

International HYDROGENIUS SYMPOSIUM: Hydrogen-Materials Interaction (PLAN)

Date: 5(Thursday), February, 2009

Venue: Ito Campus W Zone 4-9F Room 914/915, Kyushu University, Fukuoka, Japan

HYDROGENIUS シンポジウム(水素材料強度特性・水素シミュレーション研究チーム)

日時：平成 21 年 2 月 5 日 (木) 9:50 ~ 17:30

場所：九州大学伊都キャンパス W4 号館 9F 914・915 会議室

9:50 Opening Remark: Prof. Yunitaka Murakami

10:00-12:00

Session I Hydrogen- Dislocation- Plasticity Interactions

Co-chairmen: Dr. Brian P Somerday and Prof. Xavier Feaugas

1. 10:00-10:30 **Invited Lecture 1:**
Interaction of Hydrogen with Vacancies, Dislocations and Grain Boundaries
Prof. Reiner Kirchheim (Univ. of Göttingen)
2. 10:30-11:00 **Invited Lecture 2:**
Hydrogen and Grain Boundaries
Prof. Ian M Robertson (Univ. of Illinois)
3. 11:00-11:20 **Effect of hydrogen on microscopic deformation process near Stage II fatigue crack tip**
Prof. Kenji Higashida (Kyushu University)
4. 11:20-11:40 **Hydrogen-plasticity interactions on stainless steels. The effect of microstructure**
Prof. Jean Marc Olive (Kyushu University)
5. 11:40-12:00 **Hydrogen Transportation by Moving Dislocation in Pure Iron and Inconel 625**
Prof. Ken-ichi Takai (Sophia University)

13:00-15:00

Session II Effects of Hydrogen on Fatigue and Fracture

Co-chairman: Prof. Petros Sofronis and Prof. Y. Murakami

6. 13:00-13:30 **Invited Lecture 3:**
On the Feasibility of Using Grain-Boundary Engineering to Reduce Susceptibility to Hydrogen Embrittlement
Prof. Rob. O Ritchie (Univ. of California)

7. 13:30-14:00 **Invited Lecture 4:**
Some Consequences of Hydrogen Interactions with Heterogeneous Plastic Strain in f.c.c. Metals
 Prof. Xavier Feaugas (Univ. of La Rochelle)
8. 14:00-14:20 **Crack Propagation Behavior of SCM440H Low Alloy Steel Enhanced by Hydrogen under Long-term Varying Load and Static Load**
 Prof. Yoshiyuki Kondo (Kyushu University)
9. 14:20-14:40 **The Effect of Hydrogen and Test Frequency on Fatigue Crack Growth in Austenitic Stainless Steels**
 Prof. Toshihiko Kanazaki (Kyushu University)
10. 14:40-15:00 **Sealing Behavior of Rubber O-Ring for High Pressure Hydrogen Gas**
 Prof. Shin Nishimura (Kyushu University)
 Prof. Jun-ichiro Yamabe (Kyushu University)

Break (15:00-15:20)

15:20-17:20

Session III Numerical Analysis and Simulation of Hydrogen Effects

Co-chairmen: Prof. R.O. Ritchie and Prof. J. M. Olive

11. 15:20-15:50 **Invited Lecture 5:**
Assessing the Hydrogen Effect on Fracture: Valid Fracture Testing
 Prof. Petros Sofronis (Univ. of Illinois)
12. 15:50-16:20 **Invited Lecture 6:**
Computational Mechanics Simulations for Hydrogen Embrittlement : Nano to Macro-Scale Simulations
 Prof. Noriyuki Miyazaki (Kyoto University)
13. 16:20-16:40 **Reconsideration of the McNabb and Foster formulation for hydrogen diffusion in materials**
 Prof. Hiroshi Kanayama (Kyushu University)
14. 16:40-17:00 **Interactions between Hydrogen and Lattice Defects in Alpha Iron**
 Dr. Ryosuke Matsumoto (Kyoto University)
15. 17:00-17:20 **Effect of Hydrogen on Edge Dislocation Emission from Mode II Crack Tip in Alpha Iron**
 Dr. Shin-ya Taketomi (Kyoto University)