

**9th Annual Conference on the Foundations of Nanoscience
(FNANO 2012)
April 16-19, 2012
Snowbird, Utah**

Monday April 16, 2012

MORNING

8:00 – 10:00 Registration (outside Ballroom)
8:00 – 10:00 Breakfast (outside Ballroom)

Track on Top-down meets Bottom-up/Track on Self-Assembly across Scales (Karl Bohringer/Mark Stoykovich)

10:10 – 10:45 Keynote: Biomolecular Architectures and Systems for Nanoengineering Solid State Materials
 Jennifer Cha
10:45 – 11:10 Invited: Nanoscale Origami
 Teena James, Si Young Park and David Gracias
11:10 – 11:35 Invited: Directed assembly of one-dimensional DNA nanostructures on lithographically patterned
 surface
 Risheng Wang, Matteo Palma, Erika Penzo and Shalom Wind
11:35 – 12:00 Contributed: Pattern transformation using a DNA-based amorphous computer
 Steven Chirieleison, Peter Allen, Andrew McIver, Andrew Ellington
 and Xi Chen

12:00 – 1:00 Lunch (Golden Cliff room)

Track on Computational Tools for Self-assembly (William Shih)

1:00 – 1:35 Keynote: Exploring Hollywood's Tools for Scientific Visualization
 Campbell Strong and Gael McGill
1:35 – 2:00 Invited: Bioengineering at the Digital Laboratory Bench
 Ebbe Andersen, Rasmus Sørensen, Aurélien Tabard, Juan Hincapié-Ramos,
 Jørgen Kjems and Jakob Bardram
2:00 – 2:25 Invited: Software tools for automated design of dynamic nucleic acid systems
 Casey Grun, Justin Werfel, David Yu Zhang and Peng Yin
2:25 – 2:50 Invited: In Silico Design, In Vitro Characterization and Ex-Vivo Studies of Functional RNA-based
 Nanoparticles
 Bruce Shapiro

3:00 – 4:00 **Monday Afternoon Poster Session** (for all Monday posters)

Track on Molecular Motors (Andrew Turberfield)

4:00 – 4:35 Keynote: Rotation of the rotor-less molecular motor protein
 Hiroyuki Noji
4:35 – 5:00 Invited: From molecular motors to propelled motion of a four-wheeled molecule
 Tibor Kudernac
5:00 – 5:20 Contributed: Controlling motor direction in response to a chemical signal
 Richard Muscat, Jonathan Bath and Andrew Turberfield
5:20 – 5:40 Contributed: Towards Collective Intelligence in Molecules: Two and three interacting molecular
 spiders
 Oleg Semenov, Darko Stefanovic and Milan Stojanovic

- 5:40 – 6:20 **Workshop on High-speed AFM** (Ballroom, then Red Pine for demos)
Takashi Morii
- 7:30 Poster Setup, Golden Cliff room
- 8:00 – 9:00 **Monday night poster session**/sushi reception courtesy of RIBM
- 8:30 Poster Blitz Session (Steve Ebbans)

Monday Posters: Top-down meets Bottom-up/Self-Assembly across Scales

- Self-assembled Photonic crystals from shear ordered block copolymers
Andrew Parnell, Patrick Fairclough and Oleksandr Mykhaylyk
- Electrokinetic Feedback Control of Colloidal Crystal Size
Jaime Juarez, Pramod Mathai, James Alexander Liddle and Michael Bevan
- Deposition of DNA origami on chemically modified graphene
Marya Lieberman, Kyoung Nan Kim, Je Moon Yun, Ju Young Kim, Dong Ok Shin,
Won Jun Lee, Sun Hwa Lee and Sang Ouk Kim

Monday Posters: Track on Computational Tools for Self-assembly

- Kissing complexes and pulling simulations of a coarse-grained model for DNA
Flavio Romano, Thomas E. Ouldridge, Jonathan P. K. Doye and Ard A. Louis
- Holliday Triangle Hunter (HolT Hunter): Efficient Software for Identifying Low Strain DNA Triangular Configurations
William Sherman
- vHelix for Maya, A Lattice Free DNA Nanostructure CAD
Johan Gardell, Pavan Kumar Areddy and Bjorn Hogberg
- A Numeric Secondary Structure Representation Method
M. Leigh Fanning, Joanne Macdonald and Darko Stefanovic

Monday Posters: Track on Molecular Motors

- Rotary catalysis mechanism of motor protein; F₁-ATPase
Rikiya Watanabe, Mizue Tanigawara, Hidenobu Arai, Kazuma Koyasu and Hiroyuki Noji
- Phase-Field Model of Self-Polarization and Cell Movement
Igor Aronson, Falko Ziebert and Sumanth Swaminathan
- Coarse-Grained Modelling of a Burnt Bridges DNA Motor
Petr Sulc, Alex Lucas, Thomas Ouldridge, Flavio Romano, Ard Louis, Jonathan Doye, Jonathan Bath and Andrew Turberfield
- Super-Resolution Tracking of DNA Nanomachines Using Quantum Dots
Robert Machinek, Jon Bath and Andrew Turberfield
- Tau Protein Detection in a Molecular Motor System
M. C. Tarhan, H. Qiu, R. Yokokawa, S. L. Karsten and H. Fujita

Tuesday April 17

- 8:00 – 9:00 Breakfast (outside Ballroom)

MORNING

Track on DNA Nanostructures I (Nadrian Seeman)

- 9:00 – 9:35 Keynote: Molecular DNA Devices in Living Systems
Yamuna Krishnan
- 9:35 – 10:00 Invited: Single-stranded DNA nanotubes: The structure formation mechanisms
Michael Mertig, Philipp Fuchsenger, Anja Henning,
Ofer Wilner and Itamar Willner
- 10:00 – 10:25 Invited: A Preliminary Study on Colloidal Crystallization of DNA Motifs
Shogo Hamada and Satoshi Murata

- 10:25 – 10:50 Invited: Modular Self-assembly of Molecular Shapes
Bryan Wei, Mingjie Dai and Peng Yin
- 11:00 – 12:00 **Tuesday Morning poster session** (posters from all morning tracks, setup in lobby outside Ballroom)
- 12:00 – 1:30 Lunch (Golden Cliff Room)

AFTERNOON

- 1:30 – 1:55 Invited: Parallel enzymatic production of thousands of high quality oligonucleotides for structural DNA nanotechnology
Thorsten L Schmidt and William M Shih
- 1:55 – 2:20 Invited: Direct visualization of single transcription on the designed DNA nanoscaffold
Masayuki Endo, Koich Tatsumi, Kosuke Terushima, Yousuke Katsuda, Kumi Hidaka, Yoshie Harada and Hiroshi Sugiyama

Track on Synthetic Biology (Rick Wagner)

- 2:20-2:45 Invited: Using Small Molecules to Engineer and Explore Human Immunity
David Spiegel
- 2:45 – 3:45 **Tuesday afternoon poster session** (setup outside Ballroom)
- 3:45 – 4:20 Keynote: Orthogonal riboswitches as tools for controlling gene expression in bacteria
Jason Micklefield
- 4:25 – 4:45 Invited: Scalable and Tunable Platforms for Engineering Synthetic Biological Circuits
Timothy Lu
- 4:45 – 5:05 Contributed: Template-Guided Size-Selective Sorting and Assembly of Mammalian Cells
Gunjan Agarwal and Carol Livermore
- 7:30 pm Poster setup (Golden Cliff Room)
- 8-9:30 **Poster session** and reception (Golden Cliff Room)
- 8:30 Poster Blitz session (Chenxiang Lin)

Tuesday Posters: Track on DNA Nanostructures I (Morning and Evening poster sessions)

- Molecular lithography through DNA-mediated etching of SiO
Haitao Liu
- Strand displacement reaction (SDR) optimization on the solid phase
Hamid Ramezani and D. Jed Harrison
- Exploring the assembly of DNA origami nanostructures
Jean-Philippe J. Sobczak, Thomas G. Martin, Thomas Gerling and Hendrik Dietz
- A DNA-Based Nanomechanical Device Used to Characterize the Distortion of DNA by Apo-SoxR Protein
Chunhua Liu, Eunsuk Kim, Bruce Demple and Nadrian C. Seeman
- DNA nanostructures for biological physics
Hendrik Dietz, Fabian Kilchherr, Christian Wachauf, Emanuel Pfitzner, Jonas Funke, Matthias Schickinger and Evi Stahl
- Kinetics of Quantum Dot-DNA Origami Binding: A Single Particle, D Real-Time Tracking Study
Kan Du, Seung Hyeon Ko, J. Alexander Liddle and Andrew Berglund
- Modelling the folding of DNA origami
Jean Michel Arbona, Elezgaray Juan and Jean Pierre Aimé
- Silver atom and strand numbers in fluorescent and dark Ag:DNAs
Danielle Schultz and Elisabeth Gwinn
- Global surface functionalization of DNA origami structures with PAMAM dendrimers
Anne Louise Bank Kodal, Rasmus Scholer Sorensen, Katerina Busuttill,

Flemming Besenbacher, Jørgen Kjems and Kurt Gothelf
 Manipulating aptamer architectures at the nanoscale
 Chunhua Liu, Michelle Byrom, Peng Yin and Andrew D. Ellington
 Shaping Light with DNA-based Self-Assembly
 Anton Kuzyk, Robert Schreiber, Zhiyuan Fan, Günther Pardatscher, Eva-Maria Roller, Alexander Högele, Friedrich C. Simmel, Alexander O. Govorov and Tim Liedl
 Crystallization analysis of DNA crystals grown by substrate-assisted growth
 Junwye Lee, Shogo Hamada, Si Un Hwang, Junyoung Son, Rashid Amin, Satoshi Murata and Sung Ha Park
 Yield of Nanoparticle Attachment to DNA Origami as a Function of Binding Site Design and Periodicity
 Elton Graugnard, Craig Onodera, Sadao Takabayashi, Nathan Robinson, Hieu Bui, Jeunghoon Lee, Wan Kuang, William Knowlton, Bernard Yurke and William Hughes
 pH-responsive non-canonical base pairs for the construction of D DNA crystals
 Paul Paukstelis
 Programmability of Quadruplex DNA Folding
 Mateus Webba Da Silva and Ioannis Karsisiotis

Tuesday Posters: Track on Synthetic Biology (Afternoon and Evening poster sessions)

Molecular programming with a transcription and translation cell-free system: synthetic coliphages and artificial cell.
 Jonghyeon Shin and Vincent Noireaux
 Light-Regulation of DNA Logic Gates
 Alex Prokup, James Hemphill and Alex Deiters
 Building Enhancers from the Ground Up
 Roe Amit
 Functional Microtubule Arrays using DNA-Kinesin Hybrids
 Adam Wollman, Carlos Sanchez-Cano, Helen Carstairs, Robert Cross and Andrew Turberfield
 Reconstructing synthetic cellular compartments on a surface
 Roy Bar-Ziv
 Retroactivity Reduction in Doubly Phosphorylated Competing Cascades
 Vishwesh Kulkarni, Pulkit Grover, Marc Riedel and Andrea Goldsmith

Wednesday April 18

MORNING

7:30 – 8:00 Coffee (outside Ballroom)

Track on Biomedical Nanotechnology (Thom LaBean)

8:00 –8:35 Keynote: Smart Nanoreservoirs of therapeutics can Regenerate Tissue
 Nadia Benkirane-Jessel
 8:35 – 9:00 Invited: Scalable Combinatorial DNA Barcodes for Multiplexed Bio-Analytics
 Ishan Gupta and Daniel Lubrich
 9:00 – 9:25 Invited: Cellular uptake, biodistribution and toxicity of geometrically defined silica and gold nanoparticles
 Hamid Ghandehari, Tian Yu, Heather Herd, Adam Gormley and Nate Larson
 9:25 – 9:45 Contributed: Bacterial Backpacking
 Teena James, Mert Karakoy, Chih-Chieh Chan and David Gracias
 9:45 – 10:45 **Wednesday morning poster session** and breakfast (outside ballroom)

Track on Self-assembling Circuit and Device Architectures (Chris Dwyer)

- 10:45 – 11:20 Keynote: Nanomagnet Logic: A New Paradigm in Low-Power Computing Systems
Gary Bernstein, Peng Li, Faisal Shah and Mohammad Siddiq
- 11:20 – 11:45 Invited: Programming matter(s): from Turing to Kilby and back to E.Coli.
Anthony Genot, Jon Bath, Teruo Fujii, Yannick Rondelez, and Andrew Turberfield
- 11:45 – 12:10 Invited: Plasmid-derived DNA Gates for Implementing Chemical Reaction Networks
Georg Seelig
- 12:10 – 12:30 Contributed: Waveguides Switchable by DNA Strand Invasion
Elton Graugnard, Donald Kellis, Hieu Bui, Stephanie Barnes, Wan Kuang,
Jeunghoon Lee, William Hughes, William Knowlton and Bernard Yurke
- 12:30 – 1:30 Lunch (Golden Cliff Room)

AFTERNOON

Track on Carbon Nanostructures (Yuegang Zhang)

- 1:30 – 2:05 Keynote: Controlled Fabrication and Self-assembling of Carbon Nanomaterials for Multifunctional Applications
Liming Dai
- 2:05 – 2:30 Invited: Unique Thermal Properties of Graphene: Applications in Thermal Management of Advanced Electronics and Optoelectronics
Alexander Balandin
- 2:30 – 2:55 Invited: Selective Growth of Enriched Semiconducting Single Walled Carbon Nanotubes
Weiwei Zhou, Shutong Zhan, Lei Ding and Jie Liu
- 2:55 – 3:20 Invited: The Mechanism of Interaction of Li+ with graphite, single-layer and multi-layer graphene
Robert Kosteki, Jordi Cabana, Ulrike Boesenberg and Elad Pollak
- 3:30 – 4:30 **Wednesday afternoon Poster Session** (setup outside Ballroom)

Track on DNA Nanostructures II (Nadrian Seeman)

- 4:30 – 4:55 Invited: Structural DNA Nanotechnology for Nanophotonic Applications
Anirban Samanta, Palash Dutta, Suchetan Pal, Zhengtao Deng and Yan Liu
- 4:55 – 5:20 PEGylation of DNA Nanostructures: Synthesis and Characterization
Rasmus Schøler Sørensen, Kasper Jahn and Jørgen Kjems
- 5:20 – 5:45 DNA Sudare: a Relaxed DNA Origami Assembly
Akinori Kuzuya, Shinya Minamida, Mirai Hashizume and Yuichi Ohya
- 5:45 – 6:10 Enzymatically Produced DNA Nanostructures and Scale-Up Origami
Cosimo Ducani, Corinna Kaul, Alan Shaw, Pavan Kumar Areddy,
Philipp Nickels, Tim Liedl, William Shih and Bjorn Hogberg
- 6:10 – 6:50 **ISNSCE Award Address:** Using the toolbox of nanotechnology for single-molecule biophysics
Cees Dekker
- 7:30 Poster Setup (Golden Cliff Room, lower and upper levels)
- 8-9:30 **Poster Session** and Reception
- 8:30 Poster Blitz Session (Andrew Parnell)

Wednesday Posters: Track on Biomedical Nanotechnology (Morning and Evening poster sessions)

- Targeting Inaccessible Tumors in the Brain with Viral Nanoparticles
Stephanie Chung, Amy Wen, Christine Debaz, Sourav Dey, Nicole Steinmetz, and Ann-Marie Broome
- Synthetic Running and Tumbling: An Autonomous Navigation Strategy for Self-Assembled Catalytic Nanoswimmers
Stephen Ebbens, Gavin Buxton, Alexander Alexeev, Alireza Sadeghi and Jonathan Howse
- Chemically Self-Assembled Nanostructures (CSAN's) for cellular delivery of proteins and nucleic acids
Amit Gangar, Adrian Fegan, Sidath C. Kumarapperuma and Carston R. Wagner
- DNA Origami Nanostructures as biocompatible immunostimulative carrier system for CpG Oligonucleotides
Verena Schüller, Simon Heidegger, Nadja Sandholzer, Philipp Nickels, Nina Suhartha, Stefan Endres, Carole Bourquin and Tim Liedl
- DNA Templated Protein Modification
Thomas Tørring, Niels V. Voigt, Christian B. Rosen, Anne Louise B. Kodal, Kasper Jahn, Jørgen Kjems and Kurt V. Gothelf
- Operation of a DNA-Based Nanomachine in Human Serum and Blood
Elton Graunard, Sara Goltry, Jessica Minick, Tyler Clark, Jeunghoon Lee, Bernard Yurke and William Hughes
- DNA/polymer hybrid nanostructures for drug delivery and diagnostics
Andreas Herrmann
- Enzymatic DNA oligonucleotide production
Cosimo Ducani, Corinna Kaul, Shawn Douglas, William Shih and Bjorn Hogberg
- Activation of RNAi with auto-recognizing therapeutic R/DNA chimeric hybrids: A novel approach for biomedical RNA nanotechnology
Kirill Afonin, Mathias Viard, Stephen Lockett, Luc Jaeger, Robert Blumenthal and Bruce Shapiro
- Engineering parameters in synthesis of branched gold nanoparticles
Jaeseung Hahn, Daniel Thorek and Jan Grimm

Wednesday Posters: Track on Self-assembling Circuit and Device Architectures (Morning and Evening poster sessions)

- Laser Remote Sensing enabled by DNA Self-assembly and Resonance Energy Transfer
Siyang Wang and Chris Dwyer
- 3-Input Majority Logic Gate and Complex Gate Implementations Based on DNA Strand Displacement
Wei Li, Yan Liu and Hao Yan
- Multilogic Algorithmic Self-Assembly
Jihoon Shin, Junghoon Kim, Seungjae Kim, Young Hun Kwon and Sung Ha Park
- Controlling deoxyribozyme activity by strand displacement reactions
Carl W. Brown Iii, Matthew R. Lakin, Steven Graves and Darko Stefanovic

Wednesday Posters: Track on Carbon Nanostructures (Afternoon and Evening poster sessions)

- Biocompatibilization of Diamond Nanoparticles by Controlled Growth of Polymers
Ivan Rehor, Jitka Slegerova, Miroslav Ledvina, Martin Hruby, Hana Mackova, Jan Kucka, Sergey Filippov, Vladimir Proks and Petr Cigler
- Boosting the luminescence of nanodiamonds
Jan Havlik, Ivan Rehor, Miroslav Ledvina, Vladimira Petrakova, Vaclav Petrak, Milos Nesladek, Jan Kucka, Jan Ralis, Jan Stursa and Petr Cigler
- The pathway to biocompatible fluorescent diamond nanoparticles
Ivan Rehor, Jana Lokajova, Jan Havlik, Jitka Slegerova, Miroslav Ledvina, Sourabh Shukla, Amy Wen, Nicole Steinmetz and Petr Cigler
- Pt-NPs/MWNT Nanohybrid as a Robust and Low-cost Counter Electrode Material for Dye-sensitized Solar Cells
Van-Duong Dao, Seung Hyeon Ko and Ho-Suk Choi
- The Interplay of Temperature and Density in the Synthesis of Carbon Nanotube Forest by Injection Chemical Vapor Deposition
Robert Call, Carlos Read, Cody Mart and T-C Shen
- Assembly of a graphene-DNA junction

Alfredo Bobadilla and Jorge Seminario
Graphene Nanoribbon Crossbar Array
Roger Lake and K. M. Masum Habib
Graphene-on-Diamond Devices with Strongly Enhanced Current-Carrying Capacity: Carbon-on-Carbon Technology
Jie Yu, Guanxiong Liu, Anirudha Sumant and Alexander Balandin
Disassembly of Self-Assembled DNA-SWNT Hybrids by Interaction with Complementary Biomolecules
Seungwon Jung, Misun Cha, Jayanti Das, Hanyung Jung, Sangwoong Baek and Junghoon Lee

Wednesday Posters: Track on DNA Nanostructures II (Afternoon and Evening poster session)

Immunostimulatory Properties of Dynamically Stabilized Oligonucleotide Micelles
Haipeng Liu and Darrell Irvine
DNA nanostructures for electrophysiology
Thomas G. Martin, Ruoshan Wei, Martin Langecker, Vera Arnaut, Ulrich Rant, Friedrich Simmel and Hendrik Dietz
Encapsulation of DNA Nanostructures in Lipid Bilayers
Steven Perrault and William Shih
A-motif mediated pH toggled DNA architectures reveal intramolecular conformational dynamics of A-motifs
Sonali Saha, Yamuna Krishnan, Dhiraj Bhatia and Kasturi Chakraborty
Sub-micrometer Geometrically Encoded Fluorescent Barcodes Self-Assembled from DNA
Chenxiang Lin, Ralf Jungmann, Andrew Leifer, Chao Li, Daniel Levner, William Shih and Peng Yin
DNA-based assembly of plasmonic structures with tailored optical response
Anton Kuzyk, Robert Schreiber, Alexander Hoegele, Friedrich C. Simmel, Alexander O. Govorov and Tim Liedl
DNA Origami Nanopores
Nicholas Bell, Silvia Hernandez-Ainsa, Christian Engst, Tim Liedl and Ulrich Keyser
DNA Gridiron
Dongran Han, Yan Liu and Hao Yan
Two-Dimensional Self-Assembly and Photo-Cross-Linking Induced Thermal-Stabilization of DNA Origami Structures
Arivazhagan Rajendran, Masayuki Endo, Kumi Hidaka and Hiroshi Sugiyama
Model of DNA Adsorption for Substrate-Assisted Self-Assembly of DNA Nanostructure
Shogo Kudo, Shogo Hamada and Satoshi Murata
Deconstructing DNA Origami: Eliminating the Scaffold
Divita Mathur and Eric Henderson
Light-controlled Catalytic DNA Circuits
Luvena Ong, David Zhang and Peng Ying
Heterogeneous assembly of quantum dots and gold nanoparticles on DNA origami templates
Risheng Wang, Colin Nuckolls and Shalom Wind
D and \bar{D} DNA Lattices Via Staggered Assembly of the Double-Decker Tile
Nikhil Gopalkrishnan, Harish Chandran and John Reif
Activatable Tiles: Demonstration of Linear and Directed Self Assembly
Harish Chandran, Sudhanshu Garg, Nikhil Gopalkrishnan and John H Reif
Study of the ParMRC plasmid partitioning system using DNA origami
Sungwook Woo, Christopher R. Rivera, R. Dyche Mullins and Paul W. K. Rothemund
Different fabrication methods and device applications by DNA lattices
Sung Ha Park, Sreekantha Reddy Dugasani, Rashid Amin, Junghoon Kim, Jihoon Shin, Junwye Lee, Byeonghoon Kim, Sieun Hwang, Junyoung Son, Seungjae Kim and Saima Bashar

Thursday April 19

MORNING

7:30 – 8:30 Coffee (outside Ballroom)

8:15-8:30 **Poster Blitz session** in Ballroom (Valerie Goss)

Track on Principles and Theory of Self-assembly (Jennifer Padilla)

8:35 – 9:00 Invited: Emerging temporal patterns from DNA networks
Yannick Rondelez

8:50 – 9:10 Contributed: Justifying the toehold-length dependence of DNA strand displacement rates
Thomas Ouldridge, Petr Sulc, Niranjan Srinivas, Ard Louis, Jonathan Doye,
Erik Winfree, Joseph Schaeffer and Bernard Yurke

9:10 – 9:30 Contributed: Geometric principles for self-folding polyhedra: theory and experiment
Shivendra Pandey, David Gracias and Govind Menon

9:30 – 10:30 **Thursday morning poster session** (setup outside Ballroom)

Track on Peptide and Protein Self-assembly (Bodgan Dragnea)

10:30 – 11:05 Keynote: Using Viral Capsids to Build Integrated Photocatalytic Systems
Matthew Francis

11:05 – 11:30 Invited: Reconfigurable self-assembly through chiral control of interfacial tension
Zvonimir Dogic

11:30 – 11:50 Contributed: Functional Polymer-Protein Nanoparticles by Atom Transfer Radical Polymerization from
the Surface of Bacteriophage Q beta
Jonathan Pokorski, Kurt Breitenkamp and M.G. Finn

12:00 – 1:00 Lunch (participants are on their own)

AFTERNOON

Track on Integrated Chemical Systems (Fraser Stoddart)

1:00 – 1:35 Keynote: Self-assembled Molecular Spheres as Scaffolds for Molecular Integration
Makoto Fujita

1:35 – 2:00 Invited: Developing Self-Assembled Films of Porphyrins and Ruthenium Complexes for Application in
Molecular Devices
Henrique Toma, Sergio Toma, Jonnatan Santos and Koiti Araki

2:00 – 2:25 Invited: Programmable One-Pot Multistep Organic Synthesis Using DNA Junctions
Mireya Mckee, Phillip J. Milnes, Jonathan Bath, Eugen Stulz, Rachel K. O'reilly and Andrew J.
Turberfield

2:25 – 2:50 Invited: Switching and Cooperative Behaviour of Molecules and Supramolecules at Atomically Clean
Surfaces
Thomas Jung

2:50 – 3:15 Refreshments

Track on Self-assembled Surface chemistry (Lloyd Smith)

- 3:15 – 3:50 Keynote: Nanomembranes for Time-of-Flight Mass Spectrometry of Proteins
 Jonghoo Park, Hyun-Cheol Shin, Hyunseok Kim, Lloyd Smith and Robert Blick
- 3:50 – 4:15 Invited: RNA-Mediated Gene Assembly from DNA Arrays
 Cheng-Hsien Wu, Matthew R. Lockett and Lloyd M. Smith
- 4:15 – 4:40 Invited: Origami Meets Graphene: Prospects and Perils
 Masudur Rahman, David Neff and Michael Norton

Thursday Posters: Track on Principles and Theory of Self-assembly (Morning poster session)

- Clathrin Self-Assembly is Driven by Membrane Forces
Nicholas Cordella, Thomas Lampo, Shafiq Mehraeen and Andrew Spakowitz
- Implementing arbitrary chemical reaction networks with DNA: a case study
Niranjan Srinivas, David Soloveichik, Erik Winfree and Georg Seelig
- Spin Glasses and Tile Self-Assembly
Russell Deaton and Tyler Moore

Thursday Posters: Track on Peptide and Protein Self-assembly (Morning poster session)

- A novel platform technology based on flexible filaments from plant viruses
Sourabh Shukla and Nicole Steinmetz
- Chemical Engineering of Brome Mosaic Virus for Biomedical Applications
Ibrahim Yildiz, Irina Tvestkova, Amy Wen, Sourabh Shukla, Bodgan Dragnea and Nicole Steinmetz
- Engineering Viral Nanoparticles for Applications in Medicine: Bio-orthogonal Chemistries to Load the Interior Cavity of VNPs with Drugs and Imaging Moieties
Amy Wen, George Lomonosoff and Nicole Steinmetz

Posters: Track on Self-assembled Surface chemistry (Morning poster session)

- Phase separation and vertical stratification in organic polymer photovoltaics
Andrew Parnell, Alan Dunbar and Richard Jones
- Self Assembly of Zinc Oxide Nanoparticle Synthesis at Low Temperature with Co, Ni, and Mn Dopants
Jared Hancock and Roger Harrison
- Adsorbing, Desorbing, and Jamming DNA origami on SAMs
Valerie Goss and Marya Lieberman
- Assembly of Nanoparticles Synthesized Inside a Polyurethane Microreactor by Using a Micropatterned Polymer Template
E. Yegan Erdem, Mike T. Demko, Jim C. Cheng, Fiona M. Doyle and Albert P. Pisano
- A New Approach to Immobilize Single-Walled Carbon Nanotubes (SWCNTs) on Gold Substrate
Jayanti Das and Junghoon Lee
- Enhancing DNA Origami Binding to Graphene via π - π Interactions
Masudur Rahman and Michael L. Norton
- Imaging Hybridization on Multiplexed, Single-Molecule DNA Nano-arrays
Eric Josephs, Gary Abel and Tao Ye