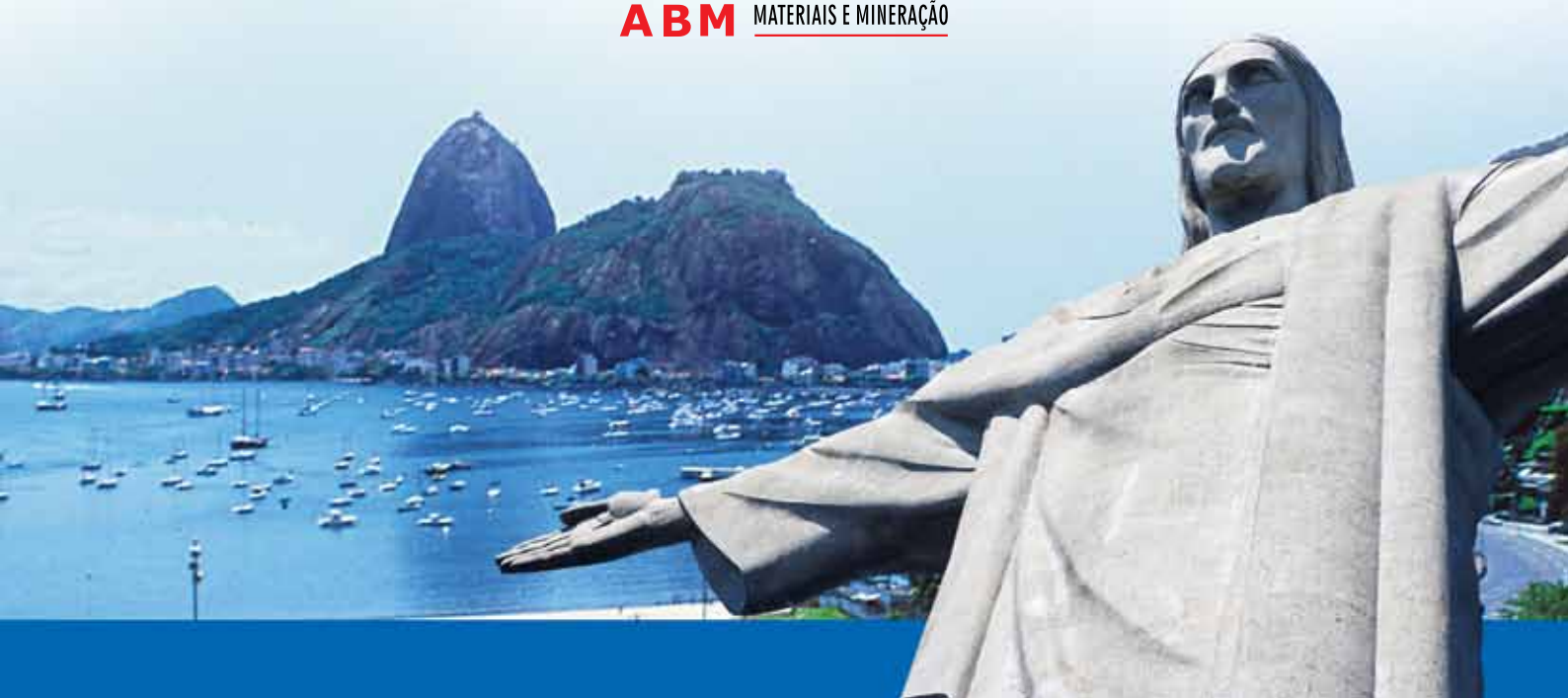
OFFICIAL PROGRAM

TriboBR

First International Brazilian Conference on Tribology
TriboBr-2010
and
ITS - IFToMM 2010 - 2nd International Tribology Symposium of IFToMM

24th to 26th November, 2010
Rio Othon Palace Hotel - Copacabana
Rio de Janeiro - RJ - Brazil

ABM
ASSOCIAÇÃO BRASILEIRA DE METALURGIA, MATERIAIS E MINERAÇÃO



OFFICIAL PROGRAM

First International Brazilian Conference on Tribology TriboBr-2010

ITS - IFToMM 2010 - 2nd International Tribology Symposium of IFToMM

24th to 26th - November, 2010

VENUE

Rio Othon Palace Hotel
Av Atlântica, 3264 - 1st Floor
Copacabana – Rio de Janeiro - RJ - Brazil
Phone: 55 21 2106-1670
www.hoteis-othon.com.br

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- November 24th - (Wednesday) - from 7:30am to 7:00pm
- November 25th - (Thursday) - from 8:00am to 7:00pm
- November 26th - (Friday) - from 8:00am to 6:30pm

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WELCOME

Dear Participant,

The organized activities of Brazilian Tribology started at the end of the 1980's and were mainly focused on abrasive wear, mining and metallurgy of wear resistant materials.

The first Brazilian Seminar on wear resistant materials was held at Sao Paulo State University in 1989. Six further seminars were held during the following 20 years. Slowly and steadily the content of these seminars evolved from wear resistant materials, mainly abrasion, to tribology in general. We still have a long way to go, but Brazilian tribology has certainly made a lot of progress. Today almost every national congress in related areas has a track/section on tribology. However, almost certainly, none of these meetings had as much international participation as at TriboBR 2010. This participation may be regarded as a sign of the extent of development that tribological studies have reached in Brazil. This development has given rise to a conference where not only tribologists from different parts of the world may discuss their results and findings among themselves, but Brazilian tribologists also have the opportunity and the challenge of discussing their results with the international tribological community and vice-versa.

Indeed Tribology has experienced substantial development and increased interest in recent years in Brazil. Today there are 11 Brazilian academic groups with a total of around 170 people researching the various different fields of tribology.

In order to organize and sustain these Brazilian activities in Tribology, a Tribology Technical Division was created within the Associação Brasileira de Metalurgia, Materiais e Mineração-ABM [Brazilian Metallurgy, Materials and Mining Association]. In order to celebrate such a creation, ABM is organizing this First International Brazilian Conference on Tribology, TriboBr-2010.

We received around 170 abstracts which resulted in the submission of 93 full papers. After peer reviewing, the conference accepted 64 oral presentations and 21 posters from 23 different countries. They are organized in two parallel sections which will be presented during the next 3 days.

The organizing committee would like to thank everyone who contributed to the success of this First International Brazilian Conference on Tribology TriboBr-2010 and 2nd International Tribology Symposium of IFToMM welcome all the participants, especially the foreign ones and wish you a very pleasant and fruitful conference and, of course, that you all enjoy Rio de Janeiro "a Cidade Maravilhosa".

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Wednesday - 24th November, 2010

Room: Itaipu A

Chair: Giuseppe Pintaúde

Technical Session: Surface Characterization and Contact Mechanics

8:30 am **Opening Session**

9:00 am ***Plenary Lecture: Dr. Ali Erdemir (ARGONNE NATIONAL LABORATORY, USA)**
Innovative Design Concepts in Surface Engineering for Advanced Tribological Applications

10:00 am **Coffee-break**

10:30 am **Characterization of scratch resistance of coatings using the Nano-Technology**
Weidian Shen - EASTERN MICHIGAN UNIVERSITY

10:50 am **Effect of surface finishing process in the contact area evaluation of austempered ductile iron**
Giuseppe Pintaude, Cristiano Brunetti, Luis Fernando Montanez Calao - UNIVERSITY OF TECHNOLOGICAL OF PARANÁ, Mario Vitor Leite - VILLARES

11:10 am **Effects of spherical inclusions on the pressure distribution and subsurface stress field in an elastic circular point contact**
D. Nélias, J. Leroux, B. Fulleringer - UNIVERSITY OF LYON

11:30 am **Characterization of high chromium white cast iron resistance to abrasive wear**
Leandro Almeida Dutra, Cherlio Scandian - UFES, José Daniel Biasoli de Mello - UFU

11:50 am **Lunch**

Room: Itaipu A

Chair: Eduardo Tomanik

Technical Session: Surface Characterization and Contact Mechanics

2:00 pm ***Plenary Lecture: Prof. Karl-Heinz zum Gahr (UNIVERSITY OF KARLSRUHE, GERMANY)**
Advanced materials and surface design for tribological loaded components

3:00 pm ***Invited Speaker: Prof. Izhak Etsion (TECHNION-ISRAEL INSTITUTE OF TECHNOLOGY)**
A Review of Laser Surface Texturing and Applications

3:40 pm **Surface texture design for different circumstances**
Xiaolei Wang, Haiwu Yu, Wei Huang - NANJING UNIVERSITY OF AERONAUTICS & ASTRONAUTICS

4:00 pm **Alternative methods for surface texturing**
JG Parreira, JL. Gonçalves Jr. - HL Costa - UNIVERSIDADE FEDERAL DE UBERLÂNDIA, IM Hutchings - UNIVERSITY OF CAMBRIDGE

4:20 pm **Coffee-break**

Technical Session: Tribology of Journals and Bearings

4:50 pm **Influence of textured surface arrangement on hydrodynamic journal bearing performance**
Nacer Tala Ighil - RESEARCH CENTRE IN WELDING AND CONTROL, Michel Fillon, Patrick Maspeyrot - UNIVERSITÉ DE POITIERS

5:10 pm **Perfomance of a noncircular 2-lobe multirecess hydrostatic journal bearing with wear**
Vikas M. Phalle - V.J.T.I., Satish C. Sharma, S. C. Jain - INDIAN INSTITUTE OF TECHNOLOGY

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*All Plenary and Invited Lectures will be delivered in Itaipú Room B

5:30 pm **A study of non-recessed hybrid misaligned worn journal bearing under turbulent regime**
Nathi Ram - INDIRA GANDHU INSTITUTE OF TECHNOLOGY, Satish C. Sharma, S. C. Jain - INDIAN INSTITUTE OF TECHNOLOGY

5:50 pm **Stability characteristics of a tri-taper journal bearing: a linearized pertubation approach**
R. Pai, D.S.Rao, B. S. Shenoy, R.S.Pai - MANIPAL INSTITUTE OF TECHNOLOGY

6:10 pm **The effects of lubricating oil additives on the rolling contact fatigue strength of a rolling bearing for an automatic transmission**
Toshihiko Ichihashi, Hiroshi Fujita - LUBRICANTS RESEARCH LABORATORY IDEMITSU KOSAN, Susumu Matsumoto - WASEDA UNIV. GRADUATE SCHOOL OF INFORMATION, PRODUCTION AND SYSTEMS

Room: Itaipu B

Chair: Amilton Sinatora

Technical Session: Biotribology and Biotribomaterials

8:30 am **Opening Session**

9:00 am ***Plenary Lecture: Dr. Ali Erdemir (ARGONNE NATIONAL LABORATORY, USA)**
Innovative Design Concepts in Surface Engineering for Advanced Tribological Applications

10:00 am **Coffee-break**

10:30 am **Tribological performance of bacterial cellulose-articular cartilage systems: influence of loading conditions in simulated synovial fluid**
José Manuel Ramos Gomes, Fernando Octávio Queirós Dourado, João Manuel Martins Machado, Luis Filipe Rodrigues Castanheira, Fernando Miguel Gama - INSTITUTO SUPERIOR DE ENGENHARIA DO PORTO, João Abreu Lima Lopes - UNIVERSIDADE DO MINHO

10:50 am **Tribocorrosion of functionalized titanium surfaces for biomedical applications**
Luís Augusto Rocha, Alexandra Alves - UNIVERSIDADE DO MINHO

11:10 am **A tribo-electrochemical approach for the characterization of artificial implant biomaterials**
Nitin S. More, S.N. Paul - NATIONAL INSTITUTE OF TECHNOLOGY, Nikitas Diomidis, Stefano Mischler - ECOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE, Manish Roy - DEFENCE METALLURGICAL RESEARCH LABORATORY

11:30 am **Towards the "Green Tribology": biomimetic surfaces, biodegradable lubrification, and renewable energy**
Michael Nosonovsky - UNIVERSITY OF WISCONSIN

11:50 am **Lunch**

Room: Itaipu B

Chair: Giuseppe Pintaúde

Technical Session: Tribology in Rolling Mill Rolls

2:00 pm **Plenary Lecture: Prof. Karl-Heinz zum Gahr (UNIVERSITY OF KARLSRUHE, GERMANY)**
Advanced materials and surface design for tribological loaded components

3:00 pm **Characterization of the friction conditions in the finishing stands of a hot strip mill**
Antonio Augusto Gorni, Marcos Roberto Soares da Silva - USIMINAS

3:20 pm **Abrasive wear of Nb-alloyed high speed steels**
Paula Fernanda da Silva Farina - UNIVERSIDADE DE SÃO PAULO, Mário Boccalini Jr. - INSTITUTE FOR TECHNOLOGICAL RESEARCH

3:40 pm **Influence of laser hardening on the tribological properties of a perlitic cast iron for hot rolls**
Massimo Pellizzari, M.G. De Flora - UNIVERSITY OF TRENTO, A. Tremea - INNSE Cilindri, A. Fernández Vincente - AIMEN, T. Ümit - BFI, C. Heason - CORUS UK, J. R. Gonzalez - SIDENOR, A. Fuentes Prego - SIDERÚRGICA AÑÓN - H. Gouveia - ISQ

*All Plenary and Invited Lectures will be delivered in Itaipú Room B

4:00 pm **Effect of molybdenum and chromium contents on sliding wear of high-chromium white cast iron at high temperature**
K. F. Pinho, C. Scandian - FEDERAL UNIVERSITY OF ESPIRITO SANTO, C. Boher - TOULOUSE UNIVERSITY

4:20 pm **Coffee-break**

4:50 pm **The effect of engineered surface on the wear processes and friction during ring compression test**
Mario Vitor Leite, Claudia Regina Serantoni, Amilton Sinatora - POLYTECHNIC SCHOOL OF THE UNIVERSITY OF SÃO PAULO

Technical Session: Tribology in Machine Elements

5:10 pm **Friction and wear in sliding contact of cast iron against phenolic resin composites reinforced with carbonaceous fibers from plantain fiber bundles**
Santiago Betancourt D., Luis J. Cruz - PONTIFICA BOLIVARIANA UNIVERSITY, Alejandro Toro B. - NATIONAL UNIVERSITY OF COLOMBIA

5:30 pm **Effect of heat treatment and loading on tribologic behavior of welding deposits for hardfacing**
Agustín Gualco, Estela Surian - NATIONAL UNIVERSITY OF LOMAS DE ZAMORA, Hernán Svoboda - UNIVERSITY OF BUENOS Aires, Luis de Vedia - NATIONAL UNIVERSITY OF SAN MARTÍN

5:50 pm **Stainless steel as antiwear to sugar plant**
Wilian da Silva Labiapari, José Antônio N. Carvalho, José Roberto de Andrade, Cláudio Moreira Alcântara, Paulo Sergio de S Balsamo - ArcelorMittal, Jose Daniel Biasoli de Mello - UNVERSIDADE FEDERAL DE UBERLÂNDIA

6:10 pm **Effect of rail grinding conditions on sub-surface microstructure and surface roughness of fatigued rails**
D. Zapata, J.F Santa, J.C Sánchez, J.C González, A. Toro - NATIONAL UNIVERSITY OF COLOMBIA

Thrusday - 25th November, 2010

Room: Itaipu A

Chair: Roberto Martins de Souza

Technical Session: Surface Characterization and Contact Mechanics

8:30 am ***Plenary Lecture: Prof. Jean Michel Martin (ECOLE CENTRALE DE LYON, FRANCE)**
Tribochemical reactions revisited

9:30 am **Structure of brake pad friction films analyzed by gixrd and raman spectroscopy**
Ruth Hinrichs, Marcos Antonio Zen Vasconcellos - UFRGS

9:50 am **Raman microspectrometry applied to in situ analyses in running tribologic contacts**
David Himmel, Yves Bercion, Audrey Saulldubois, Jean-Louis Mansot - UNIVERSITÉ DES ANTILLES ET DE LA GUYANE, Ton Lubrecht - INSA DE LYON

10:10 am **Coffee-break**

Technical Session: Tribology in Manufacturing Processes

10:40 am **Simulation of contact of the tool and workpiece at a rolling of threads**
Andrey Afonin - ORYOL STATE TECHNICAL UNIVERSITY

11:00 am **Effect of the variation of cutting parameters in surface integrity and microstructure in turning process of an AISI304 austenitic stainless steel**
Daniel Alexander Flórez Orrego, Luis Bernardo Varela Jiménez, Julian David Escobar Atehortua, Diana Maria López Ochoa - NATIONAL UNIVERSITY OF COLOMBIA

*All Plenary and Invited Lectures will be delivered in Itaipú Room B

11:20 am **Comparison of tool wear and surface roughness during drilling of an austenitic stainless steel with a conventional cutting fluid and a vegetable oil**
Marcos Sepúlveda, Rodrigo Montes, Catalina Gómez, Carolina Pelaez, Diana López - UNIVERSIDAD NACIONAL DE COLOMBIA

12:00 am Lunch

Room: Itaipu A

Chair: Eduardo Tomanik

Technical Session: Lubrication and Lubricants

2:00 pm ***Plenary Lecture: Prof. Hugh Spikes (IMPERIAL COLLEGE, UK)**
Boundary lubrication; history and recent developments

3:00 pm **Tribological performance of pag fluids and lubricants**
Govind Khemchandani - THE DOW CHEMICAL COMPANY, Stephen Merryweather - DOW EUROPE, Yuri Alencar Marques - DOW BRASIL

3:20 pm **Oil film thickness and shape in oscillating roller contacts**
Xiaoyang Chen, Tongshu Hua, Xuejing Shen - RESEARCH INSTITUTE OF BEARINGS

3:40 pm **The effect of oxidation on the tribological performance of few vegetable oils**
Jagadeesh K. Mannekote, Satish V. Kailas - INDIAN INSTITUTE OF SCIENCE BANGALORE

Technical Session: Tribology in Combustion Engines

4:00 pm **Tribological studies of coated pistons against cylinder liners in laboratory test conditions**
Nicholaos G. Demas, George R. Fenske, Robert A. Erck, Oyelayo O. Ajayi - ARGONNE NATIONAL LABORATORY

4:20 pm Coffee-break

4:50 pm ***Invited Speaker: Profª. Akemi Ito (TOKYO CITY UNIVERSITY)**
Recent Engine Tribological Investigations at the Tokyo City University

5:30 pm **Friction characteristics of steel pistons for diesel engines**
Dallwoo Kim, Akemi Ito - TOKYO CITY UNIVERSITY, Yasuhiro Ishikawa, Katsuyuki Osawa, Yoshiyuki Iwasaki - MAHLE JAPAN CORPORATION

5:50 pm **Evaluation of an experimental lube oil on piston friction, engine performance and vehicle acceleration**
Eduardo Tomanik - MAHLE BRAZIL, Luiz Fernando Lastres, Leonardo de Oliveira Carvalho - PETROBRAS

6:10 pm **Reducing emissions through low friction ring pack in passenger car diesel engine**
Davi Antonio da Silva, Everton Lopes da Silva, André Ferrarese, Eduardo Nocera - MAHLE METAL LEVE

Room: Itaipu B

Chair: Henara Lilian Costa

Technical Session: Advanced Tribomaterials

8:30 am ***Plenary Lecture: Prof. Jean Michel Martin (ECOLE CENTRALE DE LYON, FRANCE)**
Tribochemical reactions revisited

9:30 am **Influence of the CR_3C_2 phase on erosive wear of thermally sprayed NiCr-BASED coatings deposited by HVOF**
Juliane Vicenzi, Carlos Pérez Bergmann, Andrei Locatelli - FEDERAL UNIVERSITY OF RIO GRANDE DO SUL

*All Plenary and Invited Lectures will be delivered in Itaipú Room B

9:50 am **Tribocorrosion behaviour of age-hardened Al alloys and functionally graded Al-SiCp composites**
A. Catarina Vieira, Ana M. Pinto, L.A. Rocha - UNIVERSITY OF MINHO, Stefano Mischler - POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

10:10 am **Coffee-break**

10:40 am **Tribology of fluorinated diamond-like carbon coatings: first principles calculations and sliding experiments**
F.G. Sen, A.T. Alpas - UNIVERSITY OF WINDSOR, Y. Qi - GENERAL MOTORS

11:00 am **New generation tribological DLC coatings**
V.A. Levchenko, V.N. Matveenko - LOMONOSOV MOSCOW STATE UNIVERSITY, I. A. Buyanovsky, Z. V. Ignatieva - BLAGONRAVOV'S MECHANICAL ENGINEERING RESEARCH INSTITUTE

11:20 am **Effect of refrigerant gases on the tribological behavior of a CrN-SiDLC multifunctional coating applied to soft substrate**
Marcio Silverio, Roberto Binder - WHIRLPOOL S.A., José Daniel Biasoli de Mello - UNIVERSIDADE FEDERAL DE UBERLÂNDIA

11:40 am **Friction properties of new fluorinated carbon phases**
P. Thomas, J.L. Mansot, O. Gros, L. Legras - UNIVERSITÉ DES ANTILLES ET DE LA GUYANE, M. Dubois, K. Guérin, A. Hamwi - UNIVERSITÉ BLAISE PASCAL DE CLERMONT-FERRAND

12:00 pm **Lunch**

Room: Itaipu B

Chair: Henara Lilian Costa

Technical Session: Fundamentals

2:00 pm ***Plenary Lecture: Prof. Hugh Spikes (IMPERIAL COLLEGE, UK)**
Boundary lubrication; history and recent developments

3:00 pm **The effect of hardness of sliding bodies on the wear regime transition of steels**
Cristian C. Viáfara, Amilton Sinatora - POLYTECHNIC SCHOOL OF THE UNIVERSITY OF SÃO PAULO

3:20 pm **Tribological response of soft materials sliding against hard surface textures at various numbers of cycles**
Pradeep L. Menezes, Kishore, Satish V. Kailas - INDIAN INSTITUTE OF SCIENCE, Michael R. Lovell - UNIVERSITY OF WISCONSIN-MILWAUKEE

3:40 pm **Shannon entropy as a characteristic of a rough surface: why the running-in transient process leads to friction reduction**
Michael Nosonovsky, Vahid Mortazavi - UNIVERSITY OF WISCONSIN-MILWAUKEE

4:00 pm **Microindentation tests and microabrasive behavior of tungsten composites**
Gabriel Haddad Souza Gava, Marcelo Camargo Severo de Macêdo, Cherlio Scandian - UFES, Roberto Martins de Souza - USP

4:20 pm Coffee-break

Technical Session: Advanced Tribomaterials

4:50 pm ***Invited Speaker: Maria Isabel De Barros Bouchet (ECOLE CENTRALE DE LYON)**
Advanced Boundary Lubrication of Hard Carbon Coatings with Environmentally Friendly Additives

Technical Session: Tribology in Machine Elements (Gears)

5:30 pm **Influence of dynamic effects on point EHL contacts in gear systems**
Marco Barbieri, Francesco Pellicano - UNIVERSITÁ DI MODENA E REGGIO EMILIA

5:50 pm **Lubricants for rolling bearings in rear axle gears of trucks and drive gears of locomotives**
Thiago Aurichio, Ricardo S. Cumino, Richard Karbacher - SCHAEFFLER

*All Plenary and Invited Lectures will be delivered in Itaipú Room B

Friday - 26th November, 2010

Room: Itaipu A

Chair: Cherlio Scandian

Technical Session: Tribotesting and Tribosystem Monitoring

8:30 am ***Plenary Lecture: Prof. Kenneth Holmberg (VTT, FINLAND)**
Coated Surface Wear Prediction by Computer Modelling

9:30 am ***Invited Speaker: Bronovets Marat Aleksandrovich (RUSSIAN ACADEMY OF SCIENCES) - Space Tribology**

10:10 am **Coffee-break**

10:40 am **Combined effect of abrasion and corrosion on the wear of cast iron grinding balls with chromium contents from 12 to 30%**
Eduardo Albertin, Sandra Lucia de Moraes, Camila Massola Zeitune - INSTITUTE FOR TECHNOLOGICAL RESEARCH - IPT

11:00 am **Abrasion testing with rubber wheels**
Kenneth G. Budinski - BUD LABS

11:20 am **Scaling in friction experiments**
Z. Rymuza - INSTITUTE OF MICROMECHANICS AND PHOTONICS, S. Pytko - SCIENCE AND TECHNOLOGY UNIVERSITY

11:40 am **Tribological behaviour of glancing angle deposited chromium thin films under micro-testing conditions**
Cristiano Simões de Abreu - INSTITUTO SUPERIOR DE ENGENHARIA DO PORTO, Nicolas Martin - INSTITUT FEMTO-ST, José Manuel Ramos Gomes - UNIVERSIDADE DO MINHO

12:00 pm **Lunch**

Room: Itaipu A

Chair: André Paulo Tschiptschin

Technical Session: Advanced Tribomaterials

2:00 pm ***Plenary Lecture: Prof. Staffan Jacobson (UPPSALA UNIVERSITY, SWEDEN)**
Resistance to abrasive wear – fundamental and practical aspects

3:00 pm **Cavitation erosion of welded martensitic stainless steel coatings**
Julián David Escobar Atehortúa, Ricardo Correa Colorado, Juan Felipe Santa Marín, Jorge Enrique Giraldo Barrada, Alejandro Toro - NATIONAL UNIVERSITY OF COLOMBIA

3:20 pm **Improvement of the cavitation erosion resistance of UNS 31803 stainless steel by duplex treatment**
Mesa D.H, Tschiptschin A.P - UNIVERSITY OF SÃO PAULO, Pinedo C.E - UNIVERSITY OF MOGI DAS CRUZES AND HEAT TECH

3:40 pm **High-velocity slurry erosion of welded Cobalt-based alloys**
S. Romo, J.F Santa, J.E Giraldo, A. Toro - NATIONAL UNIVERSITY OF COLOMBIA

4:00 pm **The role of retained austenite on performance of grinding media**
J. S. Moema - MINTEK, M. J. Papo, W. E. Stumpf - UNIVERSITY OF PRETORIA

4:20 pm **Coffee-break**

4:50 pm ***Plenary J. A. Williams - Tribology at the small scale: learning from Nature**

5:50 pm **Closure Ceremony**

*All Plenary and Invited Lectures will be delivered in Itaipú Room B

Room: Itaipu B

Chair: Roberto Martins de Souza

Technical Session: Modeling and Simulation in Tribology

8:30 am ***Plenary Lecture: Prof. Kenneth Holmberg (VTT, FINLAND)**
Coated Surface Wear Prediction by Computer Modelling

9:30 am **Numerical simulation of sliding wear for spherical plain bearings with self-lubricating fabric liner**
Xuejin Shen, Yueping Qiu, Lei Cao, Xiaoyang Chen - SHANGHAI UNIVERSITY

9:50 am **Prediction of the performance of point contacts under elastohydrodynamic lubrication**
Pilar Lafont Morgado, Javier Echávarri Otero, Enrique Chacón Tanarro, Eduardo De la Guerra Ochoa, Juan Manuel Munoz-Guijosa, Andrés Díaz Lantada, J.L. Muñoz Sanz - UNIVERSIDAD POLITÉCNICA DE MADRID

10:10 am **Coffee-break**

10:40 am **Modeling of hysteretic effects in indentation test of elastomeric material**
Lyubicheva Anastasiya - ISHLINSKY INSTITUTE FOR PROBLEMS IN MECHANICS OF RAS, Mossakovsky Pavel - MOSCOW STATE UNIVERSITY

11:00 am **Numerical analysis of thermoelastic instability in disc brake system**
Sung Pil Jung, Tae Won Park - AJOU UNIVERSITY, Hyun Seok Song - KOREA AUTOMOTIVE TECHNOLOGY INSTITUTE

11:20 am **Deformation of a single asperity by a rigid flat plate: a molecular dynamics study**
Marcio Gustavo Di Vernieri Cuppari - UNIVERSIDADE FEDERAL DO ABC, Roberto Martins de Souza, Amilton Sinatora, Debora Marques - ESCOLA POLITÉCNICA DA USP

11:40 am **The effect of permeability distribution in the numerical analysis of aerostatic ceramic porous bearings**
Rodrigo Nicoletti, Benedito de Moraes Purquerio, Zilda de Castro Silveira - UNIVERSITY OF SÃO PAULO

12:00 pm **Lunch**

Room: Itaipu B

Chair: Amilton Sinatora

Technical Session: Fundamentals of Friction and Wear

2:00 pm ***Plenary Lecture: Prof. Staffan Jacobson (UPPSALA UNIVERSITY, SWEDEN)**
Resistance to abrasive wear – fundamental and practical aspects

3:00 pm **Superimposition of indentations: experimental approach**
Washington Martins da Silva Junior - UFES, José Daniel Biasoli de Mello - UFU

3:20 pm **The antifriction composite coating with controlled nanocrystalline structure: copper-carbon**
Kryukova L.M., Mitin V.S., Mitin A.V., Krasnobaev N.N. - A. A. BOCHVAR INSTITUTE OF INORGANIC MATERIALS, Vysikaylo Ph.I. - FSUE TISNCM, Makalkina E.A. - NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

3:40 pm **Characterization of the critical load/speed values to mild to severe wear regime transition in a pin-on-disc test of a dense alumina**
Nadetsa Reginato Tedesco, Roberto Tomasi, Elíria Maria de Jesus Agnolon Pallone - FEDERAL UNIVERSITY OF SÃO CARLOS

4:00 pm **Correlation among abrasive wear tests**
Leandro Almeida Dutra, Marcelo Camargo Severo de Mâcedo, Cherlio Scandian - UFES, José Daniel Biasoli de Mello - UFU

4:20 pm **Coffee-break**

4:50 pm ***Plenary J. A. Williams - Tribology at the small scale: learning from Nature**

5:50 pm **Closure Ceremony**

*All Plenary and Invited Lectures will be delivered in Itaipú Room B

Poster Session

Wednesday - 04:20 pm - 24th November, 2010

- **Analyze of influence of base oils and additives EP on lubrication of metallic surfaces**
  Salete Martins Alves - UNIVERSIDADE FEDERAL DO RIO GRANDE DO NORTE, Edilson Ronchi - Júlio César Giubilei Milan - UNIVERSIDADE DO ESTADO DE SANTA CATARINA
- **Contribution to performance of high temperature tests (fading) on a Tribometer**
  Patric Daniel Neis, Ney Francisco Ferreira, Flavio José Lorini - UFRGS
- **Dry sliding wear behavior of hard chromium and nickel-based coatings in ball on ring test**
  Marcelo J.L. Gines - REDE-AR, Walter Tuckart, Sebastián Abraham - UNIVERSIDAD NACIONAL DEL SUR
- **Durability performance of tire tread rubber compounds as a function of road pavement**
  Fernando Aleixo Cardoso, Argemiro Luis de Aragão Costa - PIRELLI PNEUS, Deniol Katsuki Tanaka - ESCOLA POLITÉCNICA DA USP
- **EDM process aided by erosive wear**
  Luciano José Arantes - EMBRACO, Alberto Arnaldo Raslan - FEDERAL UNIVERSITY OF UBERLÂNDIA
- **Lubricating coatings as palliatives for mild oxidational fretting wear of steel cables**
  Nikitas Diomidis, Stefano Mischler - ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE
- **Reduction of friction promoted by surface treatment by CO2 laser in AISI 52100 steel**
  Anderson Ferreira da Silva - INSTITUTE TECHNOLOGICAL FOR AERONAUTICS, Getúlio de Vasconcelos - INSTITUTE FOR ADVANCED STUDIES, Marcos Vilodres Campanha - NSK
- **Surface engineering of gear wheels by the deformation hardening and the carburization**
  Pakhomova Svetlana A, Ryzhov Nicolay M - BAUMAN MOSCOW STATE TECHNICAL UNIVERSITY
- **Vibration and oil analysis for monitoring problems related to water contamination in rolling**
  Aparecido Carlos Gonçalves - UNESP - UNIVERSITY OF STATE OF SÃO PAULO, Linilson Rodrigues Padovese - USP - UNIVERSITY OF SÃO PAULO
- **Wear of carbide tools in machining inconel 751**
  Fabio de Freitas Lima, Rosemar Batista da Silva, Álisson Rocha Machado, Marcos Antônio de Souza Barrozo - UNIVERSIDADE FEDERAL DE UBERLÂNDIA, Flávio José da Silva - UNIVERSIDADE FEDERAL DO ESPIRITO SANTO

Thrusday - 10:10 am - 25th November, 2010

- **Combining scratch, wear, friction and nanoindentation tests in the assessment of tribo-mechanical properties of DLC and DLC-Si films**
  Jailton Carreteiro Damasceno, Marcia Marie Mar, Carlos Alberto Achete - INMETRO, René Frank Vianna Brenes, Sérgio Álvaro de Souza Camargo Jr - UFRJ
- **Experimental study of gamma radiation effects on turbine oils degradation by infrared spectroscopy**
  Débora N. Zambrano, Adrián Daoud, Ana María Fortis, Elena Forlerer - UAM-GIDAT-GAEN CNEA
- **Flank wear of gas nitrided high-speed steel during interrupted cutting of ductile cast iron**
  Mozart Marcos Marmentini; Giuseppe Pintaúde, Paulo André de Camargo Beltrão - FEDERAL UNIVERSITY OF TECHNOLOGY OF PARANÁ
- **Influence of fluid temperature lubricant (water) in the friction coefficient in sliding of Si3N4–Al2O3**
  Eliel Santos, Roberto Oliveira, Amilton Sinatora - ESCOLA POLITÉCNICA DA USP, Vanderlei Ferreira - IPEM
- **Mechanical and tribological evaluation of osteochondral devices: a in vivo study**
  José Manuel Ramos Gomes - UNIVERSIDADE DO MINHO, Vanessa Petrilli Bavaresco, William Belangero - UNICAMP
- **Phase characterization and tribology behaviour of nitrided steels AISI H13, AISI M2 and AISI D2**
  Saulo D. Jacobsen, Ruth Hinrichs, Marcos Antonio Zen Vasconcellos - UFRGS
- **The influence of contact stress distribution on tooth flank of spur gear and specific film thickness in wear resistance during pitting tests**
  Marco Antonio Muraro - COSAN, Urbano Reisdorfer Jr, Carlos Henrique da Silva - UFTPR, Fábio Koda - COPEL
- **Tribological mechanisms in dry sliding contact on ceramic coatings**
  Joan Esteve, David Cano, Luis Yate, Leyre Martinez de Olcoz, Arturo Lousa - UNIVERSITAT DE BARCELONA
- **Wear simulation of hip joint prostheses: preliminary results**
  Marcia Marie Maru, Lídia Ágata de Sena, Leandro Reis Lidízio, Willian Lima de Oliveira Filho Junior, Wellington Santos Barros, Jailton Carreteiro Damasceno - INMETRO, Carlos Alberto Achete - UFRJ

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