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# Conference Program

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## VAREHD 16

**International Conference on EHD Lubrication and Traction**

October 25-27, 2012, Suceava, ROMANIA

**Organized by**

**Department of Mechanics and Technologies**

**Faculty of Mechanical Engineering, Mechatronics and Management**

**Stefan cel Mare University of Suceava**

**Sponsored by**

**S.C. CAOM S.A. PASCANI**

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## International Scientific Committee

Prof. Nicolae Napoleon ANTONESCU, Petroleum - Gas University of Ploiesti, **ROMANIA**

Dr. Benyebka BOU-SAID, INSA de Lyon, **FRANCE**

Prof. Traian CICONE, Polytechnic University of Bucharest, **ROMANIA**

Prof. Spiridon CRETU, Technical University of Iasi, **ROMANIA**

Prof. Lorena DELEANU, University of Galati, **ROMANIA**

Prof. Valeriu DULGHERU, Technical University of Moldova, **R. of MOLDOVA**

Prof. Gheorghe FRUNZA, University of Suceava, **ROMANIA**

Prof. Marilena GLOVNEA, University of Suceava, **ROMANIA**

Dr. Romeo GLOVNEA, University of Sussex, **UNITED KINGDOM**

Prof. Ilie MUSCĂ, University of Suceava, **ROMANIA**

Prof. Daniel NÉLIAS, INSA de Lyon, **FRANCE**

Prof. Dumitru OLARU, Technical University of Iasi, **ROMANIA**

Prof. Mircea PASCOVICI, Polytechnic University of Bucharest, **ROMANIA**

Prof. Dumitru POP, Technical University of Cluj-Napoca, **ROMANIA**

Prof. Minodora RÎPĂ, University of Galati, **ROMANIA**

Prof. Andrei TUDOR, Polytechnic University of Bucharest, **ROMANIA**



<b>Wednesday - October 24, 2012</b>		
16:00 – 20:00	<b>Early Registration to VarEHD 16</b>	B214 Room, Building B
<b>Thursday - October 25, 2012</b>		
09:00 – 10:00	<b>Registration to VarEHD 16</b>	Aula, Building E
10:00 – 11:00	<b>Opening Ceremony, Welcome Addresses and commemoration of Prof. Emanuel DIACONESCU</b>	Aula, Building E
11:00 – 11:15	<b>Coffee Break</b>	E006, Building E
11:15 – 13:00	<b>Plenary Session</b>	Aula, Building E
	<b>ON THE HYDRODYNAMIC CONTACT BEHAVIOR USING THE HOMOGENIZED METHOD: EFFECTS OF SURFACE ROUGHNESS AND LUBRICANT RHEOLOGY</b> <i>by Benyebka BOU-SAID, Ahcene MOUASSA, and Mustapha LAHMAR</i>	
	<b>ROLLING FRICTION IN BALL-RACE LUBRICATED CONTACTS</b> <i>by Dumitru OLARU, Mihaela Rodica BALAN, and Vasile Ciprian STAMATE</i>	
	<b>THE MARAGONI EFFECT AND THE ADHESION FOR ELECTRONIC INTERCONNECT STRUCTURES OBTAINED BY VAPOR PHASE SOLDERING</b> <i>by Andrei TUDOR, and Georgiana Dumitru</i>	
	<b>INFLUENCE OF THE FEED SPEED ON THE SURFACE QUALITY FOR GRANITE AND MARBLE</b> <i>by Lorena DELEANU, Andrei MIHEREA, Mihai BOTAN, and Constantin GEORGESCU</i>	
13:00 – 14:00	<b>Lunch Break</b>	University Restaurant



14:00 – 16:45	<b>Sections 1, 3</b>	Aula, Building E
	<b>Sections 2, 4, 5</b>	Senate Hall, Building E
16:45 – 17:00	<b>Coffee Break</b>	E006, Building E
17:00 – 18:30	<b>Sections 1, 3</b> (continued)	Aula, Building E
	<b>Sections 2, 4, 5</b> (continued)	Senate Hall, Building E
18:30 – 18:45	<b>Closing Session</b>	Aula, Building E
19:00 – 21:00	<b>Gala Dinner</b>	Bradet Restaurant
<b>Friday - October 26, 2012</b>		
<b>Trip to Salina Cacica and monasteries:</b> Departure: 09:00 Building B Parking. Estimated duration: 7-8 hours.		



## **Section 1. Contact Mechanics**

**Chairmen: Prof. Dumitru OLARU and Dr. Gabriel POPESCU**

- 1. THEORETICAL AND EXPERIMENTAL EVALUATION OF RESIDUAL STRESSES IN CASE-HARDENED AND THROUGH-HARDENED BEARING STEELS** *by Gabriel POPESCU*
- 2. THE INFLUENCE OF OPERATING TEMPERATURE IN THREE-DIMENSIONAL ELASTIC-PLASTIC ROLLING CONTACTS** *by Gabriel POPESCU*
- 3. LOCAL SCUFFING IN LUBRICATED ROLLER CONTACTS** *by Liviu BALAN, Ana TUFESCU, Marcelin BENCHEA, Dumitru OLARU, and Spiridon CRETU*
- 4. CONSIDERATIONS UPON HYPERELASTIC CONTACTS MODELING BY AID OF FEM** *by Ionut Cristian ROMANU, and Ilie MUSCA*
- 5. PRELIMINARY RESULTS ON HYPERELASTIC CONTACTS ANALYSIS USING FEM** *by Ionut Cristian ROMANU, and Ilie MUSCA*
- 6. WAVINESS AND MATERIAL HARDENING INFLUENCE UPON TECHNICALLY DRY CIRCULAR CONTACTS IN THE ELASTO-PLASTIC DOMAIN** *by Dorel PRODAN, Alexandru POTORAC, and Cornel SUCIU*
- 7. REAL SURFACE MICROTOPOGRAPHY INFLUENCE UPON TECHNICALLY DRY CIRCULAR CONTACTS IN THE ELASTO-PLASTIC DOMAIN** *by Dorel PRODAN, Alexandru POTORAC, and Cornel SUCIU*
- 8. CAN THE COLLISION BETWEEN A FREE FALLING BALL AND A ROTATING DISK BE REGARDED AS A PLANE IMPACT?** *by Stelian ALACI, Florina Carmen CIORNEI, Ionut ROMANU, and Dan Valentin AMARANDEI*



**Section 2. Basic Problems of Lubrication. Micro and Nano Tribology**  
**Chairmen: Prof. Mircea PASCOVICI and Dr. Romeo GLOVNEA**

- 1. EXPERIMENTAL INVESTIGATION INTO THE CHARACTERISTICS OF A SLIP/NON-SLIP SURFACE** by *Evan THOMAS, Mircea PASCOVICI, Karolina JABLONKA, and Romeo GLOVNEA*
- 2. INVESTIGATIONS OF NANOTRIBOLOGICAL SYSTEMS USING MOLECULAR DYNAMICS SIMULATIONS** by *Cristian PIRGHIE, and Ana-Camelia PIRGHIE*
- 3. A LUBRICATING FLUID COMPRESSIBILITY STUDY. PART 1: EXPERIMENTS AND SIMPLE LIQUID THEORY MODEL** by *Ilie MUSCA, and Cristian PIRGHIE*
- 4. A LUBRICATING FLUID COMPRESSIBILITY STUDY. PART 2: MOLECULAR DYNAMICS MODELING** by *Cristian PIRGHIE, and Ilie MUSCA*
- 5. MODERN METHODS FOR THE ANALYSIS AND EVALUATION OF SURFACES MICROTOPOGRAPHY** by *Alexandru POTORAC, and Dorel PRODAN*
- 6. RHEOLOGY OF BIO-DEGRADABLE CUTTING FLUIDS** by *Alexandru Valentin RADULESCU, and Irina RADULESCU*



### **Section 3. Lubrication and Traction**

**Chairmen: Prof. Traian CICONE and Prof. Cezar OPRISAN**

- 1. THE EFFECT OF WORKING PARAMETERS UPON EHD GREASE FILMS SUBJECTED TO LATERAL VIBRATIONS** by Yuichiro NAGATA, Konstantinos KALOGIANNIS, and Romeo GLOVNEA
- 2. CONSTANT SPEED SQUEEZE PROCESS IN XPHD CONDITIONS - CYLINDER ON PLANE CONFIGURATION** by Mihaela RADU, and Traian CICONE
- 3. SQUEEZE FLOW OF A POWER-LAW FLUID BETWEEN PARALLEL CIRCULAR PLATES** by Petrica TURTOI, Traian CICONE, and Mircea D. PASCOVICI
- 4. INFLUENCE OF THE GEOMETRICAL AND OPERATING PARAMETERS ON FRICTION IN LINEAR GUIDANCE SYSTEMS** by Dumitru OLARU, Alexandru BUDEL, Mihaela Rodica BALAN, and Gheorghe PRISACARU
- 5. INFLUENCE OF FRICTION ON THE DYNAMIC RESPONSE OF A FOUR-BAR MECHANISM WITH CLEARANCE JOINTS** by Mihai BAICEANU, Cezar OPRISAN, and Dumitru OLARU
- 6. EXPERIMENTAL STUDIES ON USE OF POROUS PERMEABLE LAYERS AS MECHANICAL SHOCK ADSORBERS** by Christian RUSSU



## **Section 4. Biotribology**

**Chairmen: Prof. Andrei TUDOR and Dr. Benyebka BOU-SAID**

- 1. MEASUREMENT OF THE FRICTION COEFFICIENT BETWEEN A STEEL PIN AND THE HUMAN FINGER SURFACE** by *Vasile Ciprian STAMATE, and Dumitru OLARU*
- 2. THE CONTACT PRESSURE IN THE HIP PROSTHESIS** by *Tiberiu LAURIAN, and Andrei TUDOR*
- 3. ORAL CAVITY BIOTRIBOLOGY: FROM DENTAL WEAR TO MOUTH LUBRICATION** by *Mihai Catalin FRUNZA, and Gheorghe FRUNZA*





## **Section 5. Contact Wear and Fatigue**

**Chairmen: Prof. Minodora RÎPĂ and Prof. Alexandru RADULESCU**

- 1. THE EROSIVE WEAR MODEL FOR HELICOPTER COATING BLADE MATERIAL** *by Danuta GRAD, Andrei TUDOR, and Valeriu DRAGAN*
- 2. CHARACTERIZATION OF WORN SURFACE TOPOGRAPHY IN WEAR TESTS OF COMPOSITE MATERIALS USED FOR REPAIR TECHNIQUES** *by Minodora RÎPĂ*
- 3. ELECTROCHEMICAL RESPONSE OF A NAVAL STEEL UNDER CORROSION FATIGUE CONDITIONS** *by Liviu PALAGHIAN, Svetlana BAICEAN, and Mihaela BUCIUMEANU*
- 4. FORCE SENSITIVE RESISTORS USAGE IN GRIPPING DEVICES WITH LOADS SMALLER THAN 1N** *by Alexandru BARNEA, Cezar OPRISAN, and Dumitru OLARU*