

**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**

9:50 Opening Remark: Prof. Yukiitaka 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 Kanezaki (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)