International Institute for Carbon-Neutral Energy Research



Powering the Future Internationalizing Research

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Kyushu University University of Illinois at Urbana-Champaign

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New Value Chains and the Rise of Open Innovation in Asia Stanford University











Internationalization Global Visibility Societal Engagement



Sandia National Laboratories Partnership with I²CNER



Livermore Valley Open Campus



Dr. Brian Somerday Lead PI Hydrogen-Structural Materials Division

- Leverage 40+ years in H₂ effects on structural materials at SNL
 - Facilities for testing materials in highpressure H₂ unique in North America



- Existing collaborations demonstrate productive role for SNL
 - SNL/Illinois collaborations on H₂-structural materials since 2002

DOE encouraging collaborations with Japan

- Strong DOE support of relationship between Kyushu WPI and LVOC-H₂
- Kyushu WPI is leveraging the LVOC-H2 unique experimental and near-Pacific collaborative facilities

Established a Network of Excellence

• A large network of US, European, and Asian affiliate faculty

We are everywhere

New research environment through "chalk-talk" engagement, videoconferencing, etc.



Exploring new opportunities to expand network (evolving, not static)



To showcase I²CNER's efforts to innovate on fundamental science underlying carbon-neutral energy technologies for the energy stakeholders of Tokyo



I²CNER works to bring the younger generations of Japan and the US together on science, technology



I²CNER was featured on an official US Department of Energy presentation slide

May 2012 Annual Merit Review (AMR) Meeting



We have aligned our interests in establishing a network of excellence

M. Paster and P. Sofronis served as reviewers for DOE in the May 2013 AMR





FY2013-14 New Initiatives

Senior Visiting Faculty Program

- Attract distinguished faculty to spend sabbaticals at Kyushu
- Advertise internationally

Postdoc Fellowship Program

- Identify, develop, and pursue their own research program and access facilities
- International Summer School on sustainable energy for graduate students
 - International speakers
 - Educational opportunities
 - New research and engineering opportunities

Globalization through International Research Experiences for Undergraduate students

- Tim Barnes, Director of Illinois Strategic International Partnerships
- KU President
 - > Reciprocal exchange agreement between Kyushu and Illinois







Seeding new projects

- At Kyushu
 - Biological CCS through conversion of CO₂ into CH₄
 - (Profs. Tsuji, Kitamura, Inagaki, Christensen)
 - Explore subsurface CCS in continental margin coal sediments (Shimokita)

• At satellite

- Computational Modeling of Pore-Scale Multiphase Flow and Capillary Trapping of Supercritical CO₂ in Subsurface Geological Formations
 - Profs. Valocchi and Werth (Civ. Env. Eng.)
- > Manufacturable Nanowire Array for Solar Hydrogen Production
 - Prof. Li (Elect. Comp. Eng.)

Continue the work of the Internal Programs Review Committee (IPRC)

- Review all Division Reports
- Decide which projects will continue/discontinue
- Consultation with the External Advisory Committee



Scholarly Information Tools for I²CNER Researchers

Date: 11:00-12:00, Friday, February 1, 2013

Venue: Conference Room 2F, I²CNER Building, Kyushu University

Presented b



William H. Mischo.

MLS, Head, Grainger Engineering Library Information Center, Information Systems Research and Development Librarian, and Professor of Library Administration at the University of Illinois.



Mary C. Schlembach,

MLS, CAS, Engineering, Physics and Astronomy Librarian, Grainger Engineering Library Information Center, and Associate Professor of Library Administration at the University of Illinois

In cooperation with the Staff of Kyushu University Library

Eriko Amano Librarian Office for eResource Services Central Library



Takeshi Omura Librarian **Planning & Management Section** Ito Library

The Grainger Engineering Library Information Center at the University of Illinois has been working closely with the Kyushu University Library to develop a set of scholarly information services that provide enhanced access to a myriad of online information resources available to I²CNER researchers.

In particular, work has focused on the development of a custom Group Information Productivity Tool (GRIPT) that offers access to I²CNER researcher publications by group and author, key subject journals, specific known item journal articles, pre-stored customizable topical search results, highly cited articles and papers, and articles citing a specific article. This tool is customized for on-campus and remote access by both Illinois and Kyushu researchers.





I²CNER Symposium Catalytic Concepts for Energy

A forum for new fundamental results on electrochemistry and catalysis relevant to advances in fuel cell technology

- Plenary Lecture: Fraser Armstrong (Oxford)
- Invited speakers

Naotoshi Nakashima (Kyushu Univ.)

Seiji Ogo (Kyushu Univ.)

Etsuko Fujita (Brookhaven Nat. Lab.)

Sharon Hammers-Schiffer (UIUC)

Thomas Jarmillo (Stanford)

Nenad Markovic (Argonne Nat. Labs)

University of Illinois at Urbana-Champaign

 University of Illinois campus, September 13, 2013



Illinois: i2oner.illinois.edu/catalyticconcepts13 Kyushu: http://i2oner.kyushu-u.ac.jp/en/







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