

Workshop on “**Spatio-Temporal Dynamics of Excitons: Bridging the Gap between Quantum Mechanics and Applications**” (June 10 – 14, 2024)

***June 10, Monday***

**7:15-8:20 am: Breakfast at the Center (Telluride Intermediate School)**

**8:20 – 8:30 am:** Opening Remarks

***Session 1: Spectroscopy and Computational Modeling of Molecular Excitons - Jang***

**8:30 – 9:10 am (Talk1): Justin Caram**, “Exploring the total photon economy of molecules and molecular aggregates”

**9:10 – 9: 50 am (Talk 2): Chern Chuang**, “Long- and short-range interactions in low-dimensional anisotropic excitonic systems and their spectroscopic and dynamical features”

**9:50 – 10:30 am (Talk 3): John Herbert**, “The Importance of orbital Invariance in measuring electron-hole separation”

**10:30 – 10:50 am: Break**

**10:50 - 11:30 am (Talk 4): Gabriela Schlau-Cohen**, “Sculpting photoproducts with DNA origami”

**11:30 am – 12:10 pm (Talk 5): Andres Montoya Castillo**, “Symmetry-breaking fluctuations split porphyrin Q-bands”

**12:10 – 2:00 pm: Lunch on your own**

***Session 2: Semiconductor Nanocrystal Excitons - Tretiak***

**2:00 – 2:40 pm (Talk 6): Dong Hee Son**, “Hot electrons and coherent photons from strongly-confined perovskite nanocrystals and their superlattices”

**2:40 – 3:20 pm (Talk 7): Eric Bittner**, “Dark excitons and dark polaritons in hybrid perovskites”

**3:20 – 3:40 pm (Talk 8): Ari Chakraborty**, “Generation of entangled-photon pair from biexcitonic-to-exciton cascade decay in semiconductor nanoparticles”

**3:40 – 4:00 pm: Break**

**4:00 – 4:40 pm (Talk 9): Carsten Ullrich**, “Towards real-time TDDFT for excitons in solids”

**4:40 – 5:20 pm (Talk 10): Aaron Sternbach**, “Interrogation and control of excitons with ultrafast nano optical spectroscopy”

**5:20 – 6:00 pm (Talk 11): Dmitri Kilin**, “First principles dissipative dynamics of excitons: from bound excitons to machine learning”

**June 11, Tuesday**

**7:15-8:20 am: Breakfast at the Center (Telluride Intermediate School)**

***Session 3: Quantum Effects and Spins - Caram***

**8:20 – 9:00 am** (Talk 12): **David Jonas**, “Absorption from an extreme Stokes’ shift”

**9:00 – 9:40 am** (Talk 13): **Joel Yuen-Zhou**, “Organic diradicals as molecular spin qubits”

**9:40 – 10:20 am** (Talk 14): **Li Hao**, “Correlated noise enhancement of coherence and fidelity in coupled qubits”

**10:20 – 10:40 am: Break**

**10:40 – 11:20 am** (Talk 15): **Michael Wasielewski**, “Spin dynamics of charge transfer excitons in molecular donor-acceptor co-crystals”

**11:20 am – 12:00 pm** (Talk 16): **Jeff Cina**, “Interference, coherence, and Berry’s phase development in an energy-transfer trimer”

**12:00 – 1:30 pm: Lunch at the Center**

***Session 4: Intersystem Crossing, Defects, and Disorder - Cina***

**1:30 – 2:10 pm** (Talk 17): **William Barford**, “Singlet triplet-pair production and singlet fission in carotenoid systems”

**2:10 – 2:50 pm** (Talk 18): **Sean Roberts**, “Imaging energy migration within singlet fission materials”

**2:50 – 3:10 pm: Break**

**3:10 – 3:50 pm** (Talk 19): **Svetlana Kilina**, “Unveiling the role of chemical defects in carbon nanotubes: Simulating pathways and understanding defect-related excitons”

**3:50 – 4:30 pm** (Talk 20): **Joel Eaves**, “Realistic quantum noise: Averaged trajectories without averaging”

**6:30 pm: Telluride Town Talk (Telluride Convention Center, Mountain Village)**

**June 12, Wednesday**

**7:15-8:20 am: Breakfast at the Center (Telluride Intermediate School)**

***Session 5: Spatio-temporal evolution of excitons – Montoya Castillo***

**8:20 – 9:00 am** (Talk 21): **Naomi Ginsberg**, “A vision for detecting and discerning the spatiotemporal evolution of multiple forms of energy as they interconvert and explore heterogeneous material structure”

**9:00 – 9:40 am** (Talk 22): **Jianshu Cao**, “Unusual quantum diffusivity in disordered materials”

**9:40 – 10:20 am** (Talk 23): **Irene Burghardt**, “Quantum dynamical simulations of H, J, and HJ aggregates: Adiabatic and non-adiabatic exciton transport driven by soft modes”

**10:20 – 10:40 am: Break**

**10:40 – 11:20 am** (Talk 24): **Art Bragg**, “Exciton dynamics in templated and scaffolded molecular assemblies”

**11:20 am – 12:00 pm** (Talk 25): **Doran Raccach**, “Size-invariant scaling simulations of exciton dynamics and spectroscopy”

**12:00 – 1:30 pm: Lunch at the center**

***Session 6: Dynamics of Molecular Excitons - Burghardt***

**1:30 – 2:10 pm** (Talk 26): **Cathy Wong**, “In situ transient absorption during molecular aggregation”

**2:10 – 2:50 pm** (Talk 27): **Kuniyuki Miwa**, “Quantum dynamics of photoexcited electronic systems coupled to anharmonic oscillator environments”

**2:50 – 3:10 pm: Break**

**3:10 – 3:50 pm** (Talk 28): **Richard Hildner**, “Energy transport in complex supramolecular nanostructures”

**3:50 – 4:30 pm** (Talk 29): **Sergei Tretiak**, “Non-adiabatic excited state molecular dynamics: Bridging the gap between quantum mechanics and applications to molecules”

**5:30 pm: Picnic & Barbecue (Tent behind dchool, Families welcome)**

**June 13, Thursday**

**7:15-8:20 am: Breakfast at the Center (Telluride Intermediate School)**

***Session 7: Probing and Utilizing Excitonic Effects in Dynamics -Yuen-Zhou***

**8:20 – 9:00 am (Talk 30): Libai Huang, “Exciton interactions and quantum transport”**

**9:00 – 9:40 am (Talk 31): Roel Tempelaar, “Mixed quantum–classical modeling of exciton–phonon scattering in solids”**

**9:40 – 10:20 am (Talk 32): Chad Cruz, “Making the connection: searching for spectroscopic signatures that inform device behavior”**

**10:20 – 10:40 am: Break**

**10:40 – 11:20 am (Talk 33): Milan Delor, “Imaging, controlling and extracting ballistic excitons in van der Waals semiconductors”**

**11:20 am – 12:00 pm (Talk 34): Seogjoo Jang, “Fermi’s golden rule and Magnus expansion for exciton transfer rates and dynamics”**

**12:00 – 5:00 pm – Lunch (on your own) & Group hiking**

**6:00 – 8:00 pm – Group dinner**

**June 14, Friday**

**7:15-8:20 am: Breakfast at the Center (Telluride Intermediate School)**

Discussion & Informal Meetings