



INTERNATIONAL INSTITUTE FOR CARBON-NEUTRAL ENERGY RESEARCH

2024 I²CNER ANNUAL SYMPOSIUM
“HYDROGEN EMBRITTLEMENT AND MATERIALS FOR
THE HYDROGEN ECONOMY”
I²CNER HALL/ HYBRID
ITO CAMPUS, KYUSHU UNIVERSITY

WEDNESDAY, JANUARY 31ST, 2024

10:00 a.m. Opening Remarks
Tatsuro Ishibashi, *President, Kyushu University*
Akira Ukawa, *WPI Program Director*
Chuka Asike, *Principal Officer to the U.S. Consulate Fukuoka*

10:15 a.m. Introduction
Petros Sofronis, *WPI-I²CNER & University of Illinois, Urbana-Champaign*

Session 1: Development of new stainless steels for hydrogen economy

10:20 a.m. Invited Lecture A
“Towards next generation, low cost, hydrogen resilient austenitic steels: Relating composition, microstructure and deformation modes across length scales”
Jessica A. Krogstad, *University of Illinois, Urbana-Champaign*

11:00 a.m. Invited Lecture B
“Mechanical Properties of High Nitrogen - High Strength Stainless Steel in High Pressure Gaseous Hydrogen Environment”
Tomohiko Omura, *Leading Researcher, Nippon Steel Corporation*

11:40 a.m. **Lunch Break**

Session 2: Structural materials for advanced high-temperature hydrogen technologies

1:10 p.m. I²CNER Presentation A
“Hydrogen-enhanced creep deformation”
Kentaro Wada, *WPI-researcher at I²CNER & Graduate student of Mechanical Engineering, Kyushu University*

1:40 p.m. Invited Lecture C
“An Electron Microscopy Study of Creep-Induced Microstructure Evolution”
Lin Tian, *Post-Doctoral Researcher, University of Gottingen*

2:10 p.m. Invited Lecture D
"Modeling high temperature hydrogen attack under constrained void growth"
Mohsen Dadfarnia, WPI-Assistant Professor at I²CNER & Assistant Teaching Professor at Seattle University

2:50 p.m. **Photo session**

3:00 p.m. **Coffee Break (Poster Session)**

Session 3: Mechanisms of hydrogen embrittlement

4:00 p.m. Invited Lecture E
"On the orientation dependence of hydrogen-prompted dislocation structure evolution in Ni"
Shuai Wang, Associate Professor, Southern University of Science and Technology

4:40 p.m. Invited Lecture E
"Hydrogen Embrittlement of High-Strength Steel"
Young-Kook Lee, Professor, Yonsei University

5:20 p.m. Invited Lecture F
"Characterization of hydrogen embrittlement in a gaseous environment using sub-size specimens"
Yazid Madi, Professor & Senior Researcher, MINES ParisTech

6:00 p.m. Closing Remark
Tatsumi Ishihara, Director, I²CNER, Kyushu University

Dinner at ITRI • ITO (within ITO campus) *invitees only