Ramos, Ofélia Anjos</u>	134
ENG-68	<u>PILOT SCALE MICROBIAL FUEL CELL FOR INDUSTRIAL</u>	135

<u>WASTEWATER TREATMENT</u>		
	<u>Abdullah Almatouq, Mohd Ahmed, Mishari Khajah, Hussain Abdullah, Rashed Al-Yaseen, Mariam Al-Jumaa, Farah Al-Ajee, Ahmed Shishter</u>	
ENG-69	<u>PARAMETRIC PROGRAMS FOR 3D MODELING IN THE FUNCTION OF NDT AND DETERMINING LIFE OF PRESSURE VESSELS</u> <u>Vujadin Aleksić, Srđan Bulatović, Bojana Zečević, Ana Maksimović, Ljubica Milović</u>	136
ENG-70	<u>SCREW PRESSES IN THE PRODUCTION OF COLD PRESSED OILS IN "MINI-OIL MILLS"</u> <u>Ranko Romanić, Tanja Lužaić</u>	137
ENG-71	<u>EXAMINATION OF THE EFFECT OF REPLACING PART OF WHEAT FLOUR IN MUFFINS ON GLUTENIN PROTEINS</u> <u>Dragana Škuletić, Vesna Gojković Cvjetković, Željka Marjanović-Balaban, Dragan Vujadinović, Milan Vukić, Milenko Smiljanić, Ljubica Vasiljević</u>	138
ENG-72	<u>TRANSIENT THERMAL BEHAVIOUR OF A SUBSTRATE SUBJECTED TO THE ACTIVATION OF AN ELECTRONIC CHIP AND SURFACE COOLING</u> <u>Jean-Gabriel Bauzin, Mehdi Belkacem Cherikh, Ali Hocine, Najib Laraqi</u>	139
ENG-73	<u>INTRODUCTION OF THE INDUCED COUPLED PLASMA (ICP-OES) METHOD FOR THE CHARACTERIZATION OF "GUBER" SREBRENICA MINERAL WATERS</u> <u>Dragica Lazić, Mirko Radić, Dragana Kešelj, Dragana Blagojević, Milenko Smiljanić, Nebojša Vasiljević</u>	140
ENG-74	<u>THE IMPACT OF THE SUSPENSION HEATING RATE ON 13X-ZEOLITE CRYSTALLINITY</u> <u>Mladen Janković, Sava Matić, Vladimir Damjanović, Radislav Filipović, Zoran Obrenović, Mitar Perusic, Dusko Kostic, Nebojsa Vasiljevic</u>	141
ENG-75	<u>PRACTICAL RESULTS REGARDING THE USE OF MUSHROOMS IN DAIRY PRODUCTS</u> <u>Oana-Maria Popa, Ovidiu Tița</u>	142
ENG-76	<u>THE INFLUENCE OF THE FERMENTATION PROCESS ON WHITE CABBAGE BIOACTIVE COMPOUNDS – STUDY OF POLYPHENOLS, L-ASCORBIC ACID AND ORGANIC ACIDS</u> <u>Biljana Cvetković, Bojana Filipčev, Rada Jevtić Mučibabić, Olivera Šimurina, Zvonko Nježić, Dragana Ubiparip Samek, Nebojša Ilić</u>	143
ENG-77	<u>THE EFFECT OF ENCAPSULATION ON THE STABILITY, CHEMICAL COMPOSITION AND BIOLOGICAL POTENTIAL OF ELDERBERRY EXTRACT (SAMBUCUS NIGRA L.)</u> <u>Milena Terzić, Jelena Bajac, Tatjana Majkić, Ivana Beara, Vladimir Filipović, Marija Radojković</u>	144
ENG-78	<u>CHEMICAL COMPOSITION AND ANTIOXIDANT ACTIVITY OF MARIGOLD (TAGETES PATULA L.) AERIAL PARTS ESSENTIAL OIL</u> <u>Nataša Simonović, Ljiljana Stanojević, Zoran Ilić, Jelena Zvezdanović, Dragan Cvetković, Jelena Stanojević</u>	145
ENG-79	<u>COMPARATIVE ANALYSIS OF CHEMICAL COMPOSITION AND ANTIOXIDANT ACTIVITY OF PARSNIP (PASTINACA SATIVA L.) AERIAL PARTS AND ROOT ESSENTIAL OIL</u> <u>Nataša Simonović, Ljiljana Stanojević, Aleksandra Milenković, Jelena Zvezdanović, Dragan Cvetković, Jelena Stanojević</u>	146
ENG-80	<u>KINETICS OF THE CaO-CATALYZED METHANOLYSIS OF OIL BLENDS</u> <u>Milica Z. Petković, Marija R. Miladinović, Ivana B. Banković-Ilić, Olivera S. Stamenković, Vlada B. Veljković</u>	147

ENG-81	<u>THE EFFECT OF THE OIL BLEND COMPOSITION ON THE METHANOLYSIS REACTION RATE</u> <u>Milica Z. Petković, Marija R. Miladinović, Ivana B. Banković-Ilić, Olivera S. Stamenković, Vlada B. Veljković</u>	148
ENG-82	<u>APPROACHES FOR EXTRACTING ADDITIONAL VALUE FROM SLAUGHTERHOUSE BLOOD AS A CO-PRODUCT OF MEAT PROCESSING CHAIN</u> <u>Ivana Drvenica, Vesna Ilić, Branko Bugarski</u>	149
ENG-83	<u>THE PLUM KERNEL OIL METHANOLYSIS IN THE PRESENCE OF THE MENTHOL-BASED DEEP EUTECTIC SOLVENT</u> <u>Milan D. Kostić, Biljana S. Đorđević, Olivera S. Stamenković, Zoran B. Todorović, Vlada B. Veljković</u>	150
ENG-84	<u>OPTIMIZATION OF THE BIODIESEL PRODUCTION FROM PLUM KERNEL OIL OVER CORN COB ASH</u> <u>Milan D. Kostić, Biljana S. Đorđević, Olivera S. Stamenković, Vlada Veljković</u>	151
ENG-85	<u>INFLUENCE OF PROCESS PARAMETERS ON THE EXTRACTION OF PHENOLIC COMPOUNDS FROM BLACK ELDERBERRY FLOWERS (SAMBUCUS NIGRA L.)</u> <u>Nebojša Vasiljević, Vladan Mičić, Duško Kostić, Zdravka Jovanović, Dragica Lazić, Mitar Perušić, Goran Tadić</u>	152
ENG-86	<u>COMPETENCE OF THE DOMESTIC LABORATORY THROUGH INTERLABORATORY TESTING OF NATURAL GAS</u> <u>Mara Jeremić, Anja Pajić, Aleksandra Borković, Pero Dugić</u>	153
ENG-87	<u>EFFECT OF COMBINED NON-THERMAL PLASMA/FENTON TREATMENT ON LIGNOCELLULOSE DEGRADATION IN CORN STALKS</u> <u>Jovana Grbić, Dragana Mladenović, Stefan Pavlović, Đorđe Veljović, Saša Lazović, Aleksandra Đukić-Vuković</u>	154
ENG-88	<u>EFFECT OF NON-THERMAL PLASMA TREATMENT ON ANTIOXIDATIVE AND PREBIOTIC PROPERTIES OF AQUEOUS HERBAL EXTRACTS</u> <u>Jovana Grbić, Mihajlo Bogdanović, Dragana Mladenović, Saša Lazović, Ljiljana Mojović, Aleksandra Đukić-Vuković</u>	155
ENG-89	<u>CHARACTERIZATION OF THYMUS VULGARIS ESSENTIAL OIL FROM VARIOUS LOCAL SUPPLIERS</u> <u>Mina Volić, Nataša Obradović, Ilinka Pećinar, Milena Pantić, Saša Đurović, Branko Bugarski</u>	156
ENG-90	<u>ENCAPSULATION OF PROBIOTIC STARTER CULTURE IN BIOPOLYMER SYSTEMS USING SPRAY-DRYING AND EXTRUSION TECHNIQUES</u> <u>Nataša Obradović, Mina Volić, Viktor Nedović, Marica Rakin, Branko Bugarski</u>	157
ENG-91	<u>EPOXIDATION OF CAMELINA SEED OIL BY IN SITU PERACID MECHANISM</u> <u>Ivana M. Savić Gajić, Ivan M. Savić, Slađana M. Rakita, Aleksandar Došić, Milomirka Obrenović</u>	158
ENG-92	<u>FERMENTATION EFFICIENCY OF INTERMEDIATES AND BY-PRODUCT OF SUGAR BEET PROCESSING</u> <u>Rada Jevtić-Mučibabić, Bojana Bajić, Damjan Vučurović, Siniša Dodić, Lidija Perović, Biljana Cvetković, Nataša Ćurčić</u>	159
ENG-93	<u>IN VITRO ANTIOXIDANT ACTIVITY OF COTTON FABRIC TREATED WITH ETHANOL AND WATER THYMUS SERPYLLUM L. (WILD THYME) EXTRACTS</u> <u>Milena Milošević, Aleksandra A. Jovanović, Petar Batinić, Dragana Grujić, Nataša</u>	160

	<u>Knežević, Aleksandar Marinković, Jovana Milanović</u>	
ENG-94	<u>PHYSICOCHEMICAL CHARACTERISATION OF <i>THYMUS SERPYLLUM</i> EXTRACTS PREPARED USING NATURAL DEEP EUTECTIC SOLVENTS</u> <u>Milena Milošević, Aleksandar Marinković, Petar Batinić, Ivan Đuričković, Aleksandra A. Jovanović</u>	161
ENG-95	<u>EFFECT OF POLKA RASPBERRY EXTRACTS (<i>RUBUS IDAEUS L.</i>) ON CORROSION INHIBITION OF BRONZE</u> <u>Kasapović Dajana, Lejla Klepo, Jelena Ostojic, Korać Fehim</u>	162
ENG-96	<u>THE INFLUENCE OF SELECTED METAL IONS ON THE ADSORPTION OF GLYPHOSATE ON PYROPHYLLITE</u> <u>Samra Pivic, Tina Tolic, Jelena Ostojic, Lejla Klepo, Fehim Korac, Sabina Zero</u>	163
ENG-97	<u>EXPERIMENTAL STUDY OF AIR FLOW CHARACTERISTICS IN PACKED BEDS OF SPHERICAL PARTICLES AT ELEVATED TEMPERATURES</u> <u>Radojica Pešić, Zorana Arsenijević, Nevenka Bošković-Vragolović, Goran Tadić, Tatjana Kaluđerović Radoičić, Branko Bugarski</u>	164
ENG-98	<u>INTEGRATION OF INDUSTRY 4.0 TECHNOLOGIES IN FOOD PROCESSING: A BIBLIOMETRIC ANALYSIS</u> <u>Milan Vukić, Ljubica Vasiljević, Dragan Vujadinović, Vesna Gojković Cvjetković</u>	165
ENG-99	<u>THE IMPORTANCE OF WHEAT CONDITIONING IN THE PRODUCTION OF WHOLE FLOURS</u> <u>Elena-Iulia Lazăr (Bănuță), Ovidiu Tița</u>	166
ENG-100	<u>INVESTIGATION OF THE INFLUENCE OF BIOFUELS ON THE PERFORMANCE OF INTERNAL COMBUSTION ENGINES</u> <u>Milan Eremija, Snežana Petković, Pero Dugić, Aleksandra Borković, Svetko Milutinović</u>	167
ENG-101	<u>THE USE OF OAT FLAKES IN WORT AND BEER PRODUCTION</u> <u>Milana Pribić, Lenka Grubač, Sunčica Kocić-Tanackov, Sandra Bulut, Jelena Pejcin</u>	168
ENG-102	<u>YEAST CONTRIBUTION TO THE VOLATILE PROFILE OF SAUVIGNON BLANC WINE</u> <u>Bojana Danilović, Marko Malićanin, Sandra Stamenković Stojanović, Stojan Mančić, Dragan Cvetković, Ivana Karabegović</u>	169
ENG-103	<u>ANTIMICROBIAL POTENTIAL OF <i>Teucrium montanum L.</i> EXTRACTS</u> <u>Bojana Danilović, Pero Sailović, Darko Bodroža, Božana Odžaković, Ljubica Živković, Sandra Stamenković Stojanović, Ivana Karabegović</u>	170
ENG-104	<u>THERMODYNAMIC PROPERTIES OF BINARY MIXTURES: EXPERIMENTAL AND COMPUTATIONAL METHODOLOGY</u> <u>Milana M Zaric, Ivona R. Radovic, Mirjana Lj Kijevecanin</u>	171
ENG-105	<u>THE EFFECT OF ADDING PLANT PROTEINS ON LIQUID WHOLE EGGS PROPERTIES</u> <u>Majd Elayan, Csaba Németh, Munkhnasan Enkhbold, László Friedrich, Boros Anikó, Adrienn Tóth</u>	172
ENG-106	<u>WASTE TO ENERGY: THE ROLE OF EGGSHELL IN THE PRODUCTION OF BIODIESEL AND PELLETS</u> <u>Gorica R. Ivaniš, Zoran V. Simić, Sofija P. Miškov Panić, Mirjana Lj. Kijevecanin, Ivona R. Radović</u>	173
ENG-107	<u>THE INFLUENCE OF THE pH VALUE OF EXTRACT FROM GRAPE POMACE (<i>Vitis vinifera L.</i>) ON THE COLOR INTENSITY OF PRINTED COTTON FABRICS</u> <u>Branka Ružičić, Dragana Grujić, Blanka Škipina, Aleksandar Savić, Ljiljana Topalić-</u>	174

	<u>Trivunović, Ana Velemir, Sandra Dedijer, Miljana Prica</u>	
ENG-108	<u>VIEW OF INTERACTIONS WITH COHERENT AND INCOHERENT RADIATION FROM THE BIOMEDICAL AND ENGINEERING SIDE, MODELING AND ENGINEERING SOLUTIONS FOR THE SYSTEM, WITH REFERENCE TO THEORETICAL PROBLEMS AND MATERIALS</u> <u>Milesa Srečković, Aleksandar Bugarinović, Zoran Latinović, Svetlana Pelemiš, Mirko Družijanić, Dragan Družijanić, Branka Kaludjerović, Višeslava Rajković</u>	175
ENG-109	<u>THE BLEACHING OF SOYBEAN OIL USING SILICA GEL</u> <u>Zoran Petrović, Jovana Stefanović, Dragana Kešelj, Sabina Begić, Tatjana Botić, Pero Dugić</u>	176
ENG-110	<u>SWEETENERS FOR REFRESHING NON-ALCOHOLIC BEVERAGES</u> <u>Aleksandra Vasić, Dragana Ilić Udovičić, Bojana Kalenjuck Pivarski, Vesna Vujasinović, Jelena Djuričić Milanković, Jelena Jevtić</u>	177
ENG-111	<u>ULTRASOUND-EMERGING TECHNOLOGY FOR VALORIZATION OF PUMPKIN LEAF BIOMASS: IMPACT OF SONICATION PARAMETERS ON PROTEIN RECOVERY, STRUCTURE, FUNCTIONALITIES, AND BIOACTIVITIES</u> <u>Jelena R. Mijalković, Nataša Ž. Šekuljica, Sonja M. Jakovetić Tanasković, Predrag M. Petrović, Bojana D. Balanč, Verica B. Đorđević, Zorica D. Knežević-Jugović</u>	178
ENG-112	<u>EVALUATION OF THE ENERGY POTENTIAL OF BIOMASS AND TEXTILE WASTE FOR REPLACING FOSSIL FUELS IN THE CEMENT INDUSTRY</u> <u>Monika Uler Zefikj, Risto Filkoski, Dame Dimitrovski</u>	179
ENG-113	<u>THE XXI CENTURY: THE AGE OF ZEOLITES</u> <u>Stevan Blagojević</u>	180



ENVIRONMENT

ENV-01	<u>PHENOL REMOVAL FROM SYNTHETIC WASTEWATER BY ELECTRO-FENTON PROCESS</u>	181
	<u>Tijana Đuričić, Borislav N. Malinović, Helena Prosen</u>	
ENV-02	<u>THE PRESENCE OF MICROPLASTICS IN THE ENVIRONMENT, SOURCES OF HUMAN EXPOSURE, AND POTENTIAL HEALTH EFFECTS</u>	182
	<u>Jelena Vuković, Slavko Smiljanić, Milomirka Obrenović, Una Marčeta, Bogdana Vujić</u>	
ENV-03	<u>INFLUENCE OF NOISE ON THE QUALITY OF THE ENVIRONMENT IN NOVI SAD</u>	183
	<u>Branko Savic, Anita Petrovic, Bozo Ilić, Nenad Janjic</u>	
ENV-04	<u>APPLICATION OF GRAPE BIOSTIMULATORS AND THEIR STABILITY UNDER SOLAR LIGHT IN RAINWATER</u>	184
	<u>Sanja Armaković, Maria Savanović, Andrijana Bilić, Mladen Kalajdžić, Jelena Kalajdžić, Dragoslav Ivanišević, Igor Savić, Teodora Gajo, Stevan Armaković</u>	
ENV-05	<u>PLASMA TREATMENT OF POLLUTED WATER</u>	185
	<u>Monica Magureanu, Florin Bilea, Corina Bradu</u>	
ENV-06	<u>UV-FILTERS BENZOPHENONES AS LIGANDS FOR ANDROGEN RECEPTORS-IN SILICO EVALUATION</u>	186
	<u>Maja Milanović, Nataša Milošević, Jovana Drljača, Nataša Milić</u>	
ENV-07	<u>LEAD AS BIOMARKER OF ENVIRONMENTAL POLLUTION AMONG MALE PATIENTS WITH LUNG ADENOCARCINOMA IN VOJVODINA</u>	187
	<u>Nataša Milošević, Danica Sazdanić Velikić, Maja Milanović, Sanja Bijelović, Mirka Lukić Šarkanović, Jovana Drljača, Nataša Milić</u>	
ENV-08	<u>SOURCES OF OUTDOOR POLLUTION AMONG MALE PATIENTS WITH LUNG ADENOCARCINOMA IN VOJVODINA</u>	188
	<u>Nataša Milošević, Danica Sazdanić Velikić, Maja Milanović, Mirjana Ševo, Jovana Drljača, Nataša Milić</u>	
ENV-09	<u>ARE MICRO-/NANOPLASTICS THE NOVEL GLOBAL HEALTH CHALLENGE?</u>	189
	<u>Maja Milanović, Nataša Milošević, Milorad Španović, Jan Sudji, Jovana Drljača, Nataša Milić</u>	
ENV-10	<u>RISK ASSESSMENT OF LEACHATE POLLUTION OF THE WATER RESOURCES IN THE SAVA RIVER BASIN</u>	190
	<u>Nebojša Knežević, Svjetlana Sredić</u>	
ENV-11	<u>PHENOL REMOVAL FROM WASTEWATER USING HORSE RADISH PEROXIDASE IMMOBILIZED ONTO MULTI-WALLED CARBON NANOTUBES VIA GLUTARALDEHYDE</u>	191
	<u>Mirjana Petronijević, Sanja Panić</u>	
ENV-12	<u>IMPROVEMENT OF POTABLE WATER PREPARATION TECHNOLOGICAL PROCESSES AT THE ILIDŽA SPRING PLANT</u>	192
	<u>Nebojša Knežević, Igor Milunović</u>	
ENV-13	<u>CORRELATION BETWEEN ABUNDANCE OF MICROPLASTICS AND CONCENTRATION OF PHTHALATE ESTERS</u>	193
	<u>Nataša Stojić, Ljiljana Čurčić, Dunja Prokić, Mira Pucarević</u>	
ENV-14	<u>ADSORPTION AND DEGRADATION POTENTIAL OF IMIDACLOPRID INSECTICIDE THROUGH CHEMICALLY MODIFIED CELLULOSE MATERIAL</u>	194
	<u>Nataša Knežević, Jovana Bošnjaković, Marija Vuksanović, Katarina Jovanović-Radovanov, Srećko Manasijević, Adela Egelja, Aleksandar Marinković</u>	

ENV-15	<u>OXIDIZED COTTON FABRIC CHEMICAL FUNCTIONALIZED FOR CATIONIC DYES ADSORPTION</u> Jovana Bošnjaković, Ivan Đuričković, Jovana Milanović, Dragana Grujić, Aleksandar Marinković, Srećko Manasijević, Milena Milošević	195
ENV-16	<u>EFFECT OF THE SYNTHETIC ZEOLITE DOSE ON REMOVAL EFFICIENCY OF HEAVY METAL FROM WASTEWATER</u> Slavko Smiljanić, Jelena Vuković, Aleksandar Došić, Zoran Obrenović	196
ENV-17	<u>INVESTIGATION ON THE POSSIBILITY OF USING ACTIVATED CARBON FOR COLOR CORRECTION IN THE TREATMENT OF LEACHATE LOADED WITH HEAVY METALS</u> Slavko Smiljanić, Jelena Vuković, Zoran Obrenović, Aleksandar Došić	197
ENV-18	<u>ENHANCED BIOLOGICAL PHOSPHORUS REMOVAL – BASIC PRINCIPLES AND TECHNOLOGICAL SOLUTIONS</u> Slavko Smiljanić, Sofren Pavlović, Alija Salkunić, Jelena Vuković	198
ENV-19	<u>INVESTIGATION OF THE EFFECT OF CONTACT TIME ON THE SORPTION EFFICIENCY OF HEAVY METALS FROM WASTEWATER BY SYNTHETIC ZEOLITE</u> Slavko Smiljanić, Jelena Vuković, Aleksandar Došić, Zoran Obrenović	199
ENV-20	<u>DETERMINATION OF HEAVY METAL CONTENTS IN STINGING NETTLE FROM DIFFERENT LOCALITIES IN SERBIA</u> Kosana Popović, Mirjana Antonijević Nikolić, Jelena Đuričić Milanković, Dragan Ranković, Bojana Milutinović, Branka Dražić, Slađana Tanasković	200
ENV-21	<u>IMPROVING SOLID WASTE MANAGEMENT AS IMPORTANT STEP TO SUSTAINABILITY: SEPARATION OF WASTE IN HOUSEHOLDS</u> Mirjana Antonijević Nikolić, Jelena Đuričić Milanković, Kosana Popović, Slađana Tanasković	201
ENV-22	<u>POLLUTANT CLASSIFICATION IN THE NORTHEASTERN PART OF PODMAJEVICA</u> Jagoda Krsmanović, Ljubica Vasiljević, Snežana Radulović, Dušanka Cvijanović, Rado Savić	202
ENV-23	<u>MECHANISM AND PARAMETERS OF THE EBPR PROCESS</u> Sofren Pavlović, Slavko Smiljanić, Slađana Petronić	203
ENV-24	<u>CEMENT PRODUCTION INDUSTRY: IMPACT ON AMBIENT AIR QUALITY</u> Jelena Đuričić Milanković, Dragana Đorđević, Kosana Popović	204
ENV-25	<u>ECO-SUSTAINABLE GREEN REMEDIATION: POTENTIAL OF DANDELION (<i>TARAXACUM SP.</i>) IN REMEDIATION OF SOIL CONTAMINATED WITH HEAVY METALS</u> Jelena Đuričić-Milanković, Kosana Popović, Bojan Damjanović, Mirjana Antonijević-Nikolić	205
ENV-26	<u>CENTIPEDES (CHILOPODA) AS BIOINDICATORS OF SOIL POLLUTION</u> Bojan Mitić, Ljubica Vasiljević, Slavica Borković-Mitić	206
ENV-27	<u>PLANT MEDIATED SYNTHETIZED NZVI SUPPORTED ON BIOCHAR IN THE TREATMENT OF DIFFERENT ENVIRONMENTAL MEDIA</u> Dragana Tomašević Pilipović, Nataša Slijepčević, Anita Leovac Maćerak, Đurđa Kerkez, Milena Bečelić-Tomin, Dejan Krčmar, Jelena Beljin	207



MATERIALS

MAT-01	<u>SYNTHESIS OF NOVEL ABA BLOCK POLYESTERS BASED ON RENEWABLE RESOURCES</u> Ivan Ristić, Suzana Cakić, Marija Kostić	208
MAT-02	<u>DEVELOPMENT OF NOVEL POLYURETHANE COATINGS BASED ON POLYOLS OBTAINED BY RECYCLING PET</u> Jelena Tanasić, Marija Kostić, Dragica Bolozanov, Suzana Cakić, Ivan Ristić	209
MAT-03	<u>SYNTHESIS OF POLYURETHANE HYDROGELS</u> Jelena Tanasić, Tamara Erceg, Marija Kostić, Ivan Krakovsky, Ivan Ristić	210
MAT-04	<u>MATERIAL TRANSFER FROM NATURE TO TECHNOLOGY</u> Murat Kaya	211
MAT-05	<u>UTILIZATION OF RED MUD IN CEMENT AND CERAMIC MATERIALS PRODUCTION</u> Snežana Vučetić, Damir Čjepa, Bojan Miljević, Jonjaua Ranogajec	212
MAT-06	<u>THE BENEFICIAL USE OF SYNTHESIZED IRON NANOPARTICLES FROM CITRUS PEEL EXTRACTS FOR RIVER SEDIMENT STABILIZATION</u> Nataša Slijepčević, Dragana Tomašević Pilipović, Dunja Radenović, Emilija Svirčev, Slaven Tenodi, Đurđa Kerkez, Anita Leovac Mačerak	213
MAT-07	<u>SWELLING BEHAVIOR OF Ag/PVA HYDROGEL NANOCOMPOSITES: INFLUENCE OF TEMPERATURE AND SWELLING MEDIUM</u> Nikolina Nikolić, Jelena Spasojević, Ivana Vukoje, Julijana Tadić, Aleksandra Radosavljević	214
MAT-08	<u>CORROSION RESISTANCE OF ALKYD SYSTEMS IN 5% NaCl</u> Milorad Tomić, Marija Mitrović, Danijela Matović, Dragan Tošković, Miomir Pavlović	215
MAT-09	<u>STUDY ABOUT MULTIPOINT PROJECTION WELDING OF ALUMINIZED STEEL PLATES</u> Vladut Oprea, Catalin Ciocoiu, Mihai Vasile, Gabriel Lala, Victor Geanta, Ionelia Voiculescu	216
MAT-10	<u>INFLUENCE OF CURRENT DENSITY ON THE MORPHOLOGY OF HARD CHROME COATINGS</u> Snježana Vučičević, Stana Stanišić, Zorica Ristić, Danijela Matović, Dubravka Banjac, Marija Mitrović, Milorad Tomić	217
MAT-11	<u>ENHANCING THE CORROSION RESISTANCE OF b-TYPE Ti-Nb-Ta-Zr ALLOYS THROUGH CrN PVD COATING: AN IN-VITRO ELECTROCHEMICAL EVALUATION</u> Leila Ait Ali, Naim Aslan, Hakan Yilmazer, Mitsuo Niinomi, Burak Dikici	218
MAT-12	<u>CORROSION RESISTANCE OF BINARY (Ge-Sn, Ge-In, In-Sn) AND TERNARY (Ge-In-Sn) ALLOYS IN 3% NaCl</u> Nemanja Tošković, Milena Premović, Danijela Rajić, Marija Mitrović, Dragan Tošković	219
MAT-13	<u>BIMETALLIC KNIVES FOR BRANCH CHOPPERS</u> Emilia Florina Binchiciu, Ionelia Voiculescu, Victor Geanta, Daniel Tihanov-Tanasache	220
MAT-14	<u>EXPERIMENTAL DETERMINATION AND NUMERICAL VALIDATION OF THE CRITICAL VALUE OF THE J-INTEGRAL OF A LOW CARBON MICROALLOYED STEEL FOR ELEVATED TEMPERATURE APPLICATION</u> Bojana Zečević, Ana Maksimović, Ljubica Milović, Vujadin Aleksić, Srđan Bulatović	221

MAT-15	<u>RADIOLOGICAL CHARACTERISATION OF RED MUD AS POTENTIAL CONSTRUCTION MATERIAL</u>	222
	<u>Srđan Vuković, Jovana Nikolov, Nataša Todorović, Andrej Vraničar, Zoran Obrenović, Svetlana Pelemiš</u>	
MAT-16	<u>DEVELOPMENT OF PEROVSKITE BIOPOLYMERIC FILM WITH PHOTOLUMINESCENT PROPERTIES</u>	223
	<u>Hariana Farfán Benavides, Karol Roa Bohóquez, Raúl Sanchez</u>	
MAT-17	<u>INVESTIGATION OF CORROSION BEHAVIOR BY ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY OF Al ALLOYS IN Al-Mg SYSTEMS</u>	224
	<u>Jelena Šćepanović, Dragan Radonjić, Darko Vuksanović, Marijana Pantović Pavlović, Miroslav Pavlović</u>	
MAT-18	<u>MIGRATION OF CARVACROL AND THYMOL FROM BIOPOLYMER ACTIVE FILMS INTO DIFFERENT MODEL SOLUTIONS</u>	225
	<u>Sandra Bulut, Vanja Travičić, Nevena Hromiš, Senka Popović, Danijela Šuput, Jasmina Vitas, Radomir Malbaša, Lato Pezo, Sunčica Kocić-Tanackov, Vera Lazić</u>	
MAT-19	<u>APPLICATIONS OF SILICA GELS</u>	226
	<u>Victoria Custodis, Ana Stojanovic, Heinz Döteberg</u>	
MAT-20	<u>SILICA GELS SYNTHESIS</u>	227
	<u>Ana Stojanovic, Victoria Custodis</u>	



OTHER AREAS

OTH-01	<u>TECHNOLOGIES OF MAKING SMART HOUSES</u> <u>Božo Ilić, Branko Savic</u>	228
OTH-02	<u>FOOD REGULATIONS</u> <u>Senad Krivdić, Dragan Vujadinović, Vesna Gojković Cvjetković</u>	229
OTH-03	<u>REGIONAL TRENDS AND ASPECTS OF ELECTRICITY GENERATION FROM RENEWABLE SOURCES</u> <u>Mitar Perušić, Radislav Filipović, Zoran Obrenovic, Vladimir Damjanović, Goran Tadic, Dario Balaban, Duško Kostić</u>	230
OTH-04	<u>HYPERAUTOMATION - NEW TREND IN INDUSTRY DEVELOPMENT</u> <u>Stanko Stankov</u>	231
OTH-05	<u>INDUSTRY 5.0 - DEVELOPMENT AND PERSPECTIVES</u> <u>Stanko Stankov</u>	232



AUTHOR INDEX

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PARAMETRIC PROGRAMS FOR 3D MODELING IN THE FUNCTION OF NDT AND DETERMINING LIFE OF PRESSURE VESSELS

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Abstract

Preparation for non-destructive testing (NDT), preparation of test reports, and control calculation of a pressure vessel using the finite element method (FEM), with or without identified irregularities, requires the use of commercial parametric modeling programs. 3D modeling programs enable the determination of the most critical part of the pressure vessel construction as well as the modeling of irregularities after the tests that occurred during the construction, calculation, and exploitation of the pressure vessel construction itself.

Irregularities are reflected in the form of improperly performed welded joints, cracks, corrosion, erosion or cavitation of materials, and are used for the preparation of test reports and control calculations of the pressure vessels construction with and/or without identified irregularities and defects, with the aim of making the correct decision on continued exploitation of the pressure vessel construction or its degree of repair.

The possibility of an unlimited number of views, as well as the possibility of an unlimited number of sections of the entire pressure vessel structure or its part, releases us from creating complicated 2D sketches for the purpose of NDT or control calculation of the pressure vessel FEM structure.

In connection with other computer programs or for the calculation of FEM (fracture mechanics, fatigue), pressure vessel models made in 3D, enable the preparation of a quality test report with the defined traceability and repeatability required by the SRPS ISO/IEC 17025 standard, as well as the making of the correct decision on the exploitation and service life of the structure pressure vessel.

Key words: *NDT, pressure vessels, FEM, parametric modeling, 3D model*