Fundamentals of Chemical and Electrochemical Doping in Conducting Polymers

Organizers: Connor Bischak, Chris Grieco and Ben Schwartz
March 22-24, 2026

Sunday AM

Georgia World Congress Center | B214
Chemical and Electrochemical Doping in Conjugated Polymers
B. J. Schwartz, *Organizer* | C. G. Bischak, C. Grieco, *Organizers, Presiding*

8:00 AM. Introductory Remarks.

8:05 AM. What we know, think we know, and don't know about doping of organic semiconductors. **S. Marder**

8:35 AM. Unraveling doping mechanisms in n-type mixed conductors for stable bioelectronic interfaces. **S. Inal**

9:05 AM. Using spectroelectrochemistry to monitor doping of polymer subpopulations. **J.L. Jenkins**, M. Hawley, E.L. Ratcliff

9:20 AM INTERMISSION.

9:35 AM. Understanding how ethylene glycol sidechains impact carrier mobility in conjugated polymers by electrochemical quantification of molecular doping. **D.S. Ginger**

10:05 AM. Impact of chemical structure on electrochemical charging processes in conjugated polymer mixed ionic electronic conductors. **J. Nelson**

10:35 AM. Improving n-type organic electrochemical transistor performance by blending alkyl and oligoglycol functionalized polymers and modifying electrolyte pH. **S.R. Jackson**, G. Collins, T. Phan, M. Koh, J.F. Ponder, R.P. Steele, C.G. Bischak

10:50 AM. INTERMISSION.

11:00 AM. Understanding density of states (DOS) and absorption spectroscopy of *p*- and *n*-doped conducting polymers. **I. Zozoulenko**, M. Meinel, S.S. Jena, D. Neusser, X. Sun, W.L. Tan, L. Thomsen, C. McNeill, S. Ghosh, S. Ludwigs

11:30 AM. Tailoring electronic functionality in organic devices via charge transfer state engineering. **O. Jurchescu**

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Sunday PM

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Emerging Supramolecular Materials and Properties
C. G. Bischak, C. Grieco, B. J. Schwartz, *Organizers* | J. L. Jenkins, *Presiding*

2:00 PM. Development of conjugated polyelectrolytes for opto-electronic devices. **T.T. Nguyen**

2:30 PM. Application-guided design of iono-electronic conductive polymers and polymer composites. **A. Gumyusenge**

3:00 PM. Probing the effect of phase morphology on electrochemical doping in conjugated ribbon-like polymer blends. **J.Y. Kpare**, H. Kantrow, A. Magni, D. Harrison, M. De Keersmaecker, R. Li, A. Salleo, E. Ratcliff, N. Stingelin

3:15 PM INTERMISSION.

3:30 PM. Recent advances in 1D and 2D Self-Doped Conjugated Polyelectrolytes. **R.J. Vazquez**

4:00 PM. Properties of very high molecular weight conjugated polymers accessed with a two-cycle Suzuki-Miyaura cross-coupling. **R.C. Chiechi**, T. Muthumali

4:30 PM. Polymers and polarons: how charge carriers reshape backbone mechanics and thermo-mechanical response. **Z.T. Gardner**, J. Bombile, C. Risko

4:45 PM. INTERMISSION.

5:00 PM. Sequence-dependent charge separation, trapping and generation of pancake π-dimer anions within assemblies of peptide-flanked perylene diimides. **A.E. Bragg**

5:30 PM. Chemical doping of P3HT nanowires. **S. Guo**, N. Kreis, S. Mo, K. Tang

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Monday AM

Georgia World Congress Center | B306
Charge Carrier Behavior at High Doping Levels in Conducting Polymers
C. G. Bischak, C. Grieco, B. J. Schwartz, *Organizers* | A. F. Paterson, *Presiding*

8:00 AM. Mid- to near-IR spectral signatures of multipolarons in doped conjugated polymer films. **F.C. Spano**, N. Hestand, A. Magni, A. Salleo

8:30 AM. Charge transport and thermoelectric physics of conjugated polymers at ultrahigh charge densities. **H. Sirringhaus**

9:00 AM. Bipolaron formation in electrochemically doped π-conjugated polymers: Influence of polymer backbone chemistry and counterion size. **N.C. Lok**, M.R. Brown, J.H. Bombile, C. Risko

9:15 AM. INTERMISSION.

9:30 AM. Using vitrification to predict molecular limits for dopant: Conjugated polymer interactions. **N. Stingelin**

10:00 AM. Kinetic exchange stabilizes spinless bipolarons in doped conductive polymers. **N. Hestand**, F.C. Spano

10:30 AM. INTERMISSION.

10:45 AM. Understanding exciton-polaron interactions in dopant: Polymer semiconductor solid solutions. **H. Kantrow**, H. Li, D. Valverde-Chávez, J.Y. Kpare, M. Balooch Qarai, N. Hestand, F.C. Spano, C. Silva-Acuña, N. Stingelin

11:00 AM. Thermodynamic limits to molecular doping in conjugated polymers: A perspective on phase behavior and miscibility. **H.W. Ade**

11:30 AM. Descriptors of polaron stability in electrochemically doped polymers. **M.R. Brown**, Z. Chen, A. Magni, H. Li, J.H. Bombile, S. Suo, T. Lian, M. Myong, J.E. Bredas, M. Bird, N.R. Armstrong, A. Salleo, E. Ratcliff, C. Risko

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Monday PM

Georgia World Congress Center | B306
Ion and Electrolyte Interactions in Conducting Polymers
C. G. Bischak, C. Grieco, B. J. Schwartz, *Organizers* | N. Hestand, *Presiding*

2:00 PM. Regulating ion dynamics in carboxylated mixed conductors. Z. Sun, M. Sun, S. Qin, R. Hamburger, H. Li, E.R. Young, T. Gartner, **E. Reichmanis**

2:30 PM. Chemical dopants for electrochemical systems. **A.F. Paterson**

3:00 PM. *In-situ* and *operando* electrochemical doping studies of organic mixed conductors: Do charges and electrolyte alter the polymer microstructure?. **A. Salleo**

3:30 PM. Intermission.

3:45 PM. Influence of the electrolyte solvent's dielectric constant on the electronic and ionic properties of electrochemically doped polythiophenes. **A.O. Yusuf**, M.R. Brown, N.C. Lok, S. Tahsin, A. Maldonado, A.F. Paterson, C. Risko, K.R. Graham

4:00 PM. Ion dependent behavior of n-type mixed conductors functionalized with crown ether polymers. **L. Kayser**

4:30 PM. Elucidating the link between structure and conductivity in magic blue doped P3HT. **A. Slimp**, A.F. Simafranca, E. Wu, B.J. Schwartz, S.H. Tolbert

4:45 PM. Intermission.

5:00 PM. Dopant ion localization in mixed organic electronic conductors. **L. Flagg**

5:30 PM. Sub-Band filling and Ion-Carrier interactions in electrochemically doped polymer semiconductors. **C.D. Frisbie**

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Tuesday PM

Georgia World Congress Center | B210
Polymer Doping, Structure, and Dynamics
C. G. Bischak, C. Grieco, B. J. Schwartz, *Organizers* | L. Flagg, *Presiding*

2:00 PM. Understanding the role of polymer structure in controlling the conductivity of redox doped conjugated polymers. **S.H. Tolbert**

2:30 PM. Defects and degradation in electrochemically doped conjugated polymers: New methods of detection to variables influencing defect formation. **K.R. Graham**, K.R. Pedersen, N. Mullapudi, L. Nahar

3:00 PM. Steady-state and ultrafast spectroscopic signatures of polaron environments in doped conjugated polymers. **E. Wu**

3:15 PM. INTERMISSION.

3:35 PM. Interrogating the structure, electronic and optical response, and dynamics of semiconducting polymer:electrolyte interphases. **C. Risko**

4:05 PM. Linking polaron transport to nanomorphology in conducting polymers using ultrafast near-infrared spectroscopy. **A. Umar**, C. Grieco

4:20 PM. INTERMISSION.

4:40 PM. Watching mixed electrical-ionic transport in the frequency domain using of color impedance spectroscopy. **E.L. Ratcliff**

5:10 PM. Tuning of the infrared response of nanostructured conductive polymer films by chemical doping. H. Pacheco, **D. O'Carroll**

5:40 PM. Scanning microwave impedance spectroscopy for metal/semiconductor organic interfaces and doped organic semiconductors. **G.S. Rupasinghe**, E. Bestelink, M. Shahi, S. Mahmoudi, A.O. Yusuf, K. Thorley, K.R. Graham, J.E. Anthony, R. Sporea, A.F. Paterson

5:55 PM. Closing Remarks.

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