

Advances in Single-Particle Imaging: From Single Molecules to Nanomaterials

McCormick Place Convention Center
Rooms S405A and S403B
August 22-25, 2022

ORGANIZERS

STEPHAN LINK, DAVID J. MASIELLO, KATHERINE A. WILLETS

MONDAY MORNING: Room S405A

Nanomaterials and Single Molecules

Dayne Swearer, Presiding

8:00 AM. Multi-scale assembly of colloidal materials with optical functionality: From biomimetic structure formation to chiroplasmonics.

A. Fery, Y. Brasse, A. Steiner, M. Mayer, P. Probst, V. Gupta

8:30 AM. Near-field and far-field optical properties of plasmonic magnesium nanoparticles. C. Boukouvala, E.R. Hopper, C.A. West, T. Wayman, J. Asselin, E. Ringe

9:00 AM. Measuring the chiroptical response of single molecules in the near field of plasmonic nanoparticles. S. Chattopadhyay, Z. Pfaffenberger, J.S. Biteen

9:20 AM. Single molecule conductance measurements probe metal-biomolecule interface structure and electronics. M. Kamenetska

9:40 AM. Intermission.

10:00 AM. Quantitative measurement of atoms and electrons at single gold nanorods. C.J. Murphy

10:30 AM. Dynamically controlled high-order magnetic multipolar resonances in optical domain. Z. Fakhraai, O. Ibrahim, S. Lee, S. Park

11:00 AM. Ultrafast optical control over hot electron dynamics in nanoplasmonic systems. D.J. Nesbitt, J. Pettine, F. Medeghini

11:40 AM. Single-molecule RNA biomolecular electronics: Biophysics and biosensors. K.G. Pattiya Arachchillage, S. Chandra, J.M. Artes Vivancos

WEDNESDAY MORNING: Room S403B

Electron Microscopy and Tip-based Spectroscopy

Claire A. West, Presiding

8:00 AM. Imaging infrared plasmons and plasmon hybridization in doped semiconductor nanocrystals. J.P. Camden

8:30 AM. Imaging of plasmonic, non-linear optical and fluorescent responses. S.K. Gray

9:00 AM. Spatial and spectral mapping of exciton polaritons in periodic photonic cavities with laser-stimulated electron energy gain spectroscopy. M.R. Bourgeois, D.J. Masiello

9:20 AM. Combining s-SNOM and ultrafast spectroscopy for high spatial and temporal resolution microscopy as a user facility instrument. L. Estergreen

9:40 AM. Intermission.

10:00 AM. Understanding symmetry-breaking in nanocrystal growth at the singleparticle level. M.R. Jones

10:30 AM. Optically coupled transmission electron microscopy for single-particle insights into nanophotonic materials. D. Swearer

11:00 AM. Developing semiempirical models for noble metal nanoclusters. R. Giesekeing

11:20 AM. Characterizing the electronic and excited state properties of carbon dots using single-molecule absorption scanning tunneling microscopy. A.M. Wallum, Z. Liu, J. Lyding, M. Gruebele

11:40 AM. Compositional dependence of the optical and electronic properties of single layer MoS₂-WS₂ alloys. M. Mosquera

WEDNESDAY AFTERNOON: Room S403B

Fluorescence, Raman, and Interfaces

Lydia Kisley and Stephen Lee, Presiding

2:00 PM. In situ vibrational spectroscopic mapping of electric field profile at semiconductor and metal electrode/electrolyte interfaces. T. Lian

2:30 PM. Super-resolution imaging of electron and ion charge transfer during corrosion. L. Kisley

3:00 PM. Tracking reaction intermediates in electrocatalysis with high spatiotemporal resolution. A.J. Wilson

3:30 PM. Near-field optical chirality of two-dimensional chiral plasmonic nanoparticles revealed by super-resolution microscopy. Z. Pfaffenberger, S. Chattopadhyay, J.S. Biteen

3:50 PM. Intermission.

4:10 PM. Chemical and electromagnetic effects in surface-enhanced Raman imaging of single molecules. L. Jensen

4:40 PM. Raman energy density (RED) in the context of acousto-plasmonics. N. Large, J. Montaño-Priede, A. Mlayah

5:10 PM. Time-gated real-time 3D single-particle tracking. T. Zhao, H. Yang

THURSDAY MORNING: Room S403B

Marc Bourgeois and Angela J. Wilson, Presiding

8:00 AM. Opportunities for spectroscopy and imaging with entangled photons. G.C. Schatz

8:30 AM. Ultrafast dynamic microscopy of exciton and charge transport. L. Huang

9:00 AM. Light emission from plasmonic nanorods. L.J. Tauzin, Y. Cai, B. Ostovar, S. Lee, S. Link

9:20 AM. Plasmon decay in gold nanoparticles: Hot carriers and their relation to charge transfer and light emission. S.A. Lee, B. Ostovar, S. Link

9:50 AM. Intermission.

10:10 AM. Spatial resolution limits in photothermal microscopy. G.V. Hartland, B.S. Brown

10:40 AM. Nonlinear effects in single-particle photothermal microscopy and spectroscopy. C.A. West, J. Shooter, S. Lee, H.J. Goldwyn, K.A. Willets, S. Link, D.J. Masiello

11:00 AM. Planar microring optical resonators for single-particle photothermal spectroscopy. C. Vollbrecht, R.H. Goldsmith

11:20 AM. Charge vs. energy transfer in plasmonic nanoparticles. C.F. Landes

11:40 AM. Fluorescence intensity correlation imaging of single nanosized particles with intense X-ray pulses. P.J. Ho, C. Knight, L. Young