Joint HYDROGENIUS and I²CNER International Workshop on Hydrogen-Materials Interactions

Time & Date : 9:40-17:00, February 2 (Thursday), 2012
Venue : INAMORI Hall,
1st Floor of the INAMORI Frontier Research Center,
Kyushu University Ito Campus

Program

Symposium Co-chairmen : Yukitaka Murakami(Kyushu University (I²CNER), HYDROGENIUS, Japan)
and
Petros Sofronis(University of Illinois, USA and Kyushu University (I²CNER))

09:40-09:50 **Opening Remarks : Petros Sofronis**

Session I **Mechanism of Crack Growth**
Chairperson : Reiner Kirchheim

09:50-10:30 *Keynote lecture*
Mechanisms of Hydrogen Damage on the Fracture and Fatigue of Metals
Robert O. Ritchie (University of California, Berkeley, USA)

10:30-11:00 **The Relationship between Crack-tip Strain and Subcritical Cracking Thresholds for Steels in Hydrogen Gas**
Brian Somerday (Sandia National Laboratory, USA)

11:00-11:30 **Micromechanical Modeling of Hydrogen-induced Subcritical Crack Growth**
Petros Sofronis (University of Illinois, and I²CNER of Kyushu University)

11:30-12:00 **Hydrogen Embrittlement in Various Steels with Strength Levels above 1000MPa - Laboratory Comparison and Understanding of Mechanisms**
Lode Duprez (Arcelor Mittal, Belgium)

12:00-13:20 **Poster Session and Break**

Session II	**Interaction between Hydrogen and Material Defects**
	Chairperson: Robert O. Ritchie
13:20-13:50	*Keynote lecture*
	How Hydrogen Affects Dislocation Generation and Motion
	Reiner Kirchheim(Georg-August-Universität Goettingen, Institut fuer Materialphysik, Germany)
13:50-14:20	**Hydrogen dragging and transportation by moving dislocation in 316L and 304 stainless steels**
	K. Takai (Sophia University, Japan)
14:20-14:50	**Towards an ab-initio based understanding of H-embrittlement**
	Johann von Pezold (Max Plank Institute, Germany)
14:50-15:10	**Break**
Session III	**Crack Initiation and Propagation in Hydrogen Environment in Various and Steels and Specimens**
	Chairman: B. Somerday (Sandia National Laboratories, USA)
15:10-15:40	**Ultrasonic fatigue tests of hydrogen-charged specimens**
	Yoshiyuki Furuya, Hisashi Hirukawa and Masao Hayakawa (NIMS, Japan)
15:40-16:10	**Failure Analysis of Diaphragm for High Pressure Hydrogen Transducer**
	Taisuke Miyamoto (TOYOTA Motors, Japan)
16:10-16:40	**Fatigue Crack Initiation, Small Crack Growth and Long Crack Growth in Hydrogen Gas**
	Masanobu Kubota, Yoshiyuki Kondo, Saburo Matsuoka and Yukitaka Murakami,(Kyushu University(I^2CNER) and HYDROGENIUS, Japan)
Session IV	**Overall Discussion and future challenges**
	Chairpersons: Y. Murakami and P. Sofronis
16:40-17:00	

*Program and speakers may change without prior notice.