

Symposium A

MONDAY OCTOBER 9TH

8:15 A.M. – 10:15 A.M. ORAL SESSION A1

Chairperson: Helio Goldenstein

Room: EMBRACO

8:15 – 8:45 A.M. (Ti,Al)N COATINGS FOR ALUMINUM DIE CASTING DIES: A STUDY OF THE REACTIVITY BETWEEN $Ti_{1-x}Al_xN$ AND ALUMINUM. **(A570)**. Carlos Eduardo Fortis Kwietniewski (UCS), Israel Jacob Rabin Baumvol (UFRGS / UCS) and Eduardo Kirinus Tentardini (UCS).

8:45 – 9:00 A.M. ACTIVATION OF THE RUBBER SURFACE TO REACH HIGH SUPERFICIAL ENERGY THROUGH PLASMA TREATMENT. **(A529)**. Joana Heller Moraes (ITA), Homero Santiago Maciel (ITA), Jorge Carlos Narciso Dutra (IAE), Sandra Aparecida Coelho Mello (IAE), Argemiro Soares da Silva Sobrinho (ITA), and Marcos Massi (ITA).

9:00 – 9:15 A.M. CHARACTERIZATION OF AN ALKANETHIOL SELF-ASSEMBLED MONOLAYER VIA SUM-FREQUENCY VIBRATIONAL SPECTROSCOPY. **(A576)**. Kleber Bergamaski (IFSC), Thiers M. Uehara (IFSC), Hilton Barbosa de Aguiar (IFSC) and Paulo Barbeitas Miranda (IFSC).

9:15 – 9:30 A.M. DEALLOYING AND ANODIZING OF THE SHAPE MEMORY ALLOY NiTi. **(A599)**. Luís Frederico P. Dick (UFRGS) and Daniel Dalla Corte (UFRGS)

9:30 – 9:45 A.M. EFFECTS OF HIGH PRESSURE AND HIGH TEMPERATURE PROCESSING ON THE ADHESION OF CVD DIAMOND FILMS DEPOSITED ON CEMENTED. **(A591)**. João Alziro Herz Jornada (INMETRO), Naira Maria Balzaretto (UFRGS), Altair Soria Pereira (UFRGS), Jane Zoppas Ferreira (UFRGS) and Rafael Vieira Camerini (UFRGS).

9:45 – 10:00 A.M. THE BEHAVIOR OF HYDROGEN AND OXYGEN IN SiC AND SiO_2/SiC STRUCTURES. **(A569)** Fernanda Chiarello Stedile (IQ-UFRGS), Israel Rabin Baumvol (CCET-UCS and IF-UFRGS), Cláudio Radtke (PGMICRO-UFRGS) and Gabriel Vieira Soares (PGMICRO-UFRGS).

10:00 – 10:15 A.M. THE KINETIC COMPENSATION EFFECT IN ANISOTROPIC ETCHING OF SILICON IN KOH SOLUTION CONTAMINATED WITH Zn, Al OR Cu IMPURITIES. **(A532)**. João Guilherme Poço (IPT), Felipe Ferreira Sabino (USP) and Humber Furlan (USP). ■

 10:15 A.M. - 10:30 A.M. – COFFEE BREAK

10:30 A.M. – 12:30 P.M. – ORAL SESSION A2


Chairperson: José Daniel Biasoli de Mello

Room: EMBRACO

11:00 – 12:00 A.M. THREE APPROACHES TO UNDERSTANDING SLIDING FRICTION AND WEAR. **(Keynote lecture A1)** David Rigney, Ohio State University, USA.

12:00 – 12:15 P.M. MODIFICATION OF SURFACE TOPOGRAPHY: MANUFACTURING METHODS. **(A548)**. Henara Lillian Costa (UFU) and Ian Hutchings (University of Cambridge)

12:15 – 12:30 P.M. LASER MICROSTRUCTURING POLYMERIC SURFACES **(A605)**. Cleber Renato Mendonça (IFSC - USP), Debora Terezia Balogh (IFSC - USP) and Marcos Roberto Cardoso (IFSC - USP). ■

 12:30 P.M. – 2:00 P.M. – LUNCH

 2:00 P.M. – 2:45 P.M. – PLENARY LECTURE
PAGE XX

2:50 P.M. – 4:20 P.M. ORAL SESSION A3

Chairperson: José Daniel Biasoli de Mello

Room: EMBRACO

2:50 – 3:20 P.M. THE PLASTIC ZONE CONCEPT AND THE ABRASIVE WEAR BEHAVIOR OF METALS. **(A594)**. Giuseppe Pintaúde (UTFPR) and Amilton Sinatora (USP)

3:20 – 3:35 P.M. STUDY ON THE PROJECTED AREA OF CRATERS OBTAINED DURING MICRO-ABRASIVE WEAR TESTS WITH FIXED BALL. **(A553)**. Deniol Katsuki Tanaka (EPUSP), Roberto Martins De Souza (EPUSP) and Ronaldo Câmara Cozza (EPUSP)

3:35 – 3:50 P.M. FRICTION COEFFICIENTS IN “BALL ABRASION TEST”. **(A511)**. Sávio Augusto Lopes da Silva (UFOP), Claudia Pignataro Oshiro (CEFET-OP), Adilson Rodrigues da Costa (UFOP) and Flavio Sandro Lays Cassino (UFOP)

3:50 – 4:05 P.M. EFFECT OF MICROSTRUCTURAL PARAMETERS ON THE MICRO ABRASIVE WEAR OF MULTI-COMPONENT FERROUS ALLOYS. **(A562)**. João Luiz Teixeira Mendes (UFU - LTM) and José Daniel Biasoli De Mello (UFU - LTM)

4:05 – 4:20 P.M. EFFECTS OF MOLYBDENUM ON THE MICROSTRUCTURE AND ABRASIVE WEAR RESISTANCE OF HIGH CHROMIUM WHITE CAST IRON. **(A618)**. Marcelo Camargo de Macêdo (UFES), Cintia Regattieri (UFES), Sandro Mauro de Carvalho (UFES), Cherlio Scandian (UFES) and José Daniel de Mello (UFU) ■



4:20 P.M. – 4:40 P.M. – COFFEE BREAK



4:20 P.M. – 5:45 P.M. – POSTER SESSION PA1

page xx



5:50 P.M. – 6:35 P.M. – PLENARY LECTURE

page xx

TUESDAY OCTOBER 10TH



8:15 A.M. – 10:15 A.M. – ORAL SESSION A4

Chairperson: Henara Lillian Costa

Room: EMBRACO

8:15 – 8:45 A.M. A STUDY ON THE SLIDING WEAR BEHAVIOUR OF PTFE COMPOSITES FOR APPLICATION IN OIL SEALS **(A572)**. João Telésforo Nóbrega Medeiros (UFRN), Janaína da Silva Santana (UFRN) and Ruthilene Catarina Lima da Silva (UFRN)

8:45 – 9:00 A.M. CHARACTERIZATION OF WEAR BEHAVIOUR AND LUBRICATION REGIME OF A LUBRICATED TRIBOLOGICAL SYSTEM . **(A587)** Amilton Sinatora(LFS-USP), Paulo Jose R. Mordente (Mahle Metal Leve) and Lucia Beatriz Rizzo (Mahle Metal Leve).

9:00 – 9:15 A.M. CORRELATION BETWEEN LABORATORY SMALL SCALE PIN ON DISC AND FULL SCALE BENCH TESTS OF DRY CLUTCHES **(A619)**. Jose Daniel Biasoli De Mello (LTM-UFU), Walter Haertel Junior (ZF Sachs Division), Paulo Sergio Zanotto (ZF Sachs Division), Ivan Roger Scansani Gregori (ZF Sachs Division) and Graciliano Pereira Fernandes (LTM-UFU)

9:15 – 9:30 A.M. ROOM TEMPERATURE MECHANICAL PROPERTIES AND TRIBOLOGY OF NiCrAlC AND STELLITE AS CAST ALLOYS **(A602)**. José Daniel Biasoli de Mello (UFU), Roberto Martins de Souza (USP), Wanderson Santana da Silva (USP) and Hélio Goldenstein (USP)

9:30 – 9:45 A.M. SURFACE DURABILITY EVALUATION OF ASTM C-6 INSULATING COATINGS BY SLIDING WEAR TESTS **(A580)**. José Daniel Biasoli de Mello (UFU), Maria Graças M.M. César (Acesita) and Antônio César Bozzi (UFU)

9:45 – 10:00 A.M. TRIBOLOGY BEHAVIOR OF LUBRICATED Zinc PHOSPHATED STEEL FOR SHEET METAL FORMING. **(A606)**. Antenor Ferreira Filho (Brasmetal Waelzholz S.A.), Edwilson Leite (Brasmetal Waelzholz S.A.), André Sereno Lopes (Brasmetal Waelzholz S.A.), Célia Aparecida Lino dos Santos (IPT), María Cristina Moré Farias (EPUSP), Zehbour Panossian (IPT) and Amilton Sinatora (EPUSP) *Apresentador: Daniel Mello

10:00 – 10:15 A.M. INFLUENCE OF THE ADDITION OF ALUMINUM ON Cr-N COATING ON CAVITATION EROSION RESISTANCE **(A526)**. Rafael Drumond

Mancosu (EEUFMG), Sandra Goulart Santos (EEUFMG), G. Cristina Durães Godoy (EEUFMG), Júnia Avelar Batista (TEC VAC) and Paulo José Modenesi (EEUFMG). ■



10:15 A.M. - 10:30 A.M. – COFFEE BREAK



10:00 A.M. – 12:30 P.M. – ORAL SESSION A5

Chairperson: Amilton Sinatora

Room: EMBRACO

11:00 – 12:00 P.M CAVITATION-EROSION RESISTANCE OF STAINLESSSTEELS: ASTRONG COMPOSITION AND MICROSTRUCTURE DEPENDENT PROPERTY, **(Keynote lecture A2)** André Paulo Tschiptschin (USP). ■



12:30 P.M. – 2:00 P.M – LUNCH



2:00 P.M. – 2:45 P.M – PLENARY LECTURE

page xx



2:50 P.M. – 4:20 P.M. – ORAL SESSION A6

Chairperson: Amilton Sinatora

Room: EMBRACO

2:50 – 3:20 P.M. FRICTION AND SOLID LUBRICATION IN SPACE VACUUM CONDITIONS **(A586)** Lucia Vieira Santos (INPE/ITA), Luiz Francisco Bonetti (INPE/ITA), Gil Capote Rodrigues (INPE), Polyana Alves Radi (INPE/ITA) and Vladimir Jesu Trava-Airoldi (INPE).

3:20 – 3:35 P.M. THE INFLUENCE OF THE ENVIRONMENT ON THE TRIBOLOGICAL BEHAVIOUR OF SOLID LUBRICANT COATINGS. **(A581)**. Antônio Tadeu Cristofolini (Embraco), Márcio Silvério (Embraco), Roberto Binder (Embraco) and José Daniel Biasoli De Mello (UFU).

3:35 – 3:50 P.M. TRIBOLOGIC AND MECHANICAL PROPERTIES OF DLC FILM OBTAINED ON METAL SURFACE BY AN ENHANCED AND LOW COST PULSED-DC DISCHARGE **(A568)**. Gil Capote Rodrigues (INPE), Luis Francisco Bonetti (INPE/ITA), Lucia Vieira Santos (INPE), Vladimir Jesus Trava-Airoldi (INPE) and Evaldo José Corat (INPE)

3:50 – 4:05 P.M. TRIBOLOGICAL BEHAVIOR OF DLC COATING UNDER DRY AND LUBRICATED ENVIRONMENT **(A592)**. Roberto do Val Kfuri (UFPR), Veridiane de Oliveira Morais (UFPR), Luiz Henrique Strapasson Mileck (UFPR), Carlos José de Mesquita Siqueira (UFPR), Vladimir Prokofievich Poliakov (UFPR), Carlos Maurício Lepiński (UFPR) and José Luis Guimarães (UFPR).

4:05 – 4:20 P.M. TRIBOLOGICAL STUDY OF DLC-BASED COATINGS ON Si₃N₄ SUBSTRATES **(A506)**. Carlos Alberto Achete (UFRJ), José M. Carrapichano

(Univ. Coimbra), José R. Gomes (Univ. do Minho), Sergio de Souza Camargo Jr. (UFRJ), Rui F. Silva (Univ. Aveiro) and Mercedes Vila (Univ. Aveiro) ■



4:20 P.M. – 4:40 P.M. – COFFEE BREAK



4:20 P.M. – 5:45 P.M. – POSTER SESSION PA2

page xx



5:50 P.M. – 7:20 P.M. – ROUND-TABLE

page xx

WEDNESDAY OCTOBER 11TH



8:15 A.M. – 10:15 A.M. – ORAL SESSION A7

Chairpersons: Roberto Martins de Souza

Room: EMBRACO

- 8:15 – 8:45 A.M.** NIQUEL CONTENT EFFECT ON COATED CARBIDE CUTTING TOOLS WEAR IN Fe-Cr-Ni ALLOYS (A597). Sinatora A. (EPUSP), Diniz A.E. (Unicamp), Mei P. R. (Unicamp), Barbosa C.A. (Villares Metals), Bubani F.C. (Unicamp), Célia Cristina Moretti Decarli (Unicamp) and Marques D. C. (Unicamp)
- 8:45 – 9:00 A.M.** FRICTION AS A TOOL TO REPAIR STEEL PARTS AND STRUCTURES (A612). Vera Lúcia Sousa Franco (UFU), Henry Fong Hwang (UFU), Raphael Rezende Pires (UFU), Rodrigo Azevedo Muniz (UFU), Ricardo Reppold Marinho (Petrobras), Marcelo Piza Paes (Petrobras) and Sinésio Domingues Franco (UFU).
- 9:00 – 9:15 A.M.** SURFACE CHARACTERISTICS OF SSIC AND LPSIC AFTER DIAMOND GRINDING (A505). D. Badenheim, R. Oberacker, Kurt Strecker (UFSJ) and S. Ribeiro .
- 9:15 – 9:30 A.M.** MICRO RAMAN SPECTROSCOPY OF DUCTILE CHIPS REMOVED BY DIAMOND TURNING OF MONOCRYSTALLINE SILICON (A549). Paulo Sérgio Pizani (DF-UFSCar) and Renato Goulart Jasinevicius (EESC-USP).
- 9:30 – 9:45 A.M.** INSTRUMENTED INDENTATION TESTING AND 3D SURFACE TOPOGRAPHY: ANALYTICAL METHODS TO EVALUATE THE CAVITATION EROSION PERFORMANCE OF DUPLEX AND ON DUPLEX Cr_xN_{1-x} PAPVD SYSTEMS (A525). Paulo José Modenesi (EEUFMG), Renato Reis Machado (INMETRO), Rafael Drumond Mancosu (EEUFMG), G. Cristina Durães Godoy (EEUFMG) and Júnia Avelar Batista (TEC VAC).
- 9:45 – 10:00 A.M.** MULTIPLE PHASE SILICON FORMATION BY MEANS OF CYCLIC MICROINDENTATION (A546). Paulo Sérgio Pizani (DF-UFSCar) and Renato Goulart Jasinevicius (EESC-USP)

10:00 – 10:15 A.M. NUMERICAL FINITE ELEMENTS ANALYSIS

OF FRICTION DURING HUMAN DENTAL OCCLUSAL CONTACT (A593). GeraldaCristina Durães de Godoy (UFMG-DEMET), Estevam Barbosa de Las Casas (UFMG-DEES), Flávia de Souza Bastos (UFMG-DEMEC) and Rafael Cobucci (UFMG-DEMEC). ■



10:15 A.M. - 10:30 A.M. – COFFEE BREAK



11:00 A.M. – 12:30 P.M. – ORAL SESSION A8

Chairperson: Sinésio Domingues Franco

Room: EMBRACO

- 11:00 – 11:15 A.M.** XPS AND ION SCATTERING STUDIES ON COMPOUND FORMATION AND INTERFACIAL MIXING IN TIN/TI NANOLAYERS ON PLASMA NITRIDED TOOL STEEL (A571). Afonso Reguly (UFRGS), Eduardo Kirinus Tentardini (UCS), Carlos Eduardo Fortis Kwietniewski (UCS), Flávio Kieckow (UFRGS) and Israel Jacob Rabin Baumvol (UCS / UFRGS)
- 11:15 – 11:30 A.M.** SYNTHESIS AND CHARACTERIZATION OF CARBON NANOTUBES GENERATED BY LASER ABLATION (A551). Aloisio Nelmo Klein (UFSC), Leonardo A. Biazzi (UFSC), Mateus Hermann (UFSC), Roberto Marchiori (UFSC) and Alexandre Lago (UFSC)
- 11:30 – 11:45 A.M.** CRYSTALLOGRAPHIC ORIENTATION AND WEAR: SOME ASPECTS OBSERVED IN ALUMINIUM MONOCRYSTALS (A509). Flavio Sandro Lays Cassino (UFOP), Adilson Rodrigues da Costa (UFOP) and Elodie Guerreiro (Ecole des Mines de Douai)
- 11:45 – 12:00 P.M.** INFLUENCE OF THE STRUCTURAL, PHYSICAL AND CHEMICAL CHARACTERISTICS OF TITANIUM SURFACE OXIDE LAYERS ON ITS TRIBOCORROSION BEHAVIOUR IN CONTACT WITH AN ARTIFICIAL SALIVA SOLUTION (A539). Jean Pierre Celis (KULeuven), José Manuel Gomes (Universidade do Minho), Clodomiro Alves Junior (UFRN), António Eduardo Martinelli (UFRN), Luis Augusto Rocha (Universidade do Minho), Ana Rosa Ribeiro (UFRN) and Rubens Maribondo Nascimento (UFRN).
- 11:45 – 12:00 P.M.** MECHANICAL CHARACTERIZATION OF SURFACES AT THE MICRO AND NANO (A530). Philippe Kempe (CSM Instruments) ■



12:30 P.M. – 2:00 P.M. – LUNCH



2:00 P.M. – 2:45 P.M. – PLENARY LECTURE

page xx



4:20 P.M. – 4:40 P.M. – COFFEE BREAK



4:20 P.M. – 5:45 P.M. – POSTER SESSION PA3

page xx



5:50 P.M. – 7:00 P.M. – PLENARY SESSION



20:30 P.M. *Conference Dinner*

Local: Swimming Pool Lounge