## 2016 HYDROGENIUS & I2CNER Tribology Symposium

Time & Date: 10:00~17:45, February 4 (Thu.), 2016  
Venue: Shiiki Hall, Kyushu University Ito Campus

## Program

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<td>10:00-10:10</td>
<td>Opening Remarks: Joichi Sugimura, Kyushu University</td>
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| 10:10-10:50 | Oral Session 1  
Chairman: Yoshinori Sawae (Kyushu University, Japan)  
**Keynote Lecture 1:**  
Tribology of Polymer Materials in Hydrogen  
Géraldine Theiler  
Federal Institute for Materials Research and Testing, Germany |
| 10:50-11:30 | Keynote Lecture 2:  
Tribochemical Wear of Polytetrafluoroethylene: Effect of Environmental Condition on Transfer Film Formation  
Tasuku Onodera, Jun Nunoshige, Kenji Kawasaki, Hiroshi Nakano, Kazue Kurihara, Momoji Kubo  
1. Hitachi, Ltd., Japan, 2. Tohoku University, Japan |
| 11:30-11:55 | Invited Talk:  
Friction and Wear of Polymer Composites in Hydrogen Environment at −40°C  
Yasuhiro Shimazu, Jyunichi Yoshihisa, IHI Corporation, Japan |
| 11:55-12:20 | Invited Talk:  
Tribological Behavior of PTFE Composites in Hydrogen Atmosphere  
Kyota Takeda, Jyo Kaneuti, Yoshinori Sawae, Takehiro Morita, Joichi Sugimura  
1. STARLITE Co., Ltd., Japan, 2. Kyushu University, Japan |
| 13:30-14:30 | Poster session |

**Effect of Thicker Types and Additives on Grease Decomposition and Hydrogen Generation by Nascent Steel Surfaces**  
Yuji Shitara, Yasuha Tokumo, Yusuke Ayame, Toshiaki Wakabayashi  
1. JX Nippon Oil & Energy Corporation, 2. Kagawa University

**Protonation Induced Conductance Change of Redox-Active Ruthenium (II) Complexes**  
Koji Miyake, Takao Ishida, and Masa-aki Haga  
1 National Institute of Advanced Industrial Science and Technology, Japan, 2. Chuo University, Japan

**Effect of hydrogen concentration of DLC films on tribo-chemical activity of sliding surface for environmentally friendly based oils**  
Hikaru Okubo, Chiharu Tadokoro, Shinya Sasaki  
Tokyo University of Science, Japan

**High-temperature tribological properties of C/C composite material**  
Satoshi Hishino, Rolf Waeche, Shinya Sasaki  
1. Tokyo University of Science, Japan, 2. Federal Institute for Materials Research and Testing, Germany

**Friction and wear properties of various polymers rubbed to aluminum alloy under hydrogen environment**  
Tomoaki Iwai, Takafumi Yasugi, Takaya Ueda, Yotaka Shoukaku  
Kanazawa University, Japan
Evaluation of Bearing for Electric Control Valve for Large Rocket Engines
Satoshi Takada¹, Hiroyoshi Tanaka², Nobuyuki Azuma³, Makoto Yoshida¹, Joichi Sugimura²
¹Japan Aerospace Exploration Agency, Japan, ²Kyushu University, Japan

Effects of counter surface metals on friction and wear process of DLC in hydrogen
Yoshihiro Kurahashi, Mitsuhiro Matsuda, Hiroyoshi Tanaka, Joichi Sugimura
Kyushu University, Japan

Observation of DLC/metal Tribointerface in Various Gas Environments with Photo Emission Electron Microscopy
Shinji Ito, Hiroyoshi Tanaka, Joichi Sugimura
Kyushu University, Japan

Effects of lubricant additives on hydrogen permeation under rolling contact
Hiroyoshi Tanaka¹, Yuta Abe¹, Vlad Bogdan Niste², Hiroki Fukuoka¹, Monica Rato², Joichi Sugimura¹
¹Kyushu University, Japan, ²University of Southampton, UK

Observation of friction and surface damage of rubber at start of sliding and reciprocal motion in hydrogen
Hiroyoshi Tanaka, Kazumi Okada, Tetsuo Yamaguchi, Joichi Sugimura
Kyushu University, Japan

Effect of trace moisture content on friction and wear of carbon fiber filled PTFE in hydrogen and nitrogen
Hiroshi Kojima, Yoshinori Sawae, Takehiro Morita, Tetsuo Yamaguchi, Joichi Sugimura
Kyushu University, Japan

Oral Session 2  Chairman: Makoto Yoshida (Japan Aerospace Exploration Agency, Japan)
14:30-15:10  Keynote Lecture 3:
Investigation into mechanisms leading to 'White-Etching Crack' bearing failure
Aaron Greco
Argonne National Laboratory, USA

15:10-15:50  Keynote Lecture 4:
Emission of hydrogen from sliding surface under lubrication with ionic liquids
Shinya Sasaki
Tokyo University of Science, Japan

15:50-16:15  Invited Talk:
Hydrogen Permeation into Bearing Steels under Sliding
Hiroyoshi Tanaka, Taiki Komatsu, Joichi Sugimura
Kyushu University, Japan

Oral Session 3  Chairman: Shinya Sasaki (Tokyo University of Science, Japan)
16:25-16:50  Invited Talk:
In situ analysis of friction-induced structural changes of DLC by using newly developed observation system
Keiji Sasaki, Denso Co. Ltd., Japan

16:50-17:15  Invited Talk:
Control of Trace Impurities in an Experimental Gaseous Environment
Kanao Fukuda
Malaysia-Japan International Institute of Technology, Malaysia

17:15-17:40  Invited Talk:
Tribology of (PEI/GO)n multilayer coatings in Various Environments
17:40-17:45  Closing Remarks: Joichi Sugimura, Kyushu University