

The International Conference on Surface Plasmon Photonics 10

May 21<sup>st</sup> –May 26<sup>th</sup>, 2023

Anderson-Clarke Center, Rice University, Houston, TX, USA

All sessions in left column (session 1\*) will take place in Hudspeth Auditorium

All sessions in right column (session 2\*) will take place in Class 107

**Monday May 22, 2023**

	<b>Auditorium</b>	
8:50-9:00	WELCOME	
9:00-9:40 Hudspeth Auditorium	<b>P1: John Pendry:</b> Extreme time modulation of materials properties and Hawking radiation	
9:40 – 10:10	Coffee Break	
	<b>Session 1: Devices. Chair: Naomi Halas</b>	<b>Session 2: Plasmonic Chemistry A. Chair: Christy Landes</b>
10:10-10:40	<b>I1: T. Odom:</b> Moiré Photonics and Light Manipulation with Stacked Plasmonic Lattices	<b>I2: P. Jain:</b> Non-Equilibrium Conversion Using Plasmons
10:40-11:10	<b>I3: D. P. Tsai:</b> Novel applications of meta-devices	<b>I4: E. Cortes:</b> Plasmonic catalysis across all lengths: from 1nm to 1mm
11:10-11:30	C1: H. Giessen: Electrically switchable plasmonic polymer metasurfaces for video-rate switching and multifocal meta-objectives	C2: D. Kuroski: Tip-Enhanced Raman Imaging of Plasmon-Driven Chemistry on mono- and bimetallic nanostructures
11:30-11:50	C3: W. Kubo: Metamaterial thermoelectric conversion	C4: A. Schirato: Shaping Ultrafast Hot Electrons to Drive Photoinduced Anisotropy in Nonlinear Plasmonic Metasurfaces
11:50-13:30	Lunch	
	<b>Session 3: Light Manipulation. Chair: Peter Nordlander</b>	<b>Session 4: Plasmonic Chemistry B. Chair: Stephan Link</b>
13:30-14:00	<b>I5: A. Faraon:</b> 3D meta-optics for sorting light by wavelength, polarization and angle of incidence	<b>I6: H. Misawa:</b> Mechanism of hot electron transfer at Au nanostructure/TiO <sub>2</sub> interface under modal strong coupling conditions
14:00-14:20	C5: H. Wang: Colored Vortex Beams Based on Nanoscale 3D Printed Nanofins	C6: R. Zaier: Hot-carrier generation in strongly coupled nanoparticle-molecule systems
14:20-14:40	C7: S. Boroviks, Bianisotropic Metasurface for Asymmetric Second-Harmonic Generation: a Nonlinear Plasmonic Pseudo-Diode	C8: O. Henrotte: Local in situ chemical mapping of hot carrier-driven catalysis with plasmonic nanosystems
14:40-15:10	Coffee Break	
	<b>Session 5: Dielectric-based Light Manipulation. Chair: Alessandro Alabastri</b>	<b>Session 6: Plasmonic Chemistry C. Chair: Jiming Bao</b>
15:10-15:40	C7.3 Ming-Jyun Ye: All-dielectric metasurface infrared absorber with symmetry-protected bound stated in the continuum C7.7 J.S. Park: All-glass, 100 mm Diameter Metalens Operating in the Visible Wavelength	<b>I8: P. Berini:</b> Plasmonic electrocatalysis: energetic carriers enhance electrochemistry
15:40-16:00	C9: C. Damgaard-Carstensen: Nonlocal electro-optic metasurfaces for free-space light modulation	C10: Y. Yuan: Hydrogen production from methane steam reforming using plasmonic photocatalysis

16:00-16:20	C11: G. Lu: Launching and Manipulation of Higher-Order In-Plane Hyperbolic Phonon Polaritons in Low-Dimensional Heterostructures	C12: A. B. Vasista: The role of temperature in plasmonic photocatalysis: large scale modelling and 3D thermal imaging
16:20-16:50	C13: T. G. Folland: Infrared polaritonics at low temperatures – pushing the limits of light matter coupling	C14 H. Robotjazi: Leveraging Photons for Sustainable Catalysis and Energy Transition
17:00- 19:00	POSTER SESSION 1 with refreshments	

## Tuesday May 23, 2023

	<b>Auditorium</b>	
9:00-9:40	<b>P2: Nikolay Zheludev:</b> Picophotonics and Continuous Time Crystals	
9:40 – 10:10	Coffee Break	
	<b>Session 7: Active Photonics.</b> <b>Chair: Harald Giesser</b>	<b>Session 8: Nanoscale Fabrication &amp; Characterization.</b> <b>Chair: Niel Asger Mortensen</b>
10:10-10:40	<b>I9: U. Levy:</b> Active metasurfaces	<b>I12: K. Aydin:</b> Active metasurface and metamaterial platforms enabled by DNA-assembled plasmonic nanoparticles
10:40-11:10	<b>I11: M. Brongersma:</b> Nanomechanical Control of Optical Antennas and Metasurfaces	C14.3 Nicholas Hendricks: NanoFrazor Technology: Enabling Unique Plasmonic Structures Via Thermal Scanning Probe Lithography C14.7 E. Kovalik: Low Power Structural Color Tuning in a-Si Dielectric Metasurface via Li ion insertion
11:10-11:30	C15: T. Tanaka: Vertical MIM metamaterial absorber for gas molecular sensing	C16: J. Boltersdorf: Investigations of Silver Deposition Dynamics onto Plasmonic Gold Nanorods with Liquid Phase Transmission Electron Microscopy
11:30-11:50	C17: C. Ciraci: Heavily doped semiconductors: a platform for integrated nonlinear plasmonics	C18: D. Swearer: Ultrafast Electron Microscopy: Nanophotonics at the Limit of Space and Time
11:50-13:30	Lunch	
	<b>Session 9: Electron Excitation.</b> <b>Chair: Javier Aizpurua</b>	<b>Session 10: Bio Applications.</b> <b>Chair: Romain Quidant</b>
13:30-14:00	<b>I13: A. Polman:</b> Diving into the 3D plasmonic near field: high-energy electron-light-matter interactions	<b>I14: H. Altug:</b> Applications of Nanoplasmonic Metasurfaces for Optical Biosensing, Spectroscopy and Bioimaging
14:00-14:20	C19: P. A. D. Gonçalves: Fundamentals and applications of electron–light interactions in nanoplasmonics	C20: I. Kim: Metasurface-enhanced multiplexed nanospectroscopy and molecular diagnostics
14:20-14:40	C21: E. J. C. Dias: Ultrafast electron probing of plasmon thermal dynamics	C22: Y. Xiong: Plasmonic-Photonic Hybrid System for Enhanced Fluorescent-based Digital Resolution Biosensing
14:40-15:10	Coffee Break	
	<b>Session 11: Emission.</b> <b>Chair: Alejandro Manjavacas</b>	<b>Session 12: Quantum Emitters.</b> <b>Chair: Jeremy Baumberg</b>
15:10-15:40	<b>I14: S. Bozhevolnyi:</b> Metasurface-Empowered Single-Photon Emission Control	<b>I16: R. Bachelot:</b> Hybrid plasmonic nano-emitters: on the interest of controlling the spatial distribution of the active medium
15:40-16:00	C23: M. Kvapil: Strongly coupled mid-IR Plasmon and Phonon Polaritons investigated by correlative photon and electron probe micro-spectroscopy	C24: S. Hu: Robust and consistent single-quantum-dot plasmonic-nanocavity strong coupling at room temperature

16:00-16:20	C25: T. Shahbazyan: Purcell factor for plasmon-enhanced metal photoluminescence	C26: J. Jang: A Multifunctional Imaging Metalens for shaping Quantum Emission
16:20-16:50	<b>I17: P. Törmä:</b> Topological photonics in plasmonic lattices	<b>I18: A. Toma:</b> Nanohybrid architectures for strong light-matter interaction
17:00 – 19:00	POSTER SESSION 2 with refreshments	

### Wednesday May 24, 2023

	<b>Session 13: Solar Energy and Thermal effects. Chair: Hatice Altug</b>	<b>Session 14: Lattices and Array Effects. Chair: Renaud Bachelot</b>
9:00-9:30	<b>I19: S. Fan:</b> Nonreciprocal Thermal Radiation and Solar Energy Harvesting	<b>I20: R. Quidant:</b> Reconfigurable planar optics with optomechanical and thermo-optical controls
9:30– 9:50	C27: V. Zenin: Extreme plasmonics with atomically smooth monocrystalline gold flakes	C28: J. Taskinen: Measurement of the Quantum Geometric Tensor in a Plasmonic Lattice
<b>9:50-10:20</b>	<b>Coffee</b>	<b>Break</b>
10:20-10:40	C29: D. Masiello: Optical Control over Thermal Distributions in Individual Nanoparticle Clusters and Topologically Trivial and Non-Trivial Plasmon Lattices	C30: A. Muravitskaya: Unidirectional photoluminescence outcoupling via surface plasmons
10:40-11:00	C31: H.O. Everitt: Strain mapping with Terahertz metamaterial composites	C32: J. Prikulis: Evaluation of High-Density Arrays of Au Nanoparticles on Porous Anodic Aluminum Oxide for Refractometric Sensing
11:00-11:20	C33: S. J. Oldenburg: Nanoparticle Design for Photothermal Applications and the Path to Commercialization	C34: S. Lee: d-band hole dynamics in gold nanoparticles measured with time-resolved emission upconversion microscopy
11:30-12:00	<b>Panel: INNOVATION AND ENTREPRENEURSHIP</b>	
12:00-13:30	<b>Lunch</b>	
13:30-18:30	<b>Excursion: NASA Johnson Space Center</b>	
19:00-22:00	<b>Banquet: Doré Commons, Baker Institute, Rice University</b>	

### Thursday May 25, 2023

	<b>Auditorium</b>	
9:00-9:40	<b>P3: Jennifer Dionne:</b> The light stuff: enabling sustainable chemical manufacturing with atomically-optimized photocatalysts	
9:40 – 10:10	<b>Coffee Break</b>	
	<b>Session 15: Pico &amp; Nanocavities. Chair: Uriel Levy</b>	<b>Session 16: Novel Materials. Chair: Emiliano Cortes</b>
10:10-10:40	<b>I21: J. Aizpurua:</b> Quantum Effects in Extreme Nanocavity-Enhanced Molecular Spectroscopy	<b>I22: A. Boltasseva:</b> Tailoring Nitrides and Oxides for Epsilon-Near-Zero and Dynamic Nanophotonics
10:40-11:10	<b>I23: J. Baumberg:</b> Extreme Optical Forces and Catalysis through Plasmonics Confinement to the Atom scale	C34.3 A. Jurkeviciute: Feasibility of Optical Refractive Index Sensor based on Porous Anodized Aluminum Oxide and Nanocomposite of Diamond-like Carbon with Silver Nanoparticles: Simulations and Experiments C34.7 L. Mascaretti: Optical properties and photothermal applications of TiN nanomaterials

11:10-11:30	C35: A. Demetriadou: Generating persistent sub-radiant states with plasmonic nanocavities	C36: O. Goldberg: Silicon Rich Nitride Huygens Metasurface in the Visible Regime
11:30-11:50	C37: C. P. Liska: Correlative Imaging of Individual CsPbBr <sub>3</sub> Nanocrystals: Quantum Confinement Effect in Anisotropic Nanocrystals (CA85)	C38: M. Chirumamilla: Optical properties of the refractory metals at high temperatures
11:50-13:30	Lunch	
	<b>Session 17: Active &amp; Coupled Photonics. Chair: Alain Dereux</b>	<b>Session 18: Meta-Photonics: Novel Concepts. Chair: Jonathan Fan</b>
13:30-14:00	<b>I25: A. Manjavacas:</b> Lattice resonances excited by arbitrary light sources	<b>I26: V. Shalaev:</b> Quantum Meta-Photonics
14:00-14:20	C39: S. Hu: Full control of plasmonic nanocavities using gold decahedra-on-mirror constructs with monodisperse facets	C40: J. R. Deop-Ruano: Exotic transfer of energy and angular momentum in pairs of rotating nanostructures
14:20-14:40	C41: N. Large: Acousto-Plasmonic Coupling: The Raman Energy Density (RED)	C42: V. Křápek: Plasmonic lightning-rod effect
14:40-15:10	Coffee Break	
	<b>Session 19: 2D Photonics. Chair: Pierre Berini</b>	<b>Session 20: Machine Learning &amp; Related Applications. Chair: Din Ping TSAI</b>
15:10-15:40	<b>I27: A. Mortensen:</b> Crystalline gold flakes – a platform for extremely confined polaritons	<b>I28: J. Fan:</b> Accelerating the innovation cycle of nanophotonic systems design
15:40-16:00	C43: J. D. Cox: Nonlinear and quantum nano-optics with atomically-thin materials	C44: M. K. Chen: Intelligent meta-lens imaging and sensing
16:00-16:20	C45: T. Bauer: Towards active excitonic 2D metasurfaces in monolayer TMDs	C46: C. Mao: Reparameterization Approach to Gradient-Based Inverse Design of Three-Dimensional Nanophotonic Devices
16:20-16:50	<b>I29: J. Garcia de Abajo:</b> Quantum optical phenomena in two-dimensional materials	<b>I30: X. Y. Ling:</b> Machine Learning-Driven Surface-Enhanced Raman Scattering
17:00 – 19:00	POSTER SESSION 3 with refreshments	

### Friday May 25, 2023

	<b>Session 21:</b>	<b>Session 22:</b>
	<b>Imaging &amp; Displays. Chair: Henry Everitt</b>	<b>Novel Topologies &amp; Effects. Chair: Paivi Torma</b>
9:00-9:30	<b>I31: J. Yang:</b> Integrating Structural Colors with Micro-Optics	<b>I32: D.-S. Kim:</b> A tunable zero nanometer gap platform on wafer scale for electromagnetic wave control
9:30-10:00	<b>I33: J. Valentine:</b> Meta-optic Accelerators for Image Processing	<b>I34: G. Tagliabue:</b> Exploring Light Absorption and Light Emission with Gold Microflakes
10:00-10:30	Coffee Break	
10:30-10:50	C47: I. Tanriover: Polarization Independent Broadband Metasurface Edge Detector	C48: H. Giessen: Topological plasmonics and twistrionics: Ultrafast vector movies of plasmonic skyrmions, merons, and skyrmion bags on the nanoscale
10:50-11:10	C49: A. Agreda: Control of visual appearance with disordered plasmonic resonant metasurfaces	C50: S. Yang: Single-peak narrowband thermal emission of light based on plasmonic metasurfaces driven by quasi-BIC
11:10-11:30	C51: Z. Han: MEMS Cantilever Controlled Plasmonic Colors for Sustainable Optical Displays	C52: R. Chikkaraddy: Single-molecule mid-infrared vibrational spectroscopy and detection in plasmonic nanogaps
11:30-12:00	<b>Auditorium: Closing Ceremony</b>	
12:00-13:30	Lunch	

