

Atomically Precise Nanomaterials: Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Precision Synthesis & Advanced Characterization

TIME: 8:00 am - 12:00 pm CDT

DATE: Monday August 24, 2026

ROOM: A2 - SOUTH HALL ChemPod 5 (McCormick Place Convention Center)

SESSION TYPE: Oral - In-person

DIVISION/COMMITTEE: COLL: Division of Colloid and Surface Chemistry

SYMPOSIA: Atomically Precise Nanomaterials

Organizer, Presider

Gwendolyn Bailey, University of Minnesota Twin Cities

Sergei Ivanov, Los Alamos National Lab

Chenjie Zeng, University of Florida

Sen Zhang, Univ of Virginia

This session has 10 presentations:

- 8:00 am **Atomically-precise gold superatoms as building blocks for functional materials**
PRESENTED BY: Tatsuya Tsukuda
- 8:25 am **Forbidden bonding: triggering M-M bond formation through redox**
PRESENTED BY: Theodore Betley
- 8:50 am **Taming metal-metal bonds in polynuclear cluster compounds**
PRESENTED BY: Raul Hernandez Sanchez
- 9:15 am **Making poor metals rich at the nanoscale**
PRESENTED BY: Michael Ross
- 9:40 am **Doping and alloying strategies for tuning properties of ligand-protected coinage metal clusters**
PRESENTED BY: Anindita Das
- 10:05 am **Break**
- 10:20 am **Boron nanoclusters**
PRESENTED BY: Lai-Sheng Wang
- 10:45 am **Structural and electronic insights into noble metal nanostructures by X-ray spectroscopy**
PRESENTED BY: Peng Zhang
- 11:10 am **Spatial mapping of electronic structure in molecular copper clusters using resonant X-ray diffraction**
PRESENTED BY: Neal Mankad, Connly Yan, Eunhye Lee, Yu-Sheng Chen, Tieyan Chang
- 11:35 am **Plasmonic supraclusters for translatable in vivo surface-enhanced Raman spectroscopy**
PRESENTED BY: Jung Ho Yu

Atomically Precise Nanomaterials: Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Bio-Inspired Clusters & Catalysis

TIME: 2:00 pm - 6:00 pm CDT

DATE: Monday August 24, 2026

ROOM: A2 - SOUTH HALL ChemPod 5 (McCormick Place Convention Center)

SESSION TYPE: Oral - In-person

DIVISION/COMMITTEE: COLL: Division of Colloid and Surface Chemistry

SYMPOSIA: Atomically Precise Nanomaterials

Organizer, Presider

Gwendolyn Bailey, University of Minnesota Twin Cities

Sergei Ivanov, Los Alamos National Lab

Chenjie Zeng, University of Florida

Sen Zhang, Univ of Virginia

This session has 10 presentations:

- 2:00 pm **Conductivity and catalysis with iron-sulfur cluster-based coordination polymers**
PRESENTED BY: John Anderson, Linh Le, Anna Wuttig, Laura Gagliardi, Andrea Daru, Spela Kunstelj
- 2:25 pm **Site differentiation and site isolation of iron-sulfur clusters**
PRESENTED BY: Daniel Suess
- 2:50 pm **Simulation of strongly correlated iron-sulfur clusters with reduced-density-matrix methods**
PRESENTED BY: Jan-Niklas Boyn
- 3:15 pm **Photoinduced charge transfer and H₂ photocatalysis initiated by Cu₆S₆ clusters**
PRESENTED BY: Karen Mulfort, Gethmini Jayasekara, Michael Mara, Taylor Harville, Tyler Haddock, Mandefro Teferi, Toby Woods, Lin Chen, Oleg Poluektov, Jens Niklas, Cong Liu
- 3:40 pm **Metal chalcogenide clusters for energy storage and conversion**
PRESENTED BY: Ellen Matson
- 4:05 pm **Break**
- 4:20 pm **Towards understanding of cluster-biomolecule interactions**
PRESENTED BY: Hannu Hakkinen
- 4:45 pm **Leveraging dynamic ligand scaffold motion into reactivity in bio-inorganic model systems: Benefit of rationally designed enthalpy-entropy compensation**
PRESENTED BY: Michael Rose, Alec T. Larson, Jordan Labrecque, Wang-Yeuk Kong, Daniel Ess
- 5:10 pm **Tuning the structures and catalytic properties of metal nanoclusters via ligand Engineering**
PRESENTED BY: Jian He
- 5:35 pm **Fast and selective hydride transfer electrocatalysis with metal clusters**
PRESENTED BY: Louise Berben

Atomically Precise Nanomaterials: Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Quantum Materials & Programmable Assembly

TIME: 8:00 am - 12:00 pm CDT

DATE: Tuesday August 25, 2026

ROOM: A2 - SOUTH HALL ChemPod 5 (McCormick Place Convention Center)

SESSION TYPE: Oral - In-person

DIVISION/COMMITTEE: COLL: Division of Colloid and Surface Chemistry

THEMES: Data Science and AI Community

SYMPOSIA: Atomically Precise Nanomaterials

Organizer, Presider

Gwendolyn Bailey, University of Minnesota Twin Cities

Sergei Ivanov, Los Alamos National Lab

Chenjie Zeng, University of Florida

Sen Zhang, Univ of Virginia

This session has 10 presentations:

- 8:00 am **Talking to molecules with 2D atomic layers**
PRESENTED BY: Xiangfeng Duan
- 8:25 am **Colloidal semiconductor quantum dots: From artificial atoms to designer molecules**
PRESENTED BY: Uri Banin
- 8:50 am **Chirality magic from magic-Size clusters**
PRESENTED BY: Richard Robinson
- 9:15 am **Ligand induced circularly polarized luminescence from Si QDs**
PRESENTED BY: Ming Tang, Sanoop Somasundaran, Sheng He, Maryam Baraazandeh, Paola Malavé, Dongsheng Li, Tianquan Lian
- 9:40 am **Chemically defined pathways to electronic function in III–V nanocrystals**
PRESENTED BY: Sohee Jeong, Hyoin Kim
- 10:05 am **Break**
- 10:20 am **Structural evolution and selectivity control of iron oxide-supported Pt catalysts in CO₂ hydrogenation**
PRESENTED BY: Honghong Shi
- 10:45 am **Precise patterning through atomic stenciling on nanoparticles and their self-assemblies**
PRESENTED BY: Qian Chen
- 11:10 am **Synthesis and assembly of precise-controlled silver nanocrystals**
PRESENTED BY: Ou Chen
- 11:35 am **Protein crystal engineering mediated with DNA**
PRESENTED BY: Chad Mirkin

Atomically Precise Nanomaterials: Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Energy Frontier

TIME: 2:00 pm - 6:00 pm CDT

DATE: Tuesday August 25, 2026

ROOM: A2 - SOUTH HALL ChemPod 5 (McCormick Place Convention Center)

SESSION TYPE: Oral - In-person

DIVISION/COMMITTEE: COLL: Division of Colloid and Surface Chemistry

SYMPOSIA: Atomically Precise Nanomaterials

Organizer, Presider

Gwendolyn Bailey, University of Minnesota Twin Cities

Sergei Ivanov, Los Alamos National Lab

Chenjie Zeng, University of Florida

Sen Zhang, Univ of Virginia

This session has 10 presentations:

- 2:00 pm **Atomically precise functionalization of microporous nanomaterials for aqueous-phase gas transport**
PRESENTED BY: Jarad Mason, Jason Calvin, Elena Chen, Joy Cho, Christopher DelRe, Daniel Erdosy, Hyukhun Hong, Hong Ki Kim, Lei Liu, Anusree Natraj, Bryan Tang, Miranda Walter, Malia Wenny
- 2:25 pm **Group V polyoxometalates from CO₂ infusion**
PRESENTED BY: May Nyman
- 2:50 pm **Size-dependent phase changes and lattice dynamics in porous nanocrystals**
PRESENTED BY: Carl Brozek
- 3:15 pm **Contorted aromatic molecules as building blocks for porous materials**
PRESENTED BY: Dianne Xiao
- 3:40 pm **Doping Au to improve Pt stability and catalysis for electrochemical reduction of oxygen**
PRESENTED BY: Shouheng Sun
- 4:05 pm **Break**
- 4:20 pm **Development of atomically precise copper nanoclusters for electrochemical CO₂ and NO₂ reduction reactions**
PRESENTED BY: Yuichi Negishi
- 4:45 pm **Structural precision in nanoparticles as a lever for selective surface-mediated transformations**
PRESENTED BY: Wenyu Huang
- 5:10 pm **Molecular layer deposition of p- and n-type dopants: synthesis, kinetic mapping, and area-selective growth on silicon**
PRESENTED BY: Scott Williams
- 5:35 pm **Engineering Pt and Pd single-atom catalysts on semiconductors for improved photocatalytic hydrogen evolution and oxygen reduction reactions**
PRESENTED BY: Sasanka Deka

Atomically Precise Nanomaterials: Connecting Coordination, Cluster, Colloidal, and Crystal Chemistry: Miscellaneous

TIME: 8:00 am - 11:55 am CDT

DATE: Wednesday August 26, 2026

ROOM: A2 - SOUTH HALL ChemPod 5 (McCormick Place Convention Center)

SESSION TYPE: Oral - In-person

DIVISION/COMMITTEE: COLL: Division of Colloid and Surface Chemistry

SYMPOSIA: Atomically Precise Nanomaterials

Organizer, Presider

Chenjie Zeng, University of Florida

Sergei Ivanov, Los Alamos National Lab

Sen Zhang, Univ of Virginia

Gwendolyn Bailey, University of Minnesota Twin Cities

This session has 15 presentations:

- 8:00 am **Fluorogenic generation of luminescent silver nanodots**
PRESENTED BY: Junhua Yu
- 8:25 am **Break**
- 8:35 am **Mechanochemical functionalization of silicon cluster dimers**
PRESENTED BY: Oluwakemi Dawodu, Jacob Seo, Ashley Pimentel, Elijah Mauga, Timothy Su
- 8:50 am **Synthesis of multimetallic nanoclusters via anti-galvanic replacement (AGR) and characterization by anodic stripping voltammetry (ASV)**
PRESENTED BY: Nura Fahmida Sultana, Francis P. Zamborini
- 9:05 am **Atomic and nanoscopic origins of plasmon tunability**
PRESENTED BY: Anthony Branco, Sangmin Jeong, Michael Ross
- 9:20 am **Facile synthesis of an atomically precise IV-VI semiconductor nanocluster**
PRESENTED BY: Joshua Gibson, Saryvoudh Mech, Lukasz Dobrzycki, Chenjie Zeng
- 9:35 am **Break**
- 9:45 am **Compressive strain enhances the performance and durability of Pt toward ethanol oxidation by synergistically involving H₂O molecules to alter reaction pathway**
PRESENTED BY: Zhiqi Wang, Jiaqi Guan, Kei Kwan Li, Yong Ding, Jingguang Chen, Younan Xia
- 10:00 am **CdSe nanoclusters stabilized by N-Heterocyclic Carbene ligands: Expanding ligand paradigms in semiconductor cluster chemistry**
PRESENTED BY: Isha Mishra, Chenjie Zeng
- 10:30 am **Vapor phase functionalization of porous metal oxide materials with organic ligands and inorganic complexes**
PRESENTED BY: Amelia Wheaton, Karen Mulfort, Alex Martinson
- 10:45 am **Break**
- 10:55 am **Atomic-scale structure and reconstruction of a colloidal au nanocube (100) surface revealed by scanning tunneling microscopy**
PRESENTED BY: Weike Quan, Liya Bi, Athena Aber, Shaowei Li
- 11:10 am **Embedding molecular recognition into nanocrystals with DNA origami wraps**
PRESENTED BY: Yifeng Shi, Myoungseok Kim, Grigory Tikhomirov