

Program

Carbon-Based Nano-Materials and Devices

**October 16-21, 2011
Suzhou, China**

Conference Chair

Prof. Shuit-Tong Lee

Chair Professor of Materials Science; Director, Functional Nano & Soft Materials Laboratory (FUNSOM), Soochow University, Suzhou, China
Director, COSDAF City University of Hong Kong, Hong Kong SAR, China
Director, Nano-organic Photoelectronic Laboratory, Technical Institute of Physics and Chemistry

Co-Chairs

Dr. Orlando Auciello, Argonne National Laboratory, USA
Dr. Masataka Hasegawa, Research Center for Advanced Carbon Materials, AIST, Japan
Prof. Kian Ping Loh, National University of Singapore, Singapore
Prof. Robert J. Nemanich, Arizona State University
Prof. Martin Stutzmann, Walter Schottky Institute, TU Munich, Germany



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Sunday, October 16, 2011

16:00 – 18:00	Registration (No. 5 Building)
18:00 – 19:30	Welcome Reception (Yijiangnan café)

Notes

- *Breakfasts and dinners will be served in the Yijiangnan café.*
- *Lunches will be served in the Lotus Pavilion.*
- *The conference banquet will be in the Fei Quang Room.*
- *Technical sessions and poster sessions will be in the Baiyun room.*
- *Audiotaping, videotaping and photography of presentations are prohibited.*
- *Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).*
- *Speakers – Please leave at least 3-5 minutes for questions and discussion.*
- *Please do not smoke at any conference functions.*
- *Turn your mobile 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 (by your initials) that the listing is correct. A corrected copy will be sent to all participants after the conference.*

Monday, October 17, 2011

- 07:00 – 08:15 Breakfast
- 08:15 – 08:30 **Conference Welcome**
Shuit-Tong Lee, Conference Chair
Nghì Lam, ECI Technical Liaison
- Session 1: Organic Electronics and Optoelectronics – 1**
Session Chairs: Chihaya Adachi; Yu-Tai Tao
- 08:30 – 09:00 *Keynote Presentation:* Karl Leo, TU Dresden, Germany
HIGHLY EFFICIENT ORGANIC DEVICES
- 09:00 – 09:30 *Keynote Presentation:* Nobuo Ueno, Chiba University, Japan
MECHANISM OF THE ENERGY LEVEL ALIGNMENT AND BAND BENDING IN
ORGANIC DEVICES: WHY DOES THE FERMI LEVEL MOVE IN THE HOMO-LUMO
GAP?
- 09:30 - 09.55 *Invited Presentation:* Dongge Ma, Chinese Academy of Sciences, China
WHITE ORGANIC LIGHT-EMITTING DIODES FOR LIGHTING
- 09:55 – 10:15 Coffee break
- Session 2: Organic Electronics and Optoelectronics – 2**
Session Chairs: Karl Leo; Nobuo Ueno
- 10:15 – 10:45 *Keynote Presentation:* Chihaya Adachi, Kyushu University, Japan
NOVEL CATEGORIES OF ORGANIC LUMINESCENT MATERIALS USEFUL FOR
ELECTROLUMINESCENCE
- 10:45 – 11:10 *Invited Presentation:* Wai-Yeung Wong, Hong Kong Baptist University, Hong Kong
ORGANOMETALLICS FOR ENERGY CONVERSION IN SOLAR CELLS AND OLEDs
- 11:10 – 11:35 *Invited Presentation:* Yuguang Ma, Jilin University, China
CONSTRUCT THE FUNCTIONAL MOLECULAR CRYSTALS AND APPLIED IN
LUMINESCENT AND LASER DEVICES
- 11:35 – 12:00 *Invited Presentation:* A. L. Roy Vellaisamy, City University of Hong Kong, Hong Kong
SOLUTION PROCESSED CONJUGATED MATERIALS FOR ORGANIC
PHOTOVOLTAIC DEVICES
- 12:00 – 14:00 Lunch
- Session 3: Graphene Physics and Chemistry - 1**
Session Chairs: Shihe Yang; Lifeng Chi
- 14:00 – 14:30 *Keynote Presentation:* Steven G. Louie, University of California at Berkeley, USA
NOVEL ELECTRONIC AND OPTICAL PROPERTIES OF GRAPHENE AND
GRAPHENE NANOSTRUCTURES

Monday, October 17, 2011 (continued)

14:30 - 14:55 *Invited Presentation:* Yunqi Liu, Chinese Academy of Sciences, China
SYNTHESIS OF GRAPHENE AND ITS APPLICATIONS IN ELECTRONICS

14:55 - 15:20 *Invited Presentation:* Yongsheng Chen, Nankai University, China
SOLUTION-PROCESSED GRAPHENE MATERIALS FOR ALL-CARBON
ELECTRONICS

15:20 - 15:40 *Contributed Presentation:* Haibing Peng, University of Houston, USA
PROBING PHONON EMISSION VIA HOT CARRIER TRANSPORT IN SUSPENDED
GRAPHITIC MULTILAYERS

15:40 - 16:00 Coffee Break

Session 4: Graphene Physics and Chemistry – 2

Session Chairs: Steven G. Louie; Yunqi Liu

16:00 - 16:25 *Invited Presentation:* Shihe Yang, Hong Kong Univ. of Science and Technology, Hong
Kong
ASSEMBLY, MODIFICATION, HYBRIDIZATION AND FUNCTIONALIZATION OF
GRAPHENE OXIDES

16:25 - 16:50 *Invited Presentation:* Huiming Cheng (Wencai Ren representing), Chinese Academy of
Sciences, China
THREE-DIMENSIONAL INTERCONNECTED GRAPHENE FOAMS AND THEIR
COMPOSITES

16:50 - 17:10 *Contributed Presentation:* Mingsheng Xu, Zhejiang University, China
NOVEL SYNTHESIS OF SINGLE-LAYER GRAPHENE AND DISPERSIBLE
GRAPHENE DECORATED WITH UNIFORM AU NANOPARTICLES

17:10 - 17:30 *Contributed Presentation:* Hrudya Nair, University of Twente, The Netherlands
CONTROL OF WETTABILITY ON CARBON-NANOFIBER SURFACES: FROM
HYDROPHILICITY TO SUPERHYDROPHOBICITY

18:00 – 19:30 Dinner

19:30 – 20:30 Social Hour

Tuesday, October 18, 2011

07:00 – 08:30

Breakfast

Session 5: Organic Electronics and Optoelectronics – 3

Session Chairs: Hisao Ishii; Dongge Ma

08:30 - 09:00

Keynote Presentation: Hagen Klauk, Max Plank Institute, Germany
LOW-VOLTAGE ORGANIC THIN-FILM TRANSISTORS AND CIRCUITS FOR FLEXIBLE ELECTRONICS

09:00 - 09:30

Keynote Presentation: Jun Takeya, Osaka University, Japan
HIGH-PERFORMANCE PRINTED ORGANIC TRANSISTORS

09:30 - 09:55

Invited Presentation: Yu-Tai Tao, Academia Sinica, Taiwan
ORGANIC FIELD EFFECT TRANSISTORS WITH PENTACENE FILMS EMBEDDING METALLIC AND ORGANIC NANOCLUSTERS AS CHARGE TRAPPING SITES: STRUCTURE AND ELECTRIC BISTABILITY STUDY

09:55 - 10:20

Invited Presentation: Ye Tao, National Research Council of Canada, Canada
MATERIALS ENGINEERING AND NANOSTRUCTURE CONTROL FOR HIGH EFFICIENCY POLYMER SOLAR CELLS

10:20 – 10:40

Coffee break

Session 6: Graphene Physics and Chemistry – 3

Session Chairs: Hagen Klauk; Jun Takeya

10:40 - 11:10

Keynote Presentation: Kian Ping Loh, National University of Singapore, Singapore
MAKING NANOGRAFENE

11:10 - 11:35

Invited Presentation: Lifeng Chi, University of Muenster, Germany
STUDIES ON ELECTRONIC STRUCTURES OF ORIENTATED GRAPHENE NANORIBBONS

11:35 - 11:55

Contributed Presentation: Eyassu Woldesenbet, Louisiana State University and Southern University, USA
SYNTHESIS OF CARBON NANOFIBER PAPER USING CHEMICAL VAPOR DEPOSITION METHOD

11:55 – 14:00

Lunch

Session 7: Advanced Characterization for Carbon Nano-Materials

Session Chairs: Chwee Teck Lim; Zhuang Liu

14:00 - 14:30

Keynote Presentation: Tsun Kong Sham, University of Western Ontario, Canada
SYNCHROTRON SPECTROSCOPY FOR THE ANALYSIS OF CARBON-BASED NANOMATERIALS

Tuesday, October 18, 2011 (continued)

- 14:30 - 14:55 *Invited Presentation:* Jinghua Guo, Lawrence Berkeley National Lab, USA
INTERFACE SCIENCE IN NANOSTRUCTURED CARBON-BASED MATERIALS: AN
ELECTRONIC STRUCTURE VIEW OF SOFT X-RAY SPECTROSCOPY
- 14:55 - 15:20 *Invited Presentation:* Hisao Ishii, Chiba University, Japan
ELECTRONIC STRUCTURES OF ORGANIC SEMICONDUCTORS STUDIED BY
PHOTOELECTRON YIELD SPECTROSCOPY: FROM SINGLE CRYSTAL TO LIQUID
DEVICE
- 15:20 - 15:40 *Contributed Presentation:* Alina Veligura, University of Groningen, The Netherlands
QUANTIZED CONDUCTANCE OF A SUSPENDED GRAPHENE
NANOCONSTRICTION
- 15:40 - 16:00 Coffee Break
- Session 8: Graphene Applications – 1**
Session Chairs: Tsun Kong Sham; Jinghua Guo
- 16:00 - 16:25 *Invited Presentation:* Chwee Teck Lim, National Univ. of Singapore, Singapore
CHEMICAL AND STRUCTURAL ROLES OF GRAPHENE IN STEM CELL GROWTH
AND DIFFERENTIATION
- 16:25 - 16:50 *Invited Presentation:* Zhuang Liu, Soochow University, China
CARBON NANOTUBES AND GRAPHENE FOR DRUG DELIVERY AND CANCER
THERAPIES
- 16:50 - 17:10 *Contributed Presentation:* Jignasa Solanki, S. V. National Institute of Tech., India
RECENT ADVANCES IN THE APPLICATIONS OF CARBON BASED
NANOMATERIALS
- 17:10- 17:30 *Contributed Presentation:* Priscilla Kailian Ang, National University of Singapore,
Singapore
GRAPHENE-BASED MICROFLUIDIC DEVICE FOR SINGLE CELL DETECTION
- 17:30 - 17:50 *Contributed Presentation:* Qiaoliang Bao, National Univ. of Singapore, Singapore
GRAPHENE PHOTONICS: LIGHT CREATION, MODULATION AND DETECTION
- 18:00 – 19:30 Dinner
- 19:30 – 21:00 Poster Session and Social Hour

Wednesday, October 19, 2011

07:00 – 08:30 Breakfast

Session 9: Carbon Nanotubes and Applications – 1

Session Chairs: Esko I. Kauppinen; Xuhui Sun

08:30 - 09:00 *Keynote Presentation:* Cheol Jin Lee, Korea University, Korea
FIELD EMISSION FROM CARBON NANOTUBES

09:00 - 09:25 *Invited Presentation:* Xuhui Sun, Soochow University, China
CONTACT RESISTANCES STUDY OF CARBON NANOTUBE VIA INTERCONNECTS
GROWN UNDER VARIOUS CONDITIONS

09:25 - 09:50 *Invited Presentation:* Danilo Demarchi, Politecnico di Torino, Italy
A CNT BASED DEVICE FOR ELECTROCHEMILUMINESCENCE SENSING

09:50 - 10:10 *Contributed Presentation:* Magdalena Birowska, University of Warsaw, Poland
STABILITY AND ELECTRONIC PROPERTIES OF FUNCTIONALIZED CARBON
NANOTUBES AND GRAPHENE LAYERS

10:10 – 10:30 Coffee break

Session 10: Carbon Nanotubes and Applications – 2

Session Chairs: Cheol Jin Lee; Danilo Demarchi

10:30 - 11:00 *Keynote Presentation:* M. Meyyappan (Xuhui Sun representing), NASA Ames Research
Center, USA
CARBON NANOTUBE BASED CHEMICAL AND BIOSENSORS

11:00 - 11:25 *Invited Presentation:* Esko I. Kauppinen, Aalto University, Finland
FLOATING CATALYST SYNTHESIS AND DRY DEPOSITION OF CARBON
NANOTUBES FOR THIN FILM FLEXIBLE ELECTRONICS APPLICATIONS

11:25 - 11:45 *Contributed Presentation:* Karolina Milowska, University of Warsaw, Poland
AB INITIO STUDIES OF ELASTIC PROPERTIES OF FUNCTIONALIZED CARBON
NANOTUBES AND GRAPHENE LAYERS

11:45 – 13:00 Lunch

13:00 – 18:30 Free time / Optional excursions and sightseeing

18:30 – 20:00 Dinner

20:00 – 21:00 Social Hour

Thursday, October 20, 2011

07:00 – 08:30

Breakfast

Session 11: Nano-Diamond and Applications – 1

Session Chairs: Milos Nesladek; Yasuo Koide

08:30 - 09:00

Keynote Presentation: Orlando Auciello, Argonne National Laboratory, USA
SCIENCE AND TECHNOLOGY OF ULTRANANOCRYSTALLINE DIAMOND FILMS
FOR APPLICATION TO MULTIFUNCTIONAL SYSTEM COMPONENTS AND
DEVICES

09:00 - 09:30

Keynote Presentation: Masataka Hasegawa, AIST Nanotube Research Center, Japan
NANOCRYSTALLINE DIAMOND GROWTH IN A SURFACE-WAVE PLASMA

09:30 - 09:55

Invited Presentation: Erhard Kohn, Ulm University, Germany
DIAMOND IN NITRIDE ELECTRONICS

09:55 - 10:20

Invited Presentation: James Rabeau, Macquarie University, Australia
NITROGEN VACANCY CENTERS IN NANO-SCALE DIAMONDS

10:20 – 10:40

Coffee break

Session 12: Nano-Diamond and Applications – 2

Session Chairs: Orlando Auciello; Masataka Hasegawa

10:40 - 11:10

Keynote Presentation: Milos Nesladek, Hasselt University, Belgium
NOVEL BIOMOLECULAR DETECTION PRINCIPLES IN LIQUID ENVIRONMENT
USING NANODIAMOND PARTICLES FOR CHEMICALLY-INDUCED
LUMINESCENCE SWITCHING

11:10 - 11:35

Invited Presentation: Yasuo Koide, National Institute for Materials Science, Japan
DEEP-DOPANT EFFECT FOR DIAMOND ULTRAVIOLET SENSOR

11:35 - 12:00

Invited Presentation: J. C. Arnault, Diamond Sensors Laboratory, France
SURFACE MODIFICATIONS OF NANODIAMONDS: TOWARDS ENHANCED
CHEMICAL REACTIVITY

12:00 - 14:00

Lunch Break

Session 13: Nano-Diamond and Applications – 3

Session Chairs: Erhard Kohn; Hongjun Zeng

14:00 - 14:30

Keynote Presentation: Christoph E. Nebel, Fraunhofer-Institute for Applied Solid State
Physics, Germany
BIOMIMETIC DIAMOND INTERFACES FOR PROTEIN IMMOBILIZATION

14:30 - 14:55

Invited Presentation: H. A. Girard, Diamond Sensors Laboratory, France
SELF-ASSEMBLED NANODIAMONDS LAYERS FOR INNOVATIVE DIAMOND-
BASED DEVICES

Thursday, October 20, 2011 (continued)

- 14:55 - 15:20 *Invited Presentation:* Ken Haenen, Hasselt University & IMEC, Belgium
FUNCTIONAL B-DOPED NANOCRYSTALLINE CVD DIAMOND FILMS
- 15:20 – 15:40 Coffee break
- Session 14: Nano-Diamond and Applications – 4**
Session Chairs: Christoph E. Nebel; James Rabeau
- 15:40 - 16:10 *Keynote Presentation:* John A. Carlisle (Hongjun Zeng representing), Advanced
Diamond Technologies, USA
ULTRANANOCRYSTALLINE DIAMOND (UNCD) FILMS AND THEIR APPLICATION
TO MEMS, BIOSENSORS, AND NANOMANUFACTURING
- 16:10 - 16:35 *Invited Presentation:* Makoto Kasu, NTT Basic Research Laboratories, Japan
DIAMOND-BASED ELECTRONIC DEVICE TECHNOLOGIES
- 16:35 - 17:00 *Invited Presentation:* Karin Larsson, Uppsala University, Sweden
EFFECT OF DOPANTS ON DIAMOND (111), (110) AND (100) GROWTH RATES
- 18:00 – 21:00 Conference Banquet

Friday, October 21, 2011

07:00 – 08:30 Breakfast

Session 15: Graphene Physics and Chemistry – 4

Session Chairs: Kazuhito Tsukagoshi; Linjie Zhi

08:30 - 09:00 *Keynote Presentation:* Andrew T. S. Wee (Wei Chen representing), National Univ. of Singapore, Singapore
EPITAXIAL GRAPHENE: GROWTH AND DOPING

09:00 - 09:25 *Invited Presentation:* Ian D. Sharp, Walter Schottky Institute, Germany
DEVELOPMENT OF FUNCTIONAL GRAPHENE TRANSISTORS FOR
BIOSENSOR APPLICATIONS

09:25 - 09:50 *Invited Presentation:* Kwok Sum Chan, City Univ. of Hong Kong, Hong Kong
SPIN CURRENT GENERATION BY ADIABATIC QUANTUM PUMPING IN
GRAPHENE

09:50 - 10:10 *Contributed Presentation:* Gun-Do Lee, Seoul National University, Korea
THE FORMATION AND STABILITY OF VACANCY, DISLOCATION, AND
GRAIN BOUNDARY IN GRAPHENE

10:10 – 10:30 Coffee break

Session 16: Graphene Applications – 2

Session Chairs: Ian D. Sharp; Wei Chen

10:30 - 10:55 *Invited Presentation:* Kazuhito Tsukagoshi, NIMS, Japan
GATE-INDUCED SEMICONDUCTIVE PROPERTY AND DEVICE-OPERATION
IN BILAYER GRAPHENE

10:55 - 11:20 *Invited Presentation:* Linjie Zhi, National Center for Nanoscience and Technology, China
WELL-DEFINED GRAPHENE BASED NANOMATERIALS AND THEIR
ENERGY-RELATED APPLICATIONS

11:20 - 11:45 *Invited Presentation:* Xiaodong Chen, Nanyang Technological University, Singapore
ASSEMBLY OF GRAPHENE SHEETS INTO HIERARCHICAL STRUCTURES
FOR HIGH-PERFORMANCE ENERGY

11:45 - 12:10 *Invited Presentation:* Xiangfeng Duan (Lei Liao representing), UCLA, USA
TRANSISTORS FROM GRAPHENE AND GRAPHENE NANOSTRUCTURES

12:10 - 12:25 Closing Remarks: Prof. Shuit-Tong Lee

12:25 - 14:00 Lunch

Poster List

- 1. Separation of Surfactants Functionalized Single-Walled Carbon Nanotubes via Gradient Agarose Gel Electrophoresis Method**
Blazej Scheibe, et al., West Pomeranian University of Technology, Poland
- 2. Synthesis of Structures with 0.1 to 1 nm in Size and with a Countable Number of Atoms**
Tarso Benigno Ledur Kist, Federal University of Rio Grande do Sul, Brazil
- 3. Resistive Memory Based on Graphene Oxide Prepared in Supercritical CO₂**
Yuxiang Li, et al., Shandong University, China
- 4. Dual Coordination Modes of Ethylene-Linked NP2 Ligands in Cobalt(II) and Nickel(II) Iodides**
Qingchen Dong, et al., California Institute of Technology, USA