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Information of the Conference

Welcome to join us on the great event, 6th China International Symposium on Tribology, August 19-22, 2011, Lanzhou, China, to share your expertise and perspective on tribology. This conference is organized by State Key Laboratory of Solid Lubrication (Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences), State Key Laboratory of Tribology (Tsinghua University) and Tribology Institution of Chinese Mechanical Engineering Society. Organizing Committee extends the warmest welcome to you, and wishes you would enjoy the time in Lanzhou.

1. The meeting will be held at the Xibei Hotel, the accommodation places are Xibei Hotel and Legend Hotel. The organizing committee has negotiated a preferential rate for the rooms and also booked partial rooms. **Telephone of the Xibei Hotel: 0931- 8413456**

2. The responsibility for the confidential contents in the reports is remained by representatives themselves. The electronic PowerPoint can be delivered to the committee at registration.

3. For the sake of the safety, reminding you of the follows:

① *From Lanzhou railway station to Xibei Hotel, bus fares: ¥ 1, taxi fares: ¥ 10;*

② *From airport to Xibei Hotel, bus fares: ¥ 30, taxi fares: ¥ 180;*

③ *Take care of your personal safety, property and important documents;*

④ *Take the representative card when meeting, dining and visiting;*

⑤ *Back to the Hotel before 23:00.*

4. **Tour Route:** From Lanzhou to Xiahe and Sangke. **Departing Time and Venue:** 07:00 on 22nd August at Xibei hotel.

Contact of Organizing Committee

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Documents & Materials for Conference

1. Representative Card
2. Program Brochure
3. Proceeding of the Conference
4. Lunch & Dinner Coupons
5. Souvenir
6. Notebook
7. Pen



Hotel Location Map

Schedule Overview of 6th CIST 2011 (August 19-21)

Time	Friday	Saturday	Sunday
08:15-08:55	08:00-22:00 Conference Registration	Opening Remarks	Keynote/Invited Lecture
		Weimin Liu Jianbin Luo Edward Salek Robert JK Wood	
08:55-10:15		Plenary Lecture Qunji Xue Robert JK Wood	
10:15-10:40		Coffee Break & Group Photo	Oral Session(1-6) Surface and Interface(1) Lubrication and Tribochemistry(2)
10:40-12:00		Plenary Lecture Jacob Klein Stephen M. Hsu	Wear of Materials(3) Nano and Biotribology(4) STLE-CTI Joint Session on Industrial Tribology(5) China-UK Summer School on Tribology and Surface Engineering(6)
12:30		Lunch	
14:10-18:00		Keynote/Invited Lecture	Keynote/Invited Lecture
		Coffee Break	
		Oral Session(1-6) Surface and Interface(1) Lubrication and Tribochemistry(2) Wear of Materials(3) Nano and Biotribology(4) STLE-CTI Joint Session on Industrial Tribology(5) China-UK Summer School on Tribology and Surface Engineering(6)	Oral Session(1-6) Surface and Interface(1) Lubrication and Tribochemistry(2) Wear of Materials(3) Nano and Biotribology(4) STLE-CTI Joint Session on Industrial Tribology(5) China-UK Summer School on Tribology and Surface Engineering(6)
		Dinner	
18:00			

Program Schedule

Friday, August 19

Guest Building ♦ Xibei Hotel

08:00-22:00 Conference Registration

Saturday Morning, August 20

Second Floor Meeting Room

08:15-08:55 Opening Remarks

Chair: Prof. Shirong Ge

Weimin Liu *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Jianbin Luo *State Key Laboratory of Tribology, Tsinghua University, China*

Edward Salek *Society of Tribologists and Lubrication Engineers, 40 Busse Highway, Park Ridge, Illinois (USA)*

Robert JK Wood *University of Southampton, UK*

Plenary Speeches

Chairs: Prof. Jianbin Luo / Prof. Michael D. Bryant

08:55-09:35 Qunji Xue *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

09:35-10:15 Robert JK Wood *University of Southampton, UK*

10:15-10:40 Coffee Break & Group Photo

Chairs: Prof. Weimin Liu / Prof. Roland Larsson

10:40-11:20 Jacob Klein *Weizmann Institute of Science, Israel*

11:20-12:00 Stephen M. Hsu *George Washington University, USA*

12:30 Lunch

Saturday Afternoon, August 20**Session 1 Surface and Interface****Meeting Room 1****Chairs: Prof. Jianmin Chen / Prof. Kenneth Holmberg****14:00-14:30 (Invited) Y. Iwai** *University of Fukui, Japan***Effects of nano diamond (ND) particles on mechanical and tribological properties of electroless Ni-P-ND composite plating****14:30-15:00 (Invited) Dae Eun Kim** *Dept. of Mechanical Engineering Director, Center for Nano-Wear Yonsei University Seoul, Korea***Characteristics and Applications of Wear at the Nano-scale****15:00-15:20 Kazuma Yamaguchi, Shinya Sasaki, Ryo Tsuboi** *Department of Mechanical Engineering, Tokyo University of Science, Japan***Effect of geometrical product specification on tribological properties of steel under boundary lubrication****15:20-15:40 Yong Wan, Zhongqian Wang, Yifang Liu** *Qingdao Technological University, China***Tribological performance of micro/ nano-engineered hydrophobic zinc surface****15:40-16:00 Coffee Break****16:00-16:20 Wenqian Zhang, Hua Zhu, Yuankai Zhou** *School of Mechanical and Electrical Engineering, China University of Mining & Technology, China***Comparative research on tribology properties of surface texture****16:20-16:40 Yating Huang, Xinchun Lu, Guoshun Pan, Jianbin Luo, Bill Lee, Yan Zhao** *State Key Laboratory of Tribology, Tsinghua University, China***Optimal design of post-CMP cleaning detergent of Ni-P substrate based on the understanding of particle removal mechanisms****16:40-17:00 Zhixin Kang, Gang Fang, Qin Liu** *South China University of Technology, China*

Micro-tribological property of hydrophobic composite films on surface of Ti-6Al-4V titanium alloy

17:00-17:20 Wenliang Li, Liqin Wang, Yantao Zhong, Xiaoli Zhao *School of Mechatronics Engineering
Harbin Institute of Technology, China*

The effect of helical gear parameters on the meshing noise

18:00 Dinner

Sunday Morning, August 21

Session 1 Surface and Interface

Meeting Room 1

Chairs: Prof. Zhendong Dai / Prof. Izhak Etsion

08:15-08:50 (Keynote) Kenneth Holmberg *VTT Industrial Systems, Finland*

Computer modelling of wear resistance of thick composite coated surfaces

08:50-09:20 (Invited) Tianmin Shao *Tsinghua University, China*

Reduction of residual stress of TiAlN coating by masked deposition

09:20-09:50 (Invited) Norio Tagawa *Department of Mechanical Engineering, Kansai University, Japan*

Study of head-disk interface in thermally assisted magnetic recording: local temperature increase and lubricant depletion induced by laser heating

09:50-10:10 Coffee Break

10:10-10:30 Z. Fu, P.L. Wong, F. Guo *Department of Manufacturing Engineering and Engineering Management,
City University of Hong Kong, China*

Effect of interfacial properties on EHL traction

10:30-10:50 Tomoyuki Kawashima, Ryo Tsuboi, Shinya Sasaki *Department of Mechanical Engineering,
Tokyo University of Science, Japan*

Study on evaluation of cavitation erosion property of DLC films by using ultrasonic vibration

10:50-11:10 Xiaoxi Qiao, Xiangjun Zhang *State Key Laboratory of Tribology, Tsinghua University, China*

The near-surface rheological behavior of CNT-doped 5CB liquid crystals

11:10-11:30 Jin Yang, Zhaozhu Zhang, Xuehu Men, Xianghui Xu, Xiaotao Zhu, Xiaoyan Zhou *State Key Laboratory of Solid lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Fabrication of switchable oleophobicity on aluminum surfaces

11:30-11:50 Wenzhong Wang, Dian Shen, Jibin Hu *School of Mechanical and Vehicular Engineering, Beijing Institute of Technology, China*

Effect of surface textures on the point-contact lubrication considering starvation conditions

12:30 Lunch

Sunday Afternoon, August 21**Session 1 Surface and Interface****Meeting Room 1**

Chairs: Prof. Tianmin Shao / Prof. Norio Tagawa

14:00-14:30 (invited) Izhak Etsion *Department of Mechanical Engineering, Technion, Israel*

The impact of surface texturing on tribology

14:30-15:00 (invited) Zhendong Dai *Institute of Bio-inspired Structure and Surface Engineering, Nanjing University of Aeronautics and Astronautics, China*

Biomimetics on gecko locomotion: how friction force acts on toe and contribute to reliable locomotion

15:00-15:30 (invited) Shinya Sasaki *Tokyo University of Science, Japan*

Optimization of laser surface texturing pattern to improve tribological properties of DLC coating under water lubrication

15:30-15:50 Coffee Break

15:50-16:10 Yonghong Fu, Zhongling Wang, Xijun Hua, Hua Xu, Yu-feng Shi *School of Mechanical Engineering, Jiangsu University, China*

Numerical simulation study on the influence of the surface of laser texturing die on the blank springback

16:10-16:20 Dejun Kong, Chaozheng Zhou, Dan Long, Yongzhong Wu, Yufeng Yan *College of Mechanical Engineering, Changzhou University, China*

Token of interfacial bonding strength for VC coating prepared by TD process with scratching test

16:20-16:40 Pinqiang Dai, Lvbo Lin, Lanfang Lin *Department of Materials Science and Engineering, Fujian University of Technology, China*

Microstructure and properties of nanocrystalline Ni-Co-Fe-P alloy coatings synthesized by pulsed electrodeposition

16:40-17:00 Fangli Duan, Jiming Yang, Hebing Qiu *State Key Laboratory of Mechanical Transmission, Chongqing University, China*

Repulsive and adhesive force on the interface of nanoscale contact

17:00-17:20 Yonghong Fu, Jinghu Ji, Qinsheng Bi *School of Mechanical Engineering, Jiangsu University, China*

Hydrodynamic lubrication of surface contact with elliptical dimples

17:20-17:40 Youfa Zhang, Hao Wu, Yu Zhou, Xinquan Yu *Jiangsu Key Laboratory of Advanced Metallic Materials, School of Materials Science and Engineering, Southeast University, China*

Condensation on superhydrophobic aluminum foil

18:00 Banquet ◆ **Ningwo Zhuang Hotel**

Saturday Afternoon, August 20**Session 2 Lubrication and Tribochemistry****Meeting Room 2****Chairs: Prof. Wilfred T. Tysoe / Prof. Yonggang Meng****14:00-14:35 (keynote) Michael D. Bryant** *University of Texas at Austin, USA***Deriving friction and wear from entropy of interfacial processes****14:35-15:05 (Invited) S. Plaza** *University of Lodz, Poland***Tribological properties of low-phosphorous zinc dialkyl(alkylaryl)alkoxy-dithiophosphates****15:05-15:35 (invited) Koshi Adachi** *Laboratory of Nanointerface Engineering, Division of Mechanical Engineering, Tohoku University, Japan***Tribologically-based design of precise positioning stage driven by friction drive actuator: ultrasonic motor and surface acoustic wave motor****15:35-15:55 Coffee Break****15:55-16:15 Xingliang Li, Wen Yue, Chengbiao Wang, Xiaocheng Gao, Song Wang, Jiajun Liu** *School of Engineering and Technology, China University of Geosciences (Beijing), Mechanical Engineering Department, Tsinghua University, China***Comparing tribological behaviors of plasma nitrided and untreated bearing steel under lubrication with phosphor and sulfur-free organotungsten additive****16:15-16:35 Heyan Li, Biao Ma, Jinle Zhang** *School of Mechanical Engineering, Beijing Institute of Technology, China***Lubrication effects on the temperature field of a wet shift clutch during engagements****16:35-16:55 Xinfa Shi, Dongfeng Liu** *Qing Dao Oil Analysis Center, Naval University of Engineering, China***Research on the correlative degree among the information of diesel lubricating oil disintegration monitoring****16:55-17:15 Yuankai Zhou, Hua Zhu, Wenqian Zhang, Cuicui Ji** *School of Mechanical and Electrical Engineering, China University of Mining & Technology, China*

Numerical analysis on hydrodynamic lubrication properties of surface dimple texture on cylinder liner-piston ring

17:15-17:35 Meirong Cai, Feng Zhou, Weimin Liu *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences China, China*

Task specific ionic liquid lubricants

18:00 Dinner

Sunday Morning, August 21

Session 2 Lubrication and Tribochemistry

Meeting Room 2

Chairs: Prof. Stephen M. Hsu / Prof. Shigeyuki Mori

08:15-08:50 (keynote) Wilfred T. Tysoe *Department of Chemistry and Laboratory for Surface Studies, University of Wisconsin-Milwaukee, USA*

Surface chemistry at the tribological interface

08:50-09:20 (Invited) Gwidon Stachowiak *University of western Australia, Australia*

Tribology-past, present and the future

09:20-09:40 Tianxing Chen, Xiangjun Zhang *State Key Lab of Tribology, Tsinghua University, China*

Velocity effect on the viscoelasticity of confined hexadecane layer studied by AFM

09:40-10:00 Coffee Break

10:00-10:20 J.C. Yan, J.M. Bu, X.F. Bai, T.H. Ren *School of Chemistry and Chemical Technology, Shanghai Jiao Tong University, China*

The tribological study of novel phosphorous-nitrogen (P-N) type phosphoramidate additives in rapeseed oil

10:20-10:40 H. Chen, J. Li, T. H. Ren, L. Zheng, Y.D. Zhao *School of Chemistry and Chemical Engineering,*

Shanghai Jiao Tong University, China

Tribological behaviors of three novel thiadiazole derivatives as multifunctional lubricant additives in biodegradable lithium grease and investigation of their tribochemistry using XANES

10:40-11:00 Xinlei Gao, Jian Li, Li Wu, Hua Meng *School of Chemical and Environmental Engineering, Wuhan Polytechnic University, China*

Preparation and tribological properties of lubricants from microbial oil with schiff base copper complex

11:00-11:20 Jie Chen, Guoliang Hou, Guang Liu, Yulong An, Huidi Zhou, Jianmin Chen *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, China*

Effect of Nd₂O₃ on mechanical, microstructure and tribological properties of plasma sprayed NiCr-Cr₂O₃ composite coatings

11:20-11:40 Xiaoling Liu, Ping Yang, Shuyi Li, Peiran Yang *School of Mechanical Engineering, Qingdao Technological University, China*

The lubricating behavior of a roller pair under offsetting loads

12:30 Lunch

Sunday Afternoon, August 21

Session 2 Lubrication and Tribochemistry

Meeting Room 2

Chairs: Prof. Koshi Adachi / Prof. Gwidon Stachowiak

14:00-14:30 (Invited) Shigeyuki Mori *Iwate University, Japan*

Nascent surfaces as an active source for tribochemistry

14:30-15:00 (Invited) Yonggang Meng *Tsinghua University, China*

Influence factors and mechanism of potential-controlled friction in propylene carbonate solutions

15:00-15:30 (Invited) Wolfgang P. Weinhold *Innowep GmbH Measuring & Testing, Germany*

Surface analysis and wear volume modeling**15:30-15:50 Coffee Break****15:50-16:20 (Invited) Youxi Lin, Chenghui Gao** *College of Mechanical Engineering & Automation, Fuzhou University, China***Effects of CaCO₃ whisker on the tribological behavior of CaCO₃/PEEK composites****16:20-16:40 Enzhu Hu, Xiangyang Wang, Yufu Xu, Xianguo Hu, Karl Dearn, Hongming Xu** *Institute of Tribology, Hefei University of Technology, China***Study of lubrication performance of 2,5-dimethylfuran as synthetic engine fuel****16:40-17:00 Eryong Liu, Yimin Gao, Junhong Jia** *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China***Effect of double metal oxide compounds on tribological properties of nickel-base self-lubricating composition at elevated temperature****17:00-17:20 Yan Wang, Chenhui Zhang, Jianbin Luo, Yuhong Liu** *State Key Lab of Tribology, Tsinghua University, China***The lubricating properties of a new water soluble aluminum cold rolling lubricant****17:20-17:40 Jinjin Li, Chenhui Zhang, Jianbin Luo** *State Key Lab of Tribology, Tsinghua University, China***Superlubricity behavior with phosphoric acid-water network****18:00 Banquet** ◆ **Ningwo Zhuang Hotel**

Saturday Afternoon, August 20**Session 3 Wear of Materials****Meeting Room 3****Chairs: Prof. Roland Larsson / Prof. Erjia Liu****14:00-14:35 (Keynote) K. Friedrich** *Institute for Composite Materials (IVW GmbH), Technical University Kaiserslautern, Germany***Rolling wear behavior of selected engineering polymer and composites****14:35-15:05 (Invited) Liangchi Zhang** *School of Mechanical and Manufacturing Engineering, The University of New South Wales, Australia***Contact between rough surfaces: modelling and applications to polishing****15:05-15:35 (Invited) Shu Li** *Institute of Metals, Chinese academy of Sciences, China***Finite element modeling simulation on tribological test of TiN film/substrate system****15:35-15:55 Coffee Break****15:55-16:15 C. Wang, P.L. Wong, X. Zhou** *Department of Manufacturing Engineering and Engineering, Management, City University of Hong Kong, China***Damage effect of hard particles on DLC coating in an EHL contact****16:15-16:35 Yuanqiang Tan, Hao Zhang, Dongmin Yang, Junhua Song, Yong Sheng** *School of Mechanical Engineering, Xiangtan University, China***Some applications of discrete element method in tribology****16:35-16:55 Cuicui Ji, Hua Zhu, Wei Jiang** *School of Mechanical and Electrical Engineering, China University of Mining and Technology, China***A study of self-organization behavior during the wear-in process****16:55-17:15 Zhenhuan Ye, Liqin Wang, Le Gu** *Harbin Institute of Technology, China***Study on roller contact pressure on high-speed roller bearing with bending moment**

17:15-17:35 Liwen Mu, Yijun Shi, Jian Wu, Xin Feng, Xiaohua Lu *State Key Laboratory of Materials-oriented Chemical Engineering, Nanjing University of Technology, China*

Tribological properties of PTFE composites filled with different fibers in ionic liquid medium

17:35-17:55 Qianzhi Wang, Fei Zhou, Zhifeng Zhou, Yang Yang, Ce Yan, Chungong Wang, Wenjun Zhang, Lawrence Kwok-Yan Li, Igor Bello, Shuit-Tong Lee *Academy of Frontier Science, Nanjing University of Aeronautics and Astronautics, China*

Sliding friction and wear properties of TiN(C) coatings against SiC balls in water

18:00 Dinner

Sunday Morning, August 21

Session 3 Wear of Materials

Meeting Room 3

Chairs: Prof. Karl-Heinz Zum Gahr / Prof. Braham Prakash

08:15-08:50 (Keynote) Roland Larsson *Division of Machine Elements, Luleå University of Technology, Sweden*

Simulations of tribological phenomena—What can we learn from them?

08:50-09:20 (Invited) Joichi Sugimura *Kyushu University, Japan*

Tribology in high pressure hydrogen gas

09:20-09:50 (Invited) Wilfried J. Bartz *Technical Academy of Esslingen, Germany*

The green automobile definition and realization

09:50-10:10 Coffee Break

10:10-10:30 Xiaohong Yi, Chenhui Zhang *State Key Laboratory of Tribology, Tsinghua University, China*

Wear properties of Ni-P-nanoPTFE composite coating on hastelloy C22 deposited by electroless plating

10:30-10:50 Yuuki Tokuta, Shinya Sasaki, Masahiro Kawaguchi *Department of Mechanical Engineering, Tokyo University of Science, Japan*

Effect of pre-heat treatment on wear property of DLC films coated by PBII&D

10:50-11:10 Hua Zhu, Shirong Ge, Cuicui Ji, Wei Jiang *School of Mechanical and Electrical Engineering, China University of Mining and Technology, China*

Study on wear state recognition

11:10-11:30 Zefeng Zhang, Dekun Zhang, Dagang Wang *School of Materials Science and Engineering, China University of Mining and Technology, China*

Effect of contact loads on fretting fatigue behaviors of steel wires

11:30-11:50 Guang Liu, Yulong An, Guoliang Hou, Jie Chen, Jianmin Chen, Huidi Zhou *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Science, China*

Structure and wear properties of FeCrMoWSiBC metallic glass coatings prepared by air plasma spraying

12:30 Lunch

Sunday Afternoon, August 21

Session 3 Wear of Materials

Meeting Room 3

Chairs: Prof. Joichi Sugimura / Prof. Liangchi Zhang

14:00-14:30 (Invited) Erjia Liu *School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore*

Thermal, mechanical and tribological properties of polymer matrix composites incorporated with microcapsules

14:30-15:00 (Invited) Karl-Heinz Zum Gahr *Institute for Applied Materials, Karlsruhe Institute of Technology (KIT), Germany*

Friction control and efficient lubrication of ceramic sliding pairs by laser surface microtexturing

15:00-15:30 (Invited) Braham Prakash *Luleå University of Technology, Sweden*

High temperature tribology in the context of hot sheet metal forming

15:30-15:50 Coffee Break

15:50-16:20 (Invited) Liqin Wang, Bo Peng, Dezhi Zheng, Shouxiao Fan, Jun Wang, Le Gud *Research Lab of Tribology, Harbin Institute of Technology, China*

Surface failure behaviors of M50 bearing steel under two-disc sliding/rolling contact condition

16:20-16:40 Gai Zhao, Tingmei Wang, Qihua Wang *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, China*

Mechanical and tribological properties of the polyurethane composites reinforced with the selected fiber

16:40-17:00 Yaping Bai, Jian Wang, Li Cao, Jiandong Xing *State Key Laboratory for Mechanical Behavior of Materials, School of Materials Science and Engineering, Xi'an Jiaotong University, China*

Friction and wear behavior of Fe₃Al alloys prepared by mechanical alloying with subsequent plasma activated sintering and hot pressing

17:00-17:20 Guofeng Wang, Hengzhou Wo, Yafang Zhang, Yufu Xu, Xianguo Hu *Institute of Tribology Hefei University of Technology, China*

Study of cavitation flow performance in diesel injector nozzle

17:20-17:40 Sihan Shen, Yonggang Meng *State Key Laboratory of Tribology, Tsinghua University, China*

Wear of silicon MEMS devices

17:40-18:00 Chenfei Song, Bingjun Yu, Linmao Qian *Tribology Research Institute, National Traction Power Laboratory, Southwest Jiaotong University, China*

Friction-induced nanofabrication for protrusive nanostructures on quartz

18:00 Banquet ♦ **Ningwo Zhuang Hotel**

Saturday Afternoon, August 20**Session 4 Nano and Biotribology****Meeting Room 4****Chairs: Prof. Zhongmin Jin / Prof. Haiyang Yu****14:00-14:35 (Keynote) Shirong Ge** *China University of Mining & Technology, China***The biotribological reliability of artificial hip joints****14:35-15:05 (Invited) Noritsugu Umehara** *Nagoya University, Japan***Surface modification for future machines and instruments****15:05-15:35 (Invited) Anne Neville, Hongyuan Zhao** *School of Mechanical Engineering, University of Leeds, UK***Sustainable design of tribological interfaces for clean and energy-efficient automotive powertrains – review of an EU transportation project****15:35-15:55 Coffee Break****15:55-16:15 M. Koizumi, M. Wang, H. Sasaki, Y. Shinji, H. Sugiyama, O. Kimizuka, N.Tsubokawa, Y. Iwai** *University of Fukui, Japan***Development of nano diamond particles composite plating and evaluation of their tribological property****16:15-16:35 Li Chang, Klaus Friedrich, Lin Ye** *The University of Sydney, Australia***Development of the wear resistant polymeric hybrid composites using nanoparticles****16:35-16:55 Xiaoliang Zhang, Junhong Jia** *Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China***Adhesion and friction studies of micro-patterned surfaces using atomic force microscopy with colloidal probe****16:55-17:15 S. Plaza, L. Margielewski, R. Stanecka-Badura** *University of Lodz, Poland***Tribological properties of low-phosphorous zinc n-dialkyl(n-nonylaryl and di-n-nonylaryl**

alkoxydithiophosphates

17:15-17:35 Tianbao Ma, Yuanzhong Hu, Hui Wang *State Key Laboratory of Tribology, Tsinghua University, China*

Superlubricity of diamond-like carbon films by shear induced formation of graphene-like transfer layer

17:35-17:55 Jing Han, Liang Fang, Jiapeng Sun, Shirong Ge, Hua Zhu *China University of Mining & Technology, China*

Atomistic simulations of the contact deformation and friction of Cu NDPSs

18:00 Dinner

Sunday Morning, August 21**Session 4 Nano and Biotribology****Meeting Room 4**

Chairs: Prof. Shirong Ge / Prof. Noritsugu Umehara

08:15-08:50 (Keynote) Takahisa Kato *University of Tokyo, Japan*

Molecular dynamic simulations for Si incorporated DLC films

08:50-09:20 (Invited) Kristian Tønder *Norwegian University of Science and Technology, Norway*

Effects of texturing on bearing performance

09:20-09:50 (Invited) Linmao Qian *Tribology Research Institute, Southwest Jiaotong University, China*

Friction-induced nanofabrication

09:50-10:10 Coffee Break

10:10-10:30 Sicheng Ye, Sasaki Shinya, Kunitsugu Shinsuke *Department of Mechanical Engineering, Tokyo University of Science, Japan*

Determination of adhesion of CrN film through scratch testing

10:30-10:50 Xiaosheng Zhang, Chunlin Wu, Zhaofeng Chen, Hong Xu, Jinxiang Dong *Taiyuan University of Technology, China*

Hydrothermal synthesis of layered α -zirconium phosphate

10:50-11:10 Lei Chen, Linmao Qian *Southwest Jiaotong University, China*

Nanofretting behaviours of ultra thin DLC coating with 2nm and 5nm in thickness on Si(100) substrate

11:10-11:30 Liang Xu, Yuanzhong Hu, Hui Wang *State Key Laboratory of Tribology, Tsinghua University, China*

A three-parameter model for stick-slip friction in few-layer graphene

11:30-11:50 Y.J. Dai, Y. Dong, X.C. Lu, J.B. Luo *State Key Lab of Tribology, Tsinghua University, China*

Effect of polyalkylene glycols (PAGs) on the copper chemical mechanical polishing (CMP)

12:30 Lunch

Sunday Afternoon, August 21

Session 4 Nano and Biotribology

Meeting Room 4

Chairs: Prof. Takahisa Kato / Prof. Kristian Tonder

14:00-14:30 (Invited) Zhongmin Jin *University of Leeds, UK*

Challenges in biotribological research of natural synovial joints and artificial replacements

14:30-15:00 (Invited) Haiyang Yu *State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, China*

The fretting damages of dental implant-bone interface

15:00-15:30 (Invited) Yi Li *HongKong Polytechnic University, China*

Evaluation method of fabric sticky property using KES-F parameters

15:30-15:50 Coffee Break

15:50-16:10 Y.F. Li, J.H. Ouyang, S. Sasaki *Tokyo University of Science, Japan*

Tribological properties of spark-plasma-sintered $ZrO_2(Y_2O_3)$ - Al_2O_3 - $BaxSr_{1-x}SO_4$ ($x=0.25, 0.5, 0.75$) nanocomposites at elevated temperature

16:10-16:30 Chenhui Zhang, Yingchun Zhao, Marcus Björling, Jianbin Luo, Braham Prakash *Tsinghua University, China*

Film forming characteristics of polyalkylene glycols aqueous solutions in EHL contact

16:30-16:50 Bingjun Yu, Hanshan Dong, Linmao Qian, Zhongrong Zhou *Southwest Jiaotong University, China*

Experimental investigation on the friction-induced protrusive nanostructures on monocrystalline silicon

16:50-17:10 Wen Yue, Xiaocheng Gao, Chengbiao Wang, Zhiqiang Fu, Xiang Yu, Jiajun Liu *School of Engineering and Technology, China University of Geosciences (Beijing), China*

Microstructure and friction-reducing performance of W doped diamond-like carbon film treated by low temperature ion sulfuration

17:10-17:30 Linqing Bai, Shaoxian Bai, Xiangkai Meng, Xudong Peng *College of Mechanical Engineering, Zhejiang University of Technology, China*

Experimental study on friction performance of orientation multi-pored surfaces

17:30-17:50 Yanhong Lv, Li Jia, Xiaohong Liu, Hongxuan Lia, Huidi Zhou, Jianmin Chen *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Friction and wear properties of Graded CrAlN coatings sliding against Al_2O_3 and Si_3N_4 balls in water and dry conditions

18:00 Banquet ◆ Ningwo Zhuang Hotel

Saturday Afternoon, August 20**Session 5 STLE-CTI Joint Session on Industrial Tribology****Meeting Room 5****Chairs: Dr. Edward Becker / Prof. Xinping Yan****14:00-14:30 (Invited) Jianbin Luo** *State Key Lab of Tribology, Tsinghua University, China***Manufacturing of atomic smooth surfaces by CMP****14:30-15:00 (Invited) Edward P. Salek** *Society of Tribologists and Lubrication Engineers, 40 Busse Highway, Park Ridge, Illinois (USA)***Role of the technical society in the 21st century****15:00-15:30 (Invited) Yongzhen Zhang** *School of Materials Science and Engineering, Henan University of Science and Technology, China***Influence of material permeability on tribological behaviors under dry sliding with DC steady magnetic interference****15:30-15:50 Coffee Break****15:50-16:20 (Invited) Michael Dugger** *Sandia National Laboratories, USA***Vapor phase lubrication of precision electromechanical mechanisms****16:20-16:50 (Invited) Feng Guo** *School of Mechanical Engineering, Qingdao Technological University, China***Measurement of load-carrying capacity of a fixed-incline slider bearing by interferometry****16:50-17:20 (Invited) M.N. Kotzalas, G.L. Doll, R.D. Evans** *The Timken Company, Canton, OH, USA***The importance of coating durability on the performance of roller bearings****17:20-17:40 Wei Liu, Ying Liu, Yuming Wang** *State Key Lab of Tribology, Tsinghua University, China***Effects of elastic deformation on the performance of wavy-tilt-dam mechanical seals**

17:40-18:00 Jinlei Cui, Xiaoling Liu, Peiran Yang *School of Mechanical Engineering, Qingdao Technological University, China*

Size effect on thermal elastohydrodynamic lubrication in point contacts

18:00 Dinner

Sunday Morning, August 21

Session 5 STLE-CTI Joint Session on Industrial Tribology

Meeting Room 5

Chairs: Prof. Jianbin Luo / Prof. Q. Jane Wang

08:15-08:45 (Invited) Edward Becker *Former STLE President, General Motors, USA*

A worldwide engine oil specification for general motors vehicles

08:45-09:15 (Invited) Yuanzhong Hu *State Key Lab of Tribology, Tsinghua University, China*

Understanding roughness effects in lubricated contacts

09:15-09:45 (Invited) Hong Liang *Texas A&M University, USA*

Tribo-electrochemical-mechanical polishing of tantalum

09:45-10:05 Coffee Break

10:05-10:35 (Invited) Chengqing Yuan *Wuhan University of Technology, China*

Study on tribological problems of key parts in marine power system

10:35-11:05 (Invited) Lavern (Vern) Wedeven *Wedeven Associates, USA*

Tribology material development and qualification through simulation testing

11:05-11:35 (Invited) Pingping Yao *State Laboratory of Powder Metallurgy, Central South University, China*

Tribological properties and applications of high-performance powder metallurgy aircraft brake

materials

11:35-11:55 Xiaocheng Gao, Wen Yue, Chengbiao Wang, Xingliang Li, Song Wang, Jiajun Liu *School of Engineering and Technology, China University of Geosciences (Beijing), China*

Influence of plasma nitriding for 52100 steel lubricated with molybdenum dithiocarbamates additive on its tribological behaviors under boundary lubrication

12:30 Lunch

Sunday Afternoon, August 21**Session 5 STLE-CTI Joint Session on Industrial Tribology****Meeting Room 5**

Chairs: Dr. Edward P. Salek / Prof. Yuanzhong Hu

14:00-14:30 (Invited) Q. Jane Wang, Tom Zolper, Tobin Marks, Y.W. Chung *Northwestern university, USA*

Modeling the rheological and tribological properties of lubricants

14:30-15:00 (Invited) Minhao Zhu *Southwest Jiaotong University, China*

On the mechanisms of various fretting modes

15:00-15:30 (Invited) Dong Zhu *Tri-Tech, USA*

An introduction to interfacial mechanics

15:30-15:50 Coffee Break

15:50-16:20 (Invited) Jian Li *Wuhan Research Institute of Materials Protection, China*

Regeneration of used lubricating oil and effects of additives

16:20-16:50 (Invited) Junyan Zhang, Bin Zhang *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Low friction carbon films and application to engine

16:50-17:10 Bai Hui, Xing Ye *Beijing Technology Co., Ltd, China*

The reliability evaluation of the functional film

17:10-17:30 Liang Zhang, Jianbin Luo *State Key Lab of Tribology, Tsinghua University, China*

Experimental investigations on jet electrochemical polishing

18:00 Banquet ◆ **Ningwo Zhuang Hotel**

Saturday Afternoon, August 20**Session 6 China-UK Summer School on Tribology and Surface Engineering****Meeting Room 6****Chairs: Prof. Robert JK Wood / Prof. Xiaolei Wang****14:00-14:30 (Invited) Julian Wharton** *University of Southampton, UK***Electrochemical sensing of aerobic marine bacterial biofilms and the influence of nitric oxide attachment control****14:30-15:00 (Invited) Jinjun Lu** *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China***Tribological behavior and consideration on carbon-derived carbon coating on carbides by chlorination****15:00-15:30 (Invited) Jianning Ding** *Changzhou University, China***Quantum effect and surface effect in Tribology****15:30-15:50 Coffee Break****16:50-16:10 Limin Zhao** *Limin Tribology Research Institute, China***On gear scuffing failure standard of wind power machines****16:10-16:30 Jianliang Li, Dangsheng Xiong, Yongkang Zhang, Yongkun Qin** *School of Material Science and Engineering, Nanjing University of Science and Technology, China***Tribological behavior of electric-deposition nickel- BN composite coatings at high temperature****16:30-16:50 Jingling Zhou, Yujing Li, Weiming Zuo** *School of Mechanical Engineering, Nantong University, China***Pure rolling contact fatigue test rig****16:50-17:10 Jianyun Zheng, Junying Hao, Xiaoqiang Liu, Weimin Liu** *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China***Influence of deposition time of TiN layer on the tribological properties of the Ti-TiN-TiCN coatings**

deposited by DCMS

17:10-17:30 S.Y. Yang, F. Guo, H.F. Wang *School of Mechanical Engineering, Qingdao Technological University, China*

Experimental investigation on the effects of grooved surface in hydrodynamic lubrication

17:30-17:50 Yuxing Peng, Zhencai Zhu, Minming Tong, Guoan Chen, Xingguo Shao, Wan Ma, Yilei Li
School of Mechanical and Electrical Engineering, China University of Mining and Technology, China

Dynamic friction heat conduction and entransy of friction lining

18:00 Dinner

Sunday Morning, August 21

Session 6 China-UK Summer School on Tribology and Surface Engineering

Meeting Room 6

Chairs: Prof. Julian Wharton / Prof. Jianning Ding

08:15-08:45 (Invited) Xiaolei Wang *Nanjing University of Aeronautics and Astronautics, China*

Different effects of micro-grooves on the friction of lubricated sliding surfaces

08:45-09:15 (Invited) Shuncai Wang *University of Southampton, UK*

Electrodeposited Co-Ni-P nanocrystalline coatings for hard chromium replacement

09:15-09:35 Wenwen Liu, Xingbin Yan, Jiangtao Chen, Qunji Xue *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Preparation and investigation of the microtribological properties of graphene oxide and graphene films via electrostatic layer-by-layer self-assembly

09:35-09:55 Coffee Break

09:55-10:15 Xiao Huang, Tianmin Shao *State Key Laboratory of Tribology, Tsinghua University, China*

Experimental study of yield behavior in a coated sphere compressed by a rigid flat

10:15-10:35 Rong An, Mingjie Wei, Longyun Qiu, Liwen Mu, Yijun Shi, Xiaohua Lu, Xin Feng *State Key Laboratory of Materials-oriented Chemical Engineering, Nanjing University of Technology, China*

1,2-propanediol/choline chloride ionic liquid nanotribological behavior on mesoporous TiO₂ film with atomic force microscopy (AFM)

10:35-10:45 Yonghong Fu, Hua Xu, Xijun Hua, Zhongling Wang, Dongcheng Sun *School of Mechanical Engineering, Jiangsu University, China*

Surface topography optimization and numerical simulations of frictional influences on the formability

10:45-11:05 Guisen Wu, Weijiu Huang *College of Materials Science and Engineering, Chongqing University of Technology, China*

The tribological properties of ultra fine alumina ceramics

12:30 Lunch

Sunday Afternoon, August 21

Session 6 China-UK Summer School on Tribology and Surface Engineering

Meeting Room 6

Chairs: Prof. Shuncaï Wang / Prof. Chengqing Yuan

14:00-14:20 Yanxia Wu, Hongxuan Li, Xiaojun Sun, Li Ji, Yiping Ye, Jianmin Chen, Huidi Zhou *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Influence of source gas and tested atmosphere on tribological properties of a-C:H films in high vacuum

14:20-14:40 Yongjun Wang, Hongxuan Li, Li Ji, Xiaohong Liu, Huidi Zhou, Jianmin Chen *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, Lanzhou, China*

Friction and wear properties of graphite-like carbon film deposited on different substrate with different interlayer under a high contact stress about 2.5 GPa

14:40-15:00 Shengguo Zhou, Liping Wang, Qunji Xue *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Design and tribological investigation of multi-component carbon-based nanocomposite coatings

15:00-15:20 Lichun Bai, Guangan Zhang, Zhibin Lu, Liping Wang *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

A new index to predict the tribological behavior of carbon films against different counterparts

15:20-15:40 Coffee Break

18:00 Banquet ◆ **Ningwo Zhuang Hotel**

Poster

Chun Guo, Jianmin Chen, Jiansong Zhou, Linqian Wang, Youjun Yu, Huidi Zhou *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Microstructure and tribological properties of Ti-Cu intermetallic compound coating

Baixing Liu, Xianqiang Pei, Qihua Wang, Xiaojun Sun, Tingmei Wang *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Effects of proton irradiation on the structural and tribological properties of polyimide

Yanxin Song, Yanqiu Xia *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Influence of the alkyl chain length of hydroxyethyl alkylimidazolium hexafluorophosphate ionic liquids on physicochemical and tribological properties of steel-steel contacts

Aifang Wang, Wenzhen Wang, Junhong Jia, Dingjun Zhang, Youzhi Wu *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Effects of MoS₂ and graphite on mechanical and tribological properties of Ni-Cr based self-lubricating composites

Zeyun Wang, Yanqiu Xia, Zhilu Liu *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences*

Synthesis a new lubricating grease using organo-attapulgit

Guangan Zhang, Liping Wang, Qunji Xue *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

High-tech applications of multi-scale carbon-based tribological coatings

Ying Wang, Liping Wang, Jianning Ding, Ningyi Yuan, Qunji Xue *Center for low-dimensional materials, micro-nano devices and system, Changzhou University, China*

Microfriction behaviors of metal surface with biomimic Microtexture

Yongjuan Mi, Junfei Ou, Zhaofeng Wang, Shengrong Yang, Jinqing Wang *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

A simple in-situ reduction method for preparation of graphene based lubricant films

Junfei Ou, Yongjuan Mi, Shengrong Yang, Jinqing Wang *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Tribological performances of graphene films on Si substrate

Yongxin Wang, Liping Wang, Guangan Zhang, Qunji Xue *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Science, China*

Tribological responses of graphite-like carbon film to different ceramic counterparts

Lixiao Jia, Yongzhen Zhang, Yongping Niu, Sanming Du *Key Laboratory of Material Tribology, Henan University of Science and Technology, China*

Study on step friction characteristic of young people and children

Zhaofeng Chen, Xiaosheng Zhang, Chunlin Wu, Hong Xu, Jinxiang Dong *Research Institute of Special Chemicals, Taiyuan University of Technology, China*

Tribological investigation of ion exchange preparation layered sodium silicate substance as lubricant additives

Shoubing Chen, Qihua Wang, Tingmei Wang *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Friction and wear behaviors of two different hydroxy-terminated liquid nitrile rubber modified PU/EP IPN composites under dry sliding conditions

Liping Xiong, Qianjun Wang, Zhongyi He, Jianwei Qiu, Xisheng Fu *School of Basic Science, East China Jiaotong University, China*

Tribological and oxidation properties study of two sulfonate-modified nano carbonate sodium

Xiaoliang Zhang, Junhong Jia *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Adhesion and friction studies of microhole-patterned surfaces using AFM with colloidal tip

Woo Yul Yang, Haslomi Khark, In-Ha Sung *Dept. of Mechanical Engineering, Hannam University, Republic of Korea*

Finite element study on the effects of process parameters of abrasive machining

Tianchang Hu, Litian Hu *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Cooperative effect of solid lubricant and laser texturing on tribological performance of magnesium surfaces

Yuqi Li, Guangqin Pan, Tingmei Wang, Qihua Wang *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Preparation and tribological properties of graphene oxide/nitrile rubber composites under water lubrication conditions

Lingqian Wang, Jiansong Zhou, Youjun Yu, Chun Guo, Jierong Zhao, Jianmin Chen, Huidi Zhou
State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China

Evolution of self-lubricating behaviours of Ni-based composite coatings produced by laser cladding with powders of different sizes

Bin Zhang, Junyan Zhang *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Application of FL-C:H-films on motor parts with super protection

15:55-16:15 Shengyu Zhu, Qinling Bi, Jun Yang, Weimin Liu *State Key Laboratory of Solid Lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Tribological property of Ni₃Al-fluorides-Ag-W composite at a wide temperature range

Dong Jiang, Dapeng Feng, Litian Hu *State Key Laboratory of Solid lubrication, Lanzhou Institute of Chemical Physics, Chinese Academy of Sciences, China*

Tribological performance of branched alkyl phosphate ionic liquid for steel/steel contact