

Program

Molecular Electronics IX

December 12-15, 2008

Sheraton Kauai
2440 Hoonani Road
Poipu Beach, Koloa, Kauai, Hawaii 96756
Tel: 1-808-742-4037 Fax: 1-808-742-4041

Chair:

Prof. Paul S. Weiss
The Pennsylvania State University, USA

Co-Chair:

Prof. Christian Joachim
CEMES-CNRS Toulouse, France



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FRIDAY, DECEMBER 12, 2008

14:00 - 18:00 Registration (Ballroom Foyer)

17:00 – 18:00 Hotel Sponsored Entertainment and Mai Tai's (Points Terrace)

18:00 – 19:30 Opening reception discussion with heavy hors d'oeuvres (Ocean Lawn)

NOTES

- Technical sessions will be held in Koloa Room.
- Lunches will be in the Shells Restaurant
- Dinners - see program.
- Posters will be in the Lawai Room and may be hung Friday evening.
- Breakfasts will be in the Shells restaurant – participants will be given vouchers.
- Audiotaping, videotaping and photography of presentations are strictly prohibited.
- *Speakers – Please leave at least 5 minutes for questions and discussion.*
- *Please do not smoke at any conference functions.*
- *Turn your cellular telephones to vibrate or off during technical sessions.*
- Be sure to make any corrections to your name/contact information on the Master Participant List or confirm that the listing is correct. A corrected copy will be sent to all participants after the conference.

SATURDAY, DECEMBER 13, 2008

Note: Posters up all day

- 07:30 – 08:45 Breakfast (Shells)
- 08:45 – 09:00 Welcome & Introduction: **Paul S. Weiss** and **Christian Joachim**
- 09:00 – 12:00 SESSION I
- Session Chair: **Paul S. Weiss**
- 09:00 – 09:50 **Christian Joachim**, CEMES-CNRS Toulouse, France
Current driven single-molecule logic gates
- 09:50 – 10:40 **We-Hyo Soe**, IMRE, Singapore
Imaging molecular orbitals of a short molecular wire
- 10:40 – 11:00 Coffee Break
- Session Chair: **Avi Aviram**
- 11:00 – 11:40 **Gemma C. Solomon**, Northwestern University, USA
Quantum interference: An important dimension for manipulating molecular electron transfer
- 11:40 – 12:00 **N. Clement**, IEMN-CNRS, France
Random telegraph signal in macroscopic silicon/alkyl/chain/metal molecular tunnel junctions
- 12:00 – 13:00 Lunch (Shells)
- 13:00 – 18:00 SESSION II
- Session Chair: **Thomas Bjørnholm**
- 13:00 – 13:50 **Theresa Mayer**, Pennsylvania State University, USA
Probing the electrical and spectroscopic properties of nanoscale metal-molecule-metal junctions
- 13:50 – 14:10 **Alexei Bagrets**, Velimir Meded, Andreas Arnold, and Ferdinand Evers, Karlsruhe Research Center, Germany
A DFT-based analysis of transport mechanisms in molecular switches
- 14:10 – 14:30 **Per Hedegård**, Niels Bohr Institute, Denmark
Single-molecule switch operating by tunneling of an entire C₆₀ molecule
- 14:30 – 15:00 Afternoon Coffee Break
- Session Chair: **Christian Joachim**
- 15:00 – 15:50 **Masa Aono**, NIMS, Japan
Single-molecule-level wiring and data storage
- 15:50 – 16:10 **George Kirczenow**, Shaw University, Canada
Controlling current flow through molecules by means of electric fields emanating from nearby molecules: Theory and experiment

SATURDAY, DECEMBER 13, 2008 (continued)

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| 16:10 - 17:00 | Robert Wolkow , University of Alberta, Canada
Advancing hybrid silicon-molecular electronics: Controlled coupling and occupation of silicon atomic quantum dots |
| 17:00 – 18:00 | Poster Presentation Highlights |
| 18:30 – 20:00 | Dinner (Naniwa Japanese Resturant) |
| 20:00 – 21:30 | Poster Session and Social Hour (Lawai Room) |

SUNDAY, DECEMBER 14, 2008

Note: Posters up all day

- 07:30 – 09:00 Breakfast (Shells)
- 09:00 – 12:10 SESSION III
- Session Chair: **Theresa Mayer**
- 09:00 – 09:50 **Bas Hendriksen**, Lawrence Berkeley Laboratory, USA
The effect of lattice order on the electrical conductivity of molecular monolayers studied with AFM
- 09:50 – 10:30 **Paul S. Weiss**, Pennsylvania State University, USA
The importance and surprising roles of contacts in molecular electronics
- 10:30 – 11:00 Coffee Break
- Session Chair: **Gemma Solomon**
- 11:00 – 11:50 **Jan M. van Ruitenbeek**, Universiteit Leiden, the Netherlands
Single-molecule junctions without anchoring groups
- 11:50 – 12:10 **Hyoyoung Lee**, ETRI, Korea
Molecular conductance switching of single ruthenium complex molecules
- 12:10 Pick up boxed lunches
- 12:30 Optional Excursion or Free time
- Posters will be on display all day
- 17:00 – 18:00 HOTEL SPONSORED ENTERTAINMENT AND MAI TAIS
- 18:30 – 20:00 Dinner (Beach Lawn)
- 20:00 – 21:30 Poster Session and Social Hour (Lawai Room)
(posters to be removed after the session)

MONDAY, DECEMBER 15, 2008

- 07:30 – 09:00 Breakfast (Shells)
- 09:00 – 12:00 SESSION IV
- Session Chair: **Robert Wolkow**
- 09:00 – 09:50 **Thomas Bjørnholm**, University of Copenhagen, Denmark
Single-molecule electron transfer in solid state three-terminal devices:
Statuses and challenges for molecular electronics with single molecules
- 09:50 – 10:10 **Sung Yool Choi**, ETRI, Korea
Nonvolatile resistive switching memory devices using organic-inorganic hybrid
superlattices with monolayer precision
- 10:10 – 10:30 **Joshua Hihath**, Arizona State University, USA
Mechanical perturbation of single-molecule junctions
- 10:30 – 11:00 Coffee Break
- Session Chair: **Jan M. van Ruitenbeek**
- 11:00 – 11:40 **Avik Ghosh**, University of Virginia, USA
Is a molecular electronics technology useful? A device theorist's perspective
- 11:40 – 12:00 **F. Alibart**, IEMN-CNRS, France
A molecule-nanoparticle device behaving as a spiking synapse
- 12:00 – 13:00 Lunch (Shells)
- 13:00 – 14:00 SESSION V
- Session Chair: **Paul S. Weiss**
- 13:00 – 14:00 Wrap-Up, Discussion, Poster Awards
Masa Aono, Theresa Mayer, and Bob Wolkow, Discussion Leaders
- 14:00 - Informal Discussions
- 17:00 – 18:00 HOTEL SPONSORED ENTERTAINMENT AND MAI TAIS (Points Terrace)
- Dinner on your own or departure