

Updated 4/20/11

*Conference Program*

The 9<sup>th</sup> International Conference on  
**Optical Probes of Conjugated  
Polymers and Organic  
Nanostructures**

*combined with*

The 5<sup>th</sup> International Conference on  
**Excited State Processes in  
Electronic and Bio Nano-Materials**

**(OP2011/ESP2011)**

June 19 – June 24, 2011  
Santa Fe, New Mexico, USA

<http://cnls.lanl.gov/esp>

*The conference is sponsored by Center for Nonlinear Studies (CNLS); Center for Integrated Nanotechnologies (CINT); Theoretical, Chemistry, Materials Physics and Applications, and Bioscience Divisions at Los Alamos National Laboratory; and supported by the U.S. Department of Energy.*

*Local Organizers:* Sergei Tretiak, Avadh Saxena, and Richard L. Martin  
*External Advisors:* Zeev Valy Vardeny (Utah), Lewis Rothberg (Rochester)

*Location:* Santa Fe Convention Center and  
La Fonda hotel (<http://www.lafondasantafe.com>), Santa Fe, NM

|         | Monday, June 20  | Tuesday, June 21                         | Wednesday, June 22                        | Thursday, June 23                                      | Friday, June 24                                 |
|---------|--|--|---|--|---|
| 8:00am  | 8:00am - 8:30am<br><b>WELCOME</b><br><i>Session Chair:</i> | <i>Session Chair:</i>                    | <i>Session Chair:</i>                     | <i>Session Chair:</i>                                  | <i>Session Chair:</i>                           |
| 8:30am  | 8:30am - 9:10am<br><b>BISHOP</b>                           | 8:30am - 9:10am<br><b>KLIMOV</b>         | 8:30am - 9:10am<br><b>LANZANI</b>         | 8:30am - 9:10am<br><b>WEISMAN</b>                      | 8:30am - 9:10am<br><b>EPSTEIN</b>               |
| 9:00am  |  |  |   |  |   |
| 9:30am  | 9:10am - 9:50am<br><b>HEEGER</b>                           | 9:10am - 9:40am<br><b>LIFSHITZ</b>       | 9:10am - 9:40am<br><b>SCHOLES</b>         | 9:10am - 9:40am<br><b>HERTEL</b>                       | 9:10am - 9:40am<br><b>BOEHME</b>                |
|         | 9:50am - 10:10am   | 9:40am - 10:10am<br><b>LAW</b>           | 9:40am - 10:10am<br><b>ENGEL</b>          | 9:40am - 10:10am<br><b>JORIO</b>                       | 9:40am - 10:10am<br><b>VARDENY</b>              |
| 10:00am | <b>TBA</b>   |  |   |  |   |
|         | 10:10am - 10:30am<br><b>BREAK</b>                          | 10:10am - 10:30am<br><b>BREAK</b>        | 10:10am - 10:30am<br><b>BREAK</b>         | 10:10am - 10:30am<br><b>BREAK</b>                      | 10:10am - 10:30am<br><b>BREAK</b>               |
| 10:30am | 10:30am - 11:00am<br><b>McGEHEE</b>                        | 10:30am - 11:00am<br><b>EFROS</b>        | 10:30am - 11:00am<br><b>ASPURU-GUZYK</b>  | 10:30am - 11:00am<br><b>PAPADIMITRIKOPOULOS</b>        | 10:30am - 11:00am<br><b>SHUAI</b>               |
| 11:00am | 11:00am - 11:30am<br><b>BASOV</b>                          | 11:00am - 11:30am<br><b>WISE</b>         | 11:00am - 11:30am<br><b>VAN GRONDELLE</b> | 11:00am - 11:30am<br><b>KONO</b>                       | 11:00am - 11:30am<br><b>DIAS</b>                |
| 11:30am | 11:30am - 12:00pm<br><b>MAZUMDAR</b>                       | 11:30am - 12:00pm<br><b>BUHRO</b>        | 11:30am - 12:00pm<br><b>BRUDVIG</b>       | 11:30am - 12:00pm<br><b>KRAUSS</b>                     | 11:30am - 12:00pm<br><b>STINGELIN-STUTZMANN</b> |
| 12:00pm | 12:00pm - 12:30pm<br><b>SCHWARTZ</b>                       | 12:00pm - 12:30pm<br><b>GAMELIN</b>      | 12:00pm - 12:20pm<br><b>TBA</b>           | 12:00pm - 12:20pm<br><b>TBA</b>                        | 12:00pm - 12:20pm<br><b>TBA</b>                 |
| 12:30pm | 12:30pm - 2:00pm<br><b>LUNCH</b>                           | 12:30pm - 2:00pm<br><b>LUNCH</b>         | 12:20pm - 12:40 pm<br><b>TBA</b>          | 12:20pm - 2:00pm<br><b>LUNCH</b>                       | 12:20pm - 2:00pm<br><b>LUNCH</b>                |
| 1:00pm  | <i>Session Chair:</i>                                      | <i>Session Chair:</i>                    |   | <i>Session Chair:</i>                                  | <i>Session Chair:</i>                           |
| 2:00pm  | 2:00pm - 2:40pm<br><b>FRIEND</b>                           | 2:00pm - 2:40pm<br><b>RATNER</b>         |   | 2:00pm - 2:30pm<br><b>NESBITT</b>                      | 2:00pm - 2:30pm<br><b>PETEANU</b>               |
| 2:30pm  | 2:40pm - 3:10pm<br><b>SPANO</b>                            | 2:40pm - 3:10pm<br><b>BRADFORTH</b>      |   | 2:30pm - 3:00pm<br><b>HERZ</b>                         | 2:30pm - 3:00pm<br><b>BLANK</b>                 |
| 3:00pm  |  |  |   | 3:00pm - 3:30pm<br><b>KOEHLER</b>                      | 3:00pm - 3:30pm<br><b>COROPCEANU</b>            |
| 3:30pm  | 3:10pm - 3:40pm<br><b>BAZAN</b>                            | 3:10pm - 3:40pm<br><b>ZHU</b>            |   | 3:30pm - 4:00pm<br><b>BLANCHARD-DESCE</b>              | 3:30pm - 4:00pm<br><b>SCHERF</b>                |
| 4:00pm  | 4:00pm - 4:20pm<br><b>BREAK</b>                            | 4:00pm - 4:20pm<br><b>BREAK</b>          |   | 4:00pm - 4:20pm<br><b>BREAK</b>                        | 4:00pm - 4:20pm<br><b>BREAK</b>                 |
| 4:30pm  | 4:20pm - 4:50pm<br><b>RUMBLES</b>                          | 4:20pm - 4:50pm<br><b>LUPTON</b>         |   | 4:20pm - 4:50pm<br><b>CHERNYAK</b>                     | 4:20pm - 4:50pm<br><b>GULDI</b>                 |
|         | 4:50pm - 5:20pm  | 4:50pm - 5:20 pm                         |   | 4:50pm - 5:20pm  | 4:50pm - 5:20pm                                 |
| 5:00pm  | <b>CLARK</b>   | <b>SIEBBELS</b>                          |   | <b>CASTELLANO</b>                                      | <b>GESQUIERE</b>                                |
| 5:30pm  | 5:20pm - 5:50pm<br><b>SILVA</b>                            | 5:20pm - 5:50pm<br><b>MONKMAN</b>        |   | 5:20pm - 5:50pm<br><b>McCUSKER</b>                     | 5:20pm - 5:50pm<br><b>RAMASESHA</b>             |
|         | 5:50pm - 6:20pm  | 5:50pm - 6:20pm                          |   | 5:50pm - 6:10pm  | 5:50pm - 6:10pm                                 |
| 6:00pm  | <b>NGUYEN</b>  | <b>FERRARI</b>                           |   | <b>TBA</b>   | <b>TBA</b>                                      |
| 7:00pm  |  |  |   | 7:00pm - 9:00pm<br><b>BANQUET</b><br><b>@ LA FONDA</b> |   |
| 7:30pm  |  |  |   |  |   |
| 8:00pm  | 8:00pm - 9:30pm<br><b>POSTER SESSION</b>                   | 8:00pm - 9:30pm<br><b>POSTER SESSION</b> |   |  |   |
| 8:30pm  |  |  |   |  |   |
| 9:00pm  |  |  | 2   |  |   |

## Monday, June 20

**08:10am – 08:30am**

**Welcome**

**Session Title:**

**OPV, charge and energy transfer in polymers**

*Session chair:*

**TBA**

**08:30am – 09:10am**

**Alan Bishop (LANL)**

*"Materials Futures: Beyond Bloch and Boltzmann"*

**09:10am – 09:50am**

**Alan Heeger (UCSB)**

*"Plastic Solar Cells: Self-Assembly of Bulk Heterojunction Nano-materials by Spontaneous Phase Separation"*

**09:50am – 10:10am**

**TBA**

**10:10am – 10:30am**

**Break**

**10:30am – 11:00am**

**Mike McGehee (Stanford)**

*"Morphology, traps and degradation in high efficiency polymer solar cells"*

**11:00am – 11:30am**

**Dimitry Basov (UCSD)**

*"Dirac plasmon and the nanoscale infrared response of graphene-SiO<sub>2</sub> interface"*

**11:30am – 12:00pm**

**Sumit Mazumdar (University of Arizona)**

*"Excimers and Exciplexes in Ordered Films and Donor-Acceptor Blends of Pi-Conjugated Polymers"*

**12:00pm – 12:30pm**

**Benjamin Schwartz (UCLA)**

*"The role of energy transfer in sequentially solution-processed conjugated polymer/fullerene solar cells"*

**12:30pm – 02:00pm**

**Lunch**

**Session Title:**

**OPV, charge and energy transfer in polymers**

*Session chair:*

**TBA**

**02:00pm – 02:40pm**

**Richard Friend (University of Cambridge)**

*"Charge Generation from Excitons in Molecular Semiconductors"*

**02:40pm – 03:10pm**

**Frank Spano (Temple University)**

*"J- and H-aggregate Behavior in Conjugated Polymers"*

**03:10pm – 03:40pm**

**Guillermo Bazan (UCSB)**

*"Conjugated Oligoelectrolytes for Bioelectronic Applications"*

**03:40pm – 04:00pm**

**TBA**

**04:00pm – 04:20pm**

**Break**

**04:20pm – 04:50pm**

**Garry Rumbles (NREL)**

*"Photogenerated Charges in Neat Poly(3-hexylthiophene) Films"*

**04:50pm – 05:20pm**

**Jenny Clark (University of Cambridge)**

*"A quantum example of the overdamped oscillator: ultrafast planarization of oligofluorenes"*

**05:20pm – 05:50pm**

**Carlos Silva (University of Montreal)**

*"Charge separation by photoexcitation in semicrystalline polymeric semiconductors: An intrinsic or extrinsic mechanism?"*

**05:50pm – 06:20pm**

**Thuc-Quyen Nguyen (UCSB)**

*"Effect of Charge Recombination on the Fill Factor of Small Molecule Bulk Heterojunction Solar Cells"*

**08:00pm – 09:30pm**

**Poster Session 1**

## Tuesday, June 21

### Session Title: ESP focused session 1: Quantum dots

Session chair: TBA

**08:30am – 09:10am** Victor Klimov (LANL)

*"From Carrier Multiplication and Hot-Electron Transfer to Mysteries of Nanocrystal Blinking"*

**09:10am – 09:40am** Efrat Lifshitz (Technion Israel Institute of Technology)

*"Colloidal core/shell heterostructures with alloy composition: Synthesis, theoretical electronic band structure, and magneto-optical characterization"*

**09:40am – 10:10am** Matt Law (UC Irvine)

*"Charge transport in environmentally-robust PbX nanocrystal solids"*

**10:10am – 10:30am** Break

**10:30am – 11:00am** Sasha Efros (NRL)

*"Atomically Flat Colloidal Nanoplatelets with Quantum Well Electronic Structure"*

**11:00am – 11:30am** Frank Wise (Cornell University)

*"Properties of PbSe Nanowires and Nanorods"*

**11:30am – 12:00pm** Bill Buhro (Washington University St. Louis)

*"Delocalized Excitons in Bright CdSe Quantum Belts, and the Synthetic Origins of the Surprisingly Good Optical Properties"*

**12:00pm – 12:30pm** Daniel Gamelin (University of Washington)

*"Dopants and Charge Carriers in Colloidal II-VI Semiconductor Nanocrystals"*

**12:30pm – 02:00pm** Lunch

### Session Title: Multi-exciton dynamics in conjugated organics

Session chair: TBA

**02:00pm – 02:40pm** Mark Ratner (Northwestern University)

*"TBA"*

**02:40pm – 03:10pm** Stephen Bradforth (USC)

*"Ultrafast optical probes of triplet exciton generation: sensitization and singlet fission in thin films"*

**03:10pm – 03:40pm** Xiaoyang Zhu (UT Austin)

*"Efficient Harvesting of MEG in Organic Semiconductors"*

**03:40pm – 04:00pm** TBA

**04:00pm – 04:20pm** Break

**04:20pm – 04:50pm** John Lupton (University of Utah)

*"Light harvesting in single polymer chains and inorganic nanostructures"*

**04:50pm – 05:20pm** Laurens Siebbels (TU Delft)

*"Excitons and charge dynamics in organic materials and semiconductor nanoparticles"*

**05:20pm – 05:50pm** Andrew Monkman (Durham University)

*"Intra-molecular dimers; low energy trap states in high triplet energy hosts"*

**05:50pm – 06:20pm** Andrea Ferrari (University of Cambridge)

*"TBA"*

**08:00pm – 09:30pm** Poster Session 2

## Wednesday, June 22

### Session Title: ESP focused session 2: Biomolecules

Session chair:

TBA

**08:30am – 09:10am**

**Guglielmo Lanzani** (Italian Institute of Technology)

*"A Hybrid Bioorganic Interface For Neuronal Photoactivation"*

**09:10am – 9:40am**

**Gregory Scholes** (University of Toronto)

*"Lessons from Nature about harvesting sunlight for organic solar cells"*

**09:40am – 10:10am**

**Greg Engel** (University of Chicago)

*"Quantum Transport and Protection of Quantum Coherence in Photosynthetic Light Harvesting Antennae"*

**10:10am – 10:30am**

**Break**

**10:30am – 11:00am**

**Alan Aspuru-Guzik** (Harvard University)

*"Understanding the role of coherence in photosynthetic energy transfer: atomistic energy transfer simulations, and design of novel ultrafast experiments"*

**11:00am – 11:30am**

**Rienk van Grondelle** (VU University Amsterdam)

*"Ultrafast Excitation Energy Transfer and the Mechanism of Non-Photochemical Quenching in Plant Photosynthesis"*

**11:30am – 12:00pm**

**Gary Brudvig** (Yale University)

*"Learning From Nature: Materials for Solar Fuel Production"*

**12:00pm – 12:20pm**

TBA

**12:20pm – 12:40pm**

TBA

## Thursday, June 23

### Session Title: **ESP focused session 3: Nanotubes and graphene**

Session chair: TBA

**08:30am – 09:10am** **Bruce Weisman** (Rice University)

*"Photoluminescence of Single-Walled Carbon Nanotubes: a Powerful Probe of Physical and Chemical Processes"*

**09:10am – 09:40am** **Tobias Hertel** (University of Würzburg)

*"Mechanisms of non-radiative decay in semiconducting carbon nanotubes"*

**09:40am – 10:10am** **Ado Jorio** (Universidade Federal de Minas Gerais)

*"Raman spectra of ion-bombarded and folded graphene"*

**10:10am – 10:30am** **Break**

**10:30am – 11:00am** **Fotios Papadimitrikopoulos** (University of Connecticut)

*"Flavin-induced Superhelices of Single Walled Carbon Nanotubes"*

**11:00am – 11:30am** **Jun Kono** (Rice University)

*"Dynamics of Photoexcited Single-Walled Carbon Nanotubes"*

**11:30am – 12:00pm** **Todd Krauss** (University of Rochester)

*"Bright Carbon Nanotubes and Multiple Exciton Generation"*

**12:00pm – 12:20pm** **TBA**

**12:20pm – 02:00pm** **Lunch**

### Session Title: **Hybrid materials**

Session chair: TBA

**02:00pm – 02:30pm** **David Nesbitt** (JILA, University of Colorado)

*"Excitation dynamics in polythiophene aggregates and polythiophene-carbon nanotube complexes"*

**02:30pm – 03:00pm** **Laura Herz** (University of Oxford)

*"Excitation dynamics in polythiophene aggregates and polythiophene-carbon nanotube complexes"*

**03:00pm – 03:30pm** **Anna Koehler** (University of Bayreuth)

*"The effects of triplet diffusion in poly(para-phenylene)-type polymers with different energetic disorder: triplet-triplet-annihilation and spectral diffusion"*

**03:30pm – 04:00pm** **Mireille Blanchard-Desce** (University of Rennes)

*"Supramolecular Engineering of (Non)linear Optical Responses and Probing of Interchromophoric Interactions in Organic Nanoclusters"*

**04:00pm – 04:20pm** **Break**

**04:20pm – 04:50pm** **Vladimir Chernyak** (Wayne State University)

*"Analytical and Topological Properties of Exciton Scattering in Conjugated Molecules: Towards Photoinduced Dynamics and Energy Transfer"*

**04:50pm – 05:20pm** **Felix Castellano** (Bowling Green State University)

*"Upconversion Photochemistry"*

**05:20pm – 05:50pm** **James McCusker** (Michigan State University)

*"Dye-Sensitized Solar Cells based on Earth-abundant Materials"*

**05:50pm – 06:10pm** **TBA**

**07:00pm – 09:00pm** **Banquet @ La Fonda Hotel**

## Friday, June 24

### Session Title: Organic spintronics

Session chair:

TBA

**08:30am – 09:10am**

**Arthur Epstein** (Ohio State University)

*"Organic-based spintronics and spin injection into organic semiconductors"*

**09:10am – 09:40am**

**Christoph Boehme** (University of Utah)

*"Coherent spin spectroscopy in organic thin film semiconductor devices"*

**09:40am – 10:10am**

**Valy Vardeny** (University of Utah)

*"The Magnetic Field Effect in Organic Diodes; the Role of Hyperfine, Exchange and Spin Orbit Interactions "*

**10:10am – 10:30am**

**Break**

**10:30am – 11:00am**

**Zhigang Shuai** (Tsinghua University)

*"QM/MM coupled vibration correlation study on the aggregation induced emission phenomena for organic solids"*

**11:00am – 11:30am**

**Fernando Dias** (Durham University)

*"Excited State Dynamics in Conjugated Materials Exhibiting Photoinduced Charge Transfer"*

**11:30am – 12:00pm**

**Natalie Stingelin-Stutzmann** (Imperial College London)

*"Solid-state structure development in polymer semiconductors and influence on optoelectronic processes"*

**12:00pm – 12:20pm**

TBA

**12:20pm – 02:00pm**

**Lunch**

### Session Title:

### Aggregation and dynamics

Session chair:

TBA

**02:00pm – 02:30pm**

**Linda Peteanu** (Carnegie Mellon University)

*"Aggregation Effects on the Emission Spectra and Dynamics of  $\pi$ -Conjugated Systems"*

**02:30pm – 03:00pm**

**David Blank** (University of Minnesota)

*"Exciton migration dynamics in poly(3-hexylthiophene)"*

**03:00pm – 03:30pm**

**Veaceslav Coropceanu** (GA Tech)

*"Charge transport in organic molecular semiconductors: Interplay between electronic and electron-phonon interactions"*

**03:30pm – 04:00pm**

**Ulli Scherf** (University of Wuppertal)

*"Optical and Electronic Properties of All-Conjugated Block Copolymers"*

**04:00pm – 04:20pm**

**Break**

**04:20pm – 04:50pm**

**Dirk Guldi** (University of Erlangen-Nürnberg)

"TBA"

**04:50pm – 05:20pm**

**Andre Gesquiere** (University of Central Florida)

*"Correlation between Morphology and Electronic Processes Investigated from Single Conjugated Polymers to their Materials and Devices"*

**05:20pm – 05:50pm**

**S. Ramasesha** (Indian Institute of Science)

*"Role of the triplet state in the green emission peak of polyfluorene films; a time evolution study"*

**05:50pm – 06:10pm**

TBA