

WORKSHOP PROGRAM (Frontier 2011)

December 4th, 2011 Sunday <Sakura Hall 1F>
15:00-20:00 REGISTRATION & WELCOME RECEPTION

December 5th, 2011 Monday <Sakura Hall 2F>

9:00-10:40 OPENING CEREMONY

(10:40- 11:00 Coffee Break at Foyer)

Session I. Materials and Devices for Information/Communication 1
Chair Prof.

<Collaboration 1> *Phase Transition*

11:00-11:30

“Looking at structural transformation with spatial and temporal high resolution”

Laurent Guérin IPR, U. Rennes 1

“Ultrafast electron and lattice dynamics of photoinduced phase transition”

Shinichiro Iwai Graduate School of Science, Tohoku University

11:30-11:40 Discussion

(11:40-13:20 Lunch)

Session II. Materials and Devices for Information/Communication 2
Chair Prof.

<Collaboration 2> *Spintronics*

13:20-13:50

“to be determined”

Herve Cailleau IPR, U. Rennes 1

“Molecular Spintronics Based on Single-Molecule Quantum Magnets”

Masahiro Yamashita Graduate School of Science, Tohoku University

13:50-14:00 Discussion

<Collaboration 3> *Nanodevices*

14:00-14:30

“Polysilicon nanowires compatible CMOS technology for integrated bio-sensing applications”

Anne-Claire Salaun IETR, U. Rennes 1

“Real-time monitoring of mitochondrial ATP synthesis and hydrolysis by surface infrared spectroscopy”

Michio Niwano RIEC, Tohoku University

14:30-14:40 Discussion

(14:40-15:00 Coffee Break at Foyer)

Session III. Materials and Devices for Information/Communication 3

Chair Prof.

<Collaboration 4> Nanoliquids

15:00-15:30

“Structure of nanoconfined binary liquids”

Ronan Lefort and Denis Morineau IPR, U. Rennes 1

“to be determined”

Masashi Mizukami WPI/IMRAM, Tohoku University

15:30-15:40 Discussion

<Proposal>

15:40-16:10

"Atomically Controlled Processing for Group IV Semiconductors"

Junichi Murota and Masao Sakuraba REIC, Tohoku University

"Fabrication of Room-Temperature Resonant Tunneling Diode with Atomically Controlled Strained Si_{1-x}Ge_x/Si Quantum Heterostructure"

Masao Sakuraba and Junichi Murota REIC, Tohoku University

16:10-16:20 Discussion

17:30-19:30 APERITIF at Sakura Hall 1F

December 6th, 2011 Tuesday

<Sakura Hall 2F>

Session IV. Advanced Materials 1

Chair Prof.

<Collaboration 5> Catalyst

9:00-9:30

“Sendai-Rennes, a road paved with Gold. Recent developments in homogeneous catalysis”

Pierre Van De Weghe SCR, U. Rennes 1

“Molecular transformation with nanoporous materials skeleton catalysts”

Naoki Asao WPI, Tohoku University

9:30-9:40 Discussion

<Collaboration 6> Glass

9:40-10:40

"Designing glasses to meet specific mechanical properties"

Tanguy Rouxel, LARMAUR, U. Rennes 1

“Nano-Power Active Fiber Devices in Electro-Optic Crystallized Glass”

Takumi Fujiwara Engineering, Tohoku University

“Hypoeutectic Zr-Based Metallic Glasses with Good Mechanical Properties and Precise Thermoplastic Molding Ability”

Y. Yokoyama IMR, Tohoku University

“Experimental Characterization of Atomic Structure of Metallic Glasses

Akihiko Hirata and Mingwei Chen WPI-AIMR, Tohoku University

10:40-10:55 Discussion

(10:55-11:10 Coffee Break at Foyer)

<Collaboration 7> Metals

11:10-11:50

“Thermo-fatigue test of Co-Cr-Mo alloy”

Yunping Li, Ning Tang, Hiroaki Matsumoto and Akihiko Chiba

IMR, Tohoku University

“Residual stress tensor measurement in micro-area”

Shun-Ichiro Tanaka IMRAM, Tohoku University

“New type of Ti-6Al-4V alloy with ultra-fine grained microstructure for enhancing superplasticity”

Hiroaki Matsumoto, Liu Bin, Yunping Li, Sang-hag Lee, Yoshiki Ono and

Akihiko Chiba IMR, Tohoku University

11:50-12:00 Discussion

“Heat Resistant Ni-Cr-Fe Steels for Superplastic Forming Dies: microstructure and thermo-mechanical behaviour” G rard Bernhart

“The Role of the Surface on Life of the Tools and Materials” F. Rezai-Aria

(12:00-13:00 Lunch)

Session V. Advanced Materials 2

Chair Prof.

<Introduction>

13:00-13:30

“Presentation of Institut des Mat riaux Jean Rouxel from Nantes - Focus on some results on nanotubes based materials”

Olivier Chauvet Institut des Mat riaux Jean Rouxel

13:30-13:40 Discussion

<Proposal>

13:40-14:10

“Recombinant Protein Engineering for biofunctionalization of nanomaterials”

Mitsuo Umetsu, Tadafumi Adschiri, Izumi Kumagai

Engineering, Tohoku University

“Nobel Micro-Patterning Processes of Solid Surfaces using Self-organized Honeycomb-patterned Polymer Films as Etching Masks”

Yuji Hirai, Yuta Saito, Hiroshi Yabu and M.Shimomura

WPI/IMRAM, Tohoku University

14:10-14:20 Discussion

14:30-16:30 **POSTER SESSION** + (Coffee)

<Sakura Hall 1F>

18:00-20:00 **BANQUET**

<Sakura Hall 1F>

December 7th, 2011 Wednesday

<Sakura Hall 2F>

Session VI. Materials Processing

Chair Prof.

<Collaboration 8> Powder Technology

9:00-9:30

“Mechanochemical Dechlorination of PVC and Formation of Hydroxyapatite from the Residue”

Qiwu Zhang, Junya Kano, Fumio Saito, Michel Baron and Ange Nizhou
IMRAM & Ecole des Mines d'Albi-Carmaux

“Green chemistry: Synthesis of dibenzophenazines by solid-state co-grinding”

Supplement by Michel Baron Ecole des mines d'Albi-Carmaux

9:30-9:40 Discussion

<Collaboration 9> Powder Technology

9:40-10:10

“Experiment and simulation of dry particle coating”

Akira Sato and Michel Baron EMAC

“Improvement of separability of CuO in flyash by coating with S”

Qiwu Zhang, Junya kano, Fumio Saito, Akira Sato and Michel Baron
IMRAM and EMAC

10 :10-10 :20 Discussion

(10:20-10:40 Coffee Break at Foyer)

11:00-11:30 **CLOSING CEREMONY**

(11:30-13:00 Lunch)

14:10- 16:00 **LABORATORY TOURS** (IMR, RIEC, IMRAM, WPI)

17:00-19:00 **FAREWELL PARTY**

<Auditorium>

December 8th, 2011 Thursday

8:30-18:30 **CONFERENCE TOUR** (Hiraizumi-UNESCO World Heritage)