STEFAN CEL MARE UNIVERSITY of SUCEAVA, ROMANIA FACULTY of MECHANICAL ENGINEERING, MECHATRONICS AND MANAGEMENT DEPARTMENT OF MECHANICS AND TECHNOLOGIES

TEHNOMUS

NEW TECHNOLOGIES AND PRODUCTS IN MACHINE MANUFACTURING TECHNOLOGIES

Journal



Copyright ©Department of Mechanics and Technologies FACULTY of MECHANICAL ENGINEERING, MECHATRONICS AND MANAGEMENT ŞTEFAN CEL MARE UNIVERSITY of SUCEAVA, ROMANIA



Editura Universității Ștefan cel Mare din Suceava

Str. Universității nr.13, 720229, Suceava, Romania Telefon: 0230-216147 int. 273

Editura este acreditată de Consiliul Național al Cercetării Științifice din Învățământul superior – CNCSIS COD 115

EDITORIAL BOARD / SCIENTIFIC COMMITTEE

EDITORIAL BOARD

Editor in chief: Romeo IONESCU

General secretary editor: Constantin DULUCHEANU

Secretary editor and web responsible: Traian Lucian SEVERIN, Petru BULAI, Sergiu SPÎNU

Editors: Romeo IONESCU, Lucian SEVERIN

SCIENTIFIC COMMITTEE

Dumitru AMARANDEI, Ștefan cel Mare University of Suceava, Romania

Ioan BAICU, Dunărea de Jos University of Galați, Romania

Nicolai BĂNCESCU, Ștefan cel Mare University of Suceava, Romania

Valentin DITU, Transilvania University of Braşov, Romania

Romeo IONESCU, Ștefan cel Mare University of Suceava, Romania

Sergiu MAZURU, Technical University of Chisinau, Republic of Moldova

Dirck Merckx, Catholic University College of Ghent, Belgium

Costel MIRONEASA, Ștefan cel Mare University of Suceava, Romania

Viorel PĂUNOIU, Dunarea de Jos University of Galati, Faculty of Mechanics, Romania

Mario Antonio RAMALHO, Technical University of Lisbon, Portugal,

Eberhard ROSS, University of Applied Sciences, Augsburg, Germany

Ilias SARAFIS, Technological Educational Institute of Kavala, Greece

Lucian SEVERIN, Ștefan cel Mare University of Suceava, Romania

Laurențiu SLĂTINEANU, Gheorghe Asachi Technical University of Iasi, Romania,

Ionel STAREŢU, Transilvania University of Brasov, Romania

Eugen STRĂJESCU, University POLITEHNICA of Bucharest, Romania

Valery WOLFF, University of Lyon 1, France

Author instructions

The full-length paper for publication should not be less than four pages and not more than eight, in English. Please follow the conference format. A maximum of two papers are accepted, by either a main author or a unique author. Prospective authors are kindly invited to submit full text papers including results, tables, figures and references. Full text papers will be accepted by email tehnomus@fim.usv.ro. The Organizing Committee can accept only *.doc or *docx format.

All the papers will be evaluated by two reviewers. Selected papers will be published in the TEHNOMUS Journal *New Technologies and Products in Machine Manufacturing Technologies*.

Web address http://www.tehnomusjournal.fim.usv.ro

Contact:

Faculty of Mechanical Engineering, Mechatronics and Management Department of Mechanics and Technologies Stefan cel Mare University of Suceava Str. Universitătii nr. 13, Corp B,

720229 SUCEAVA, ROMANIA Phone: (+40) 230 216147 int. 260 E-mail: tehnomus@fim.usv.ro

Journal web site: www.tehnomusjournal.fim.usv.ro

Faculty web site: www.fim.usv.ro University web site: www.usv.ro

THE 17th INTERNATIONAL CONFERENCE



NEW TECHNOLOGIES AND PRODUCTS IN MACHINE MANUFACTURING TECHNOLOGIES



The articles in this journal have been selected by the Scientific Committee from those presented at

The 17th International Conference TEHNOMUS

New Technologies and Products in Machines Manufacturing Technologies,

Organized by:

Department of Mechanics and Technologies
Faculty of Mechanical Engineering, Mechatronics and Management
"Stefan cel Mare" University of SUCEAVA

with the assistance of:

The National Authority for Scientific Research Bucharest – ANCS Asociația TEHNOMUS Suceava S.C. SIDEM S.R.L

17 - 18, May 2013, Suceava, ROMANIA

INTERNATIONAL SCIENTIFIC COMMITTEE

António Gonçalves Coelho, Portugal Akhloufi Moulay, Canada Amarandei Dumitru, Romania Baciu Constantin, Romania Baicu Ioan, Romania Berthier Yves, France Brabie Gheorghe, Romania Cartofeanu Vasile, Rep. Moldova Certan Valeriu, Rep. Moldova Ditu Valentin, Romania Frick Achim, Germany Fetecău Cătălin, Romania Georgescu Lucian, Romania Henry Sebastien, France Houidi Ajmi, Tunisia Ionescu Nicolaie, Romania Ionescu Romeo, Romania Javorova Juliana, Bulgary Jobst Gorne, Germany Jos Vander Sloten, Belgium Kifor Claudiu, Romania

Mazuru Sergiu, Rep. Moldova

Merckx Dirk, Belgium Militaru Constantin, Romania Mishev Georgi, Bulgary Muscă Gavril, Romania Nagîţ Gheorghe, Romania Nedelcu Dumitru, Romania Oprisan Cezar, Romania Păunoiu Viorel, Romania Ramalho Mario, Portugal Sarafis Ilias, Greece Schnakovszky Carol, Romania Seghedin Nicolae, Romania Sehaqui Rachid, Morocco Severin Lucian, Romania Slatineanu Laurențiu, Romania Staretu Ionel, Romania Strajescu Eugen, Romania Tierean Mircea Horia, Romania Velicu Ştefan, Romania Vida-Simiti Ioan, Romania Wolff Valery, France





Lifelong Learning Programme

European Project: TOM - Technical Office Management 510558-LLP-1-2010-1-BE-ERASMUS-ECDSP

- ➤ Interdisciplinary Bachelor degree mechanics and business
- > Training in technical and mechanical as well as commercial and management skills
- ➤ 180 credits of which a minimum of 30 credits will be interchangeable (USV Suceava: 240 ECTS)
- ➤ 30 credits will be organized in English, French and/or German
- A mandatory abroad semester by 'virtual' or real-life exchange mobility
- Complete new training; national application in 2012-2013











The project parteners:

- Katholieke Hogeschool Sint-Lieven, Gent, Belgium, cordinator,
- Hochschule Aalen, Hochschule für Technik und Wirtschaft, Aalen, Germany,
- Université Claude Bernard Lyon 1, France,
- University of East London, United Kingdom,
- "Stefan cel Mare", University, Suceava, Romania,
- Fachhochschule Joanneum Gesellschaft mbH, Graz, Austria
- The goal of the project is **not to create five clones** of one training;
- All partners will fill in aspects of the training according to their **own specific strengths**. By using the mobility system, students will choose their own course path and final specialization.
- According to the number of credits, the level and domain have priority over content

Interdisciplinary training with following major components, skills and competences:

- **Technology**
- Communication

Languages

Informatics

Economics and management

Lean

Logistics

One practical semester included

CONTENT:

1.	USING ACTIVE MAGNETIC BEARINGS FOR HIGH SPEED	13
	MACHINING – CONDITIONS AND BENEFITS Jobst Görne	
•		21
4.	PERFORMANCES OF MULTI-FLUTE DRILLS COMPARED TO	21
	STANDARD DRILLS Nieusen Peneir, Dunitus Amenendei Cristian Cusitans	
•	Nicuşor Baroiu, Dumitru Amarandei, Cristian Croitoru	20
3.	MOLTEN METAL PHASE DURATION EFFECT ON THE STRUCTURE	29
	AND HARDNESS OF HIGH-CARBON FUSED COATING	
	V.I. Savulyak, V.Y. Shenfeld, O.V. Postupailo, A.B. Yanchenko	2.4
4.	IDENTIFICATION OF IMPROVEMENT WAYS OF ESTIMATION	34
	METHOD FOR NOMENCLATURE AND QUANTITY OF SPARE PARTS	
_	Poliakov A.P., Antonyuk O.P., Ratsyborynskiy V.V.	20
5.	DESIGN OPTIMIZATION OF THE FLOW RATE REGULATOR FOR	39
	AXIAL-PLUNGER LS PUMP USING LP SEARCH METHOD	
_	Y. Burennikov	
6.	THE ANALYSIS OF METHODS AND THE EQUIPMENT FOR	44
	CLEARING OF THE DAMP DISPERSE WASTE OF FOOD	
	PRODUCTIONS	
	I. Sevostyanov	
7.	A MOTORIZED GRAVITY COMPENSATION MECHANISM USED FOR	50
	THE NECK OF A SOCIAL ROBOT	
	Florentina Adascalitei, Ioan Doroftei, Ovidiu Crivoi, Bram Vanderborght, Dirk	
	Lefeber	
8.	THE STRUCTURAL CHANGES TO A ZrO2 COATING DUE TO	58
	CYCLING THERMAL STRESSES	
	Crîşmaru Ionuț Vasile, Pintilei Geanina Laura, Papatoiu Biniuc Carmen, Imbrea	
	Marius, Iacob Strugariu Sorin Claudiu, Munteanu Corneliu	
9.	AN ANALYSIS OF THE RESTRAINT FORCE IN DEEP DRAWING OF	64
	THE RECTANGULAR PARTS	
	Paunoiu Viorel	
10.	ABOUT THE NON-IDENTITY OF THE TECHNOLOGICAL IMPACT	70
	UPON ITS REPEAT REALIZATION IN THE CASE OF SURFACE	
	PLASTIC DEFORMATION (SPD)	
	Veselin Ivanov Grigorov	
11.	MODAL ANALYSIS OF THE SPREADER BOOM AS A SYSTEM OF	74
	ARTICULATED TIMOSHENKO BEAMS	
	Leonid Polishchuk, Yevhen Kharchenko, Jerzy Jaroszewicz	
12.	SURFACE AND PHYSICAL PROPERTIES OF POLY (4-	79
	VINYLPYRRIDINE) / BARIUM TITANATE NANOCOMPOSITES	
	Razvan Florin Barzic, Iuliana Stoica, Andreea Irina Barzic, Gheorghe Dumitrascu	
13.	STUDY OF TRIPLE-LAYER DEPOSITION OF TiC/WC/Ti HARD-	84
	PEARLITIC FERRITE CAST IRON OBTAINED BY ELECTRO-SPARK	
	DEPOSITION	
	Perju Manuela-Cristina, Nejneru Carmen, Axinte Mihai	
14.	CONNECTION BETWEEN VIBRATION AND NOISE SIGNALS IN	88
•	CONDITION MONITORING SYSTEMS INVESTIGATION	
	Zapciu Miron, Străjescu Eugen, Paraschiv Marius	
15.	CALCULATION OF THE OPTIMUM TOOL LIFE ANDCUTTING	92
	SPEED FOR MAXIMUM PRODUCTIVITY AT DRILLING OF THE	
	STAINLESS STEEL X2CrNiMo18-14-3	

	Vlase Aurelian, Blăjină Ovidiu, Darie Vlad	
16.	FLAT SURFACES TO OBTAIN HIGH QUALITY PRODUCTS	96
	Constantinescu Stela	
17.	ELEMENTS OF SYNTHESIS, ANALYSIS, DESIGN, SIMULATION OF A	101
	MOBILE TELETHESIS	
	Ionel Staretu	
18.	THE INFLUENCE OF LOCATION AND STIFFNESS OF SUPPORTS ON	107
	THE CHARACTERISTICS OF SPATIAL OSCILLATIONS OF THE BUS	
	POWERTRAIN	
	Yevhen Kharchenko, Volodymyr Palyukh	
19.	MECHANICAL AND STRUCTURAL CHARACTERISTICS OF p(HEMA)	112
	HYDROGEL FOR LUMBAR DISC PROSTHESIS	
	Iuliana Rotaru, Bogdan Istrate, Marcelin Benchea, Ana Tufescu, Dumitru Olaru	
20.	DIGITAL PD CONTROLLER WITH DYNAMIC CORRECTION OF THE	120
	DIFFERENTIAL COMPONENT COEFFICIENT FOR A	
	MECHATRONIC HYDRAULIC SYSTEM	
	L. Kozlov	
21.	IN SITU SYNTHESIS OF ALN IN AL-MG ALLOYS BY RGI	125
	Raluca Maria Florea, Oana Bălțătescu, Iulia Florea, Ildiko Peter, Ioan Carcea	
22.	NUMERICAL ANALYSIS OF NANOFLUIDS USED IN HEAT	131
	EXCHANGERS APPLICATIONS	
	Alina Adriana Minea	
23.	DISTRIBUTION OF ACCUMULATION PARTICLES IN THE URBAN	139
	ATMOSPHERE	
	Tamara Radu, Anișoara Ciocan, Lucica Balint	
24.	ABOUT ECOLOGICAL SOLUTIONS AND TECHNOLOGIES USED ON	145
	CONSTRUCTION SITE	
	Carmen Debeleac	
25.	RESEARCH OF THE TRIBOLOGICAL CHARACTERISTICS OF THE	149
	COATINGS OVER 100Cr6 STEEL	
	Stefan Dishliev	
26.	LASER CUTTING OF THIN PARTS	153
	Laurențiu Slătineanu, Margareta Coteata, Lorelei Gherman, Giorgiana Donac,	
	Marius Rîpanu	
27.	THE WEAR RESISTANCE OF DIFFERENT COATINGS USED FOR	159
	CAMSHAFT IMPROVEMENTS IN EHD LUBRICATION CONDITIONS	
	Băsescu Gică Narcis, Crîşmaru Ionuț Vasile, Marian Vasile Lozneanu, Bărbînță	
	Andreea Carmen, Paulin Constantin, Munteanu Corneliu	
28.	APPLICATIONS OF NEUTRON ACTIVATION ANALYSIS TECHNIQUE	165
	IN ELEMENT DETERMINATION AT TRACE LEVEL	
	Antoaneta Ene, Marina V. Frontasyeva	
29.	STUDY OF ALUMINIUM BRONZE, MARK CuAl9Mn2	172
	Achiței Dragoș-Cristian, Vizureanu Petrică, Dană Dragoș-Ionuț, Minciună	
	Mirabela-Georgiana, Grancea Viorel	
30.	THE SPRINGBACK ANALYSE ON SHEET ALUMINUM V BENDING	178
	USING AN SYSTEMIC ANALYSIS ON BENDING OPERATION	
	Mihalache Ștefan, Nagîţ Gheorghe, Chiorescu Dan	
31.	SOFTWARE CALIBRATION OF THE SENSORS FOR ACQUISITION	185
	BOARD SYSTEMS BY USING A MATHEMATICAL MODEL	
	Nistor Nicusor, Constantin Gheorghies	
32.	IMPROVEMENT OF STRENGTHENING AND REPAIR OF FRAME	189
	STRUCTURES WELDING METHODS	
	V.I. Savulyak, S.A. Zabolotniy, D.V. Bakalets	

33.	X-RAY BASED TECHNIQUES USED IN MATERIALS ANALYSIS AND CONTROL	193
34.	Antoaneta Ene, Constantin Gheorghies, Marina V. Frontasyeva THE IMPACT OF TECHNOLOGICAL ACTIVITIES CONDUCTED AT UAF MITTAL ON THE ENVIRONMENT	197
35.	Constantinescu Stela, Orac Lucica RESEARCH ON STRESS AND DEFORMATION STATE IN PLASTICAL BENDING WITH STRETCHING	203
36.	Lucian V. Severin, Traian Lucian Severin ANALISYS AND OPTIMIZATION OF A T-SHAPED HYDROFORMING DIE BASED ON ITS CONNECTION RADIUS	209
37.	Vaceanu Bogdan Constantin, Gheorghe Nagit, Huian Vasile THERMAL ASPECTS OF THE SCUFFING MECHANISM IN ROLLING CONTACTS	215
38.	Bujoreanu Carmen, Chicet Daniela NEW INSIGHTS CORRELATING ABSORPTION EDGE WITH MORPHOLOGICAL FEATURES OF SOME SEMI-ALICYCLIC	221
39.	POLYIMIDES Razvan Florin Barzic, Iuliana Stoica, Andreea Irina Barzic, Camelia Hulubei TECHNOLOGIES FOR PRECESSIONAL PLANETARY TRANSMISSIONIS TROUBLES CENTRAL TION.	226
40.	TRANSMISSIONS TOOTHING GENERATION Ion Bostan, Sergiu Mazuru, Sergiu Scaticailov SPINDLE ON THE CONICAL GAS SUSPENSION THEIR DESIGN AND DESEARCH PERFORMANCE	234
41.	RESEARCH PERFORMANCE I.V. Fedotova, V.I. Savulyak INFLUENCE OF RELATIVE SPEED DRAWING ON THE MECHANICAL CHARACTERISTICS ULTRASONIC METAL WIRE	240
42.	DRAWING Susan Mihai, Bălănescu (Prisacaru) Dănuţa Mihaela, Cristodulo Oreste TOOLS WITH INTERRUPTED OR UNINTERRUPTED ACTION IN PROCESSING OF HOLES THROUGH (SPD) BY SCHEME WITH	246
43.	RADIAL FEED Veselin Ivanov Grigorov RESEARCH ON HIGH ENTROPY ALLOYS	250
	Iulia Florea, Raluca Maria Florea, Oana Bălțătescu, Roman Costel, Ioan Carcea PROVISION OF REQUIRED VISCOSITY INDEX FOR BIPROPELLANT FUEL	254
45.	A. P. Poliakov, O. O. Galushchak, D. O. Galushchak PASIVE SUSPENSION MODELING USING MATLAB, QUARTER CAR MODEL, IMPUT SIGNAL STEP TYPE	258
46.	Andronic Florin, Manolache-Rusu Ioan-Cozmin, Pătuleanu Liliana RESEARCH STUDY OF HARDNESS VALUES OBTAINED WITH DYNAMIC HARDNESS TESTER PROTOTYPE DD01 Severin Traian-Lucian, Băncescu Nicolai, Dulucheanu Constantin, Severin	264
47.	Lucian EVALUATION OF TERMO-GAS DYNAMIC PARAMETERS FOR ENGINE BRAKE PROCESS	270
48.	Manolache-Rusu Ioan-Cozmin, Pătuleanu Liliana, Andronic Florin, Radion Ivan CORROSION BEHAVIOR OF TINNED BRASS Tamara Radu, Anișoara Ciocan, Lucica Balint, Simion Balint	275
49.	THE ADHERENCE OF A ZrO2/20% Y2O3 CERAMIC COATING ON A Ni BASE SUPER ALLOY FOR TURBINE BLADES APPLICATION Crîşmaru Ionuţ Vasile, Pintilei Geanina Laura, Marian Vasile Lozneanu, Paulin	280

	Constantin, Papatoiu Biniuc Carmen, Munteanu Corneliu	
50.	PRACTICAL ASPECTS OF SECURITY LEVEL ASSESSMENT WORK	286
	FOR GAS TRANSPORT AND DISTRIBUTION NETWORKS	
	Andrei Aciobanitei, Constantin Militaru, Nancy M Khassawneh, Crinel Vladoi	
51	STUDY REGARDING THE ECONOMIC OPTIMIZATION OF THE	292
J1.	TOOL LIFE AND THE CUTTING SPEED AT DRILLING OF THE	272
	STAINLESS STEEL X2CrNiMo18-14-3	
	Blăjină Ovidiu, Vlase Aurelian, Darie Vlad	
53		207
54.		297
	WELDING PROCESS USING ELEMENT MOVEMENT TECHNIQUES	
5 2	Birsan Dan Catalin, Mircea Octavian	201
53.	ON THE DESIGN OF AN ANTHROPOMORPHIC EYE SYSTEM USED	301
	IN THE NEW VERSION OF THE SOCIAL ROBOT PROBO	
	Florentina Adascalitei, Ioan Doroftei, Ovidiu Crivoi, Bram Vanderborght, Dirk	
	Lefeber	
54.	RESEARCHES ON THE INFLUENCE OF ELECTRICAL PARAMETERS	309
	OF CIRCUIT ON DEPTH OF DRAWING OF CIRCULAR PARTS	
	THROUGH ELECTRO-HYDRAULIC PROCESS	
	Dumitru Iacob, Radu Mihai Iacob	
55.	SHAPE MEMORY ALLOYS COMPOSITE BISTABLES ACTUATORS	316
	Alexandru Enache, Mihai Axinte	
56.	ENHANCING THE WEAR RESISTANCE OF CAM SURFACES BY A	319
	40CR130 COATING DEPOSITED IN ELECTRIC ARC	
	Băsescu Gică Narcis, Crîșmaru Ionuț Vasile, Imbrea Marius, Bărbînță Andreea	
	Carmen, Iacob Strugaru Sorin Claudiu, Munteanu Corneliu	
57.	MEASUREMENT AND EVALUATION OF ACOUSTIC MARINE	325
	POLLUTION	
	M. Arsene, V. Popovici, M. Marinescu, L. Butu, Delicia Arsene, C. Borda	
58.	METHODOLOGY FOR CONSTRUCTING THE GEAR COUPLE OF A	330
	GEROLLER NON-SEPARATOR HYDRAULIC MACHINE	
	Stanislav Aleksiev, Nikola Nachev	
59.	COMPUTER AIDED FOR STEEL MANUFACTURING IN EAF	334
	Adrian Ioana	
60.	A SURVEY ON UNMANNED AERIAL VEHICLES BASED ON COANDA	338
	EFFECT	
	Ovidiu Crivoi, Ioan Doroftei, Florentina Adascalitei	
61.	DEVICES FOR INTERNAL CONICAL SURFACES MEASUREMENTS	345
	Alexandru Potorac, Dorel Prodan, Florina Ciornei	
62.	STUDENTS' CONTRIBUTION TO THE IMPROVEMENT OF	349
	TEACHING METHODS	
	Grigorie Paraschiva, Stefanescu Mariana, Grigorie Catalin	
63.	HEAT TRANSFER THROUGH THE COMPONENTS OF CPU'S HEAT	358
	SINK	
	Pătuleanu Liliana, Manolache-Rusu Ioan-Cozmin, Andronic Florin, Radion Ivan	
64.	MONITORING AND CONTROL TECHNIQUES OF THE	364
	INSTALLATIONS ON SMART FACTORY	
	Birsan Dan Catalin, Florin Ioan, Mircea Octavian	
65	EFFECT OF EXHAUST VALVE TIMING AND BOOST PRESSURE ON	369
00.	ENGINE BRAKE PERFORMANCE	20)
	Manolache-Rusu Ioan-Cozmin Severin Iraian Lucian Patuleanu Luliana	
	Manolache-Rusu Ioan-Cozmin, Severin Traian Lucian, Pătuleanu Liliana,	
66	Andronic Florin	375
66.		375

67.	HEAT TRANSFER IN THE COOLER - CPU INTERFACE	379
	Pătuleanu Liliana, Andronic Florin, Manolache-Rusu Ioan-Cozmin, Radion Ivan	
68.	PROPOSED WORKFLOW FOR OBTAINING A 3D SOLID MODEL OUT	385
	OF POINTS CLOUDS FOR A CONNECTING ROD	
	Mihalache Marius-Andrei, Nagit Gheorghe, Ripanu Marius-Ionut	
69.	PLASMA DISCHARGE VARIATIONS USING A POLARIZED SCREEN	392
	UNDER A FLOATING POTENTIAL	
	Axinte Mihai, Nejneru Carmen, Perju Manuela Cristina, Hopulele Ion	
70.	EXPERIMENTAL SET-UP FOR THE STUDY OF SPEED EFFECT ON	397
	THE OCCURENCE OF SCUFFING	
	Fomin Michaela Vasilache, Muscă Ilie	
71.	CONSIDERATIONS REGARDING THE FUNCTIONALITY OF THE	403
	CHUCK COLLETS	
	Rata Vasile, Severin Traian Lucian	
72.	CONCEPTUAL DESIGN: THE SOURCE OF INSPIRATION IN	407
	SPECIFIC DESIGN	
	Plesa Ioan	
73.	MECHATRONIC PLATFORMS FOR INTEGRAL EDUCATION	411
	Liliana Dache	
74.	A SHORT OVERVIEW ABOUT STABILIZED ALUMINIUM FOAMS	416
	Oana Bălțătescu, Costel Roman, Ioan Rusu, Ioan Carcea	
75.	ELEMENTS OF THE EAF'S ENVIRONMENTAL MANAGEMENT	421
	Adrian Ioana	
76.	THE EVOLUTION OF SCIENTIFIC INTERPRETATION OF TERM	425
	"RESOURCE"	
	D.A Bochkaryov, E.I.Bochkaryova	
77.	DECIPHERING AN EXISTING DESIGN GEROTOR HYDRAULIC	430
	GEAR PAIR	
	Stanislav Aleksiev, Nikola Nachev, Emil Velev	
78.	INFLUENCE OF THE LUBRICATION ON FRICTION IN MICROBALL	434
	BEARINGS	
	Mihaela Rodica Bălan, Liviu Balan, Vasile Ciprian Stamate, Alina-Corina	
	Dumitrașcu , Dumitru Olaru	
79.	MAGNETO-ABRASIVE MATERIALS AND METHODS FOR	439
	OBTAINING THEM	
	Băeșu Marius-Daniel, Ciobanu Mircea	
80.	RESEARCH ON THE PHYSICAL STRUCTURE OF THE CUTTING	447
	FORCES DURING HIGH-SPEED MACHINING OF HARDENED STEEL	
	SAE 8620 (21NICRMO2)	
	Dumitru Amarandei, Stelian Alaci, Irina Beşliu	