

# Foundations of Nanoscience Meeting (FNANO 2015) - April 13-16, 2015, Snowbird, UT

## Snowbird Cliff Lodge

### Sunday 12 April 2015

**2:00-5:00 PM REGISTRATION (Ballroom 1 Lobby)**

### Monday 13 April 2015

**7:45-10:00 AM REGISTRATION (Ballroom 1 Lobby)**

**9:15-9:25 Introduction: John Reif, Conference Chair and Andrew Turberfield, Program Chair (Ballroom 1)**

#### 13 April 2015 - Track on DNA Nanostructures I. Track Chair: Nadrian Seeman, New York University (Ballroom 1)

9:25-10:05	Keynote	<b>Milan Stojanovic</b> (Dept of Medicine, Columbia University)	New and Useful Functions from Self-Assembly
10:05-10:30	Invited Talk	Erik Benson, Abdulmelik Mohammed, Johan Gardell, Sergej Masich, Eugen Czeizler, Pekka Orponen and <b>Bjorn Hogberg</b> (Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Sweden)	Rendering of Triangulated 3D Polyhedral Meshes using DNA Origami with Eulerian Scaffold Paths
10:30-10:50	Contributed Talk	<b>Thorsten L Schmidt</b> and Michael Matthies (Center for Advancing Electronics Dresden, Technische Universität Dresden, Germany)	Triangulated construction motifs for DNA origami
<b>10:50-11:10</b>	<b>Refreshments and Poster Session (DNA Nanostructures I / Synthetic Biology) - posters will also be displayed during the afternoon session (Mezzanine Level Lobby at top of the stairs)</b>		
11:10-11:35	Invited Talk	<b>Dongran Han</b> , Cameron Myhrvold and Peng Yin (Wyss Institute for Biologically Inspired Engineering, Harvard University)	Replicable Single-stranded DNA Origami
11:35-12:00	Invited Talk	<b>Xiaojin He</b> , Nadrian Seeman, Paul Chaikin, Yongli Mi and Ruojie Sha (Department of Chemistry, New York University)	Self-Replication, Exponential Growth, Selection and Competition in Systems of DNA Origami Tiles

#### 13 April 2015 - Special Track on Inorganic Nanoscale Devices I. Track Chair: Andrew Turberfield, University of Oxford (Ballroom 1)

12:00-12:20	Contributed Talk	<b>Wei Sun</b> , Etienne Boulais, Yera Hakobyan, Wei Li Wang, Amy Guan, Jie Shen, Blake Rapp, Wan Kuang, Mark Bathe and Peng Yin (Wyss Institute for Biologically Inspired Engineering, Harvard University)	Programming Inorganic Materials with Structural DNA Nanotechnology
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**12:20-1:40 Lunch (Golden Cliff Room - Blue Meal Ticket Required)**

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<b>13 April 2015 - Track on Nucleic Acid Nanostructures In Vivo. Track Chair: Yamuna Krishnan, University of Chicago (Ballroom 1)</b>			
1:40-2:20	Keynote	<b>Michael Famulok</b> , Finn Lohmann, Julian Valéro, Chia-Ling Chung, Johannes Weigandt and Deepak Kumar Prusty (LIMES Program Unit Chemical Biology & Medicinal Chemistry, University of Bonn, Germany)	Functional devices based on interlocked DNA-nanostructures or on aptamer nanocarriers
2:20-2:40	Contributed Talk	<b>Dhiraj Bhatia</b> , Senthil Arumugam, Michel Nasilowski, Himanshu Joshi, Ved Prakash, Prabal Maiti, Ludger Johannes, Benoit Dubertret and Yamuna Krishnan (National Centre for Biological Sciences, Tata Institute of Fundamental Research, India)	Quantum dot-loaded monofunctionalized DNA icosahedra for single particle tracking of endocytic pathways
2:40-3:05	Invited Talk	<b>Prashant Mali</b> (University of California at San Diego)	Barcoding cells using cell-surface programmable DNA-binding domains
3:05-3:30	Invited Talk	Sunny Jeng, Shyam Panchapakesan, Elena Dolgosheina and <b>Peter Unrau</b> (Department of Molecular Biology and Biochemistry, Simon Fraser University, Canada)	RNA Mango for native RNA-Protein complex purification and visualization
<b>3:30-4:20</b>	<b><i>Refreshments and Poster Session (DNA Nanostructures I / Synthetic Biology) (Mezzanine Level Lobby at top of the stairs)</i></b>		
<b>Posters: Track on DNA Nanostructures I (Mezzanine Level Lobby at top of the stairs)</b>			
	Poster	Nathaniel Green, Masudur Rahman, Xiaoning Zhang and Michael Norton (Department of Chemistry, Marshall University)	Substrate dependent adsorption of DNA origami
	Poster	<b>Khiem Nguyen</b> and Shelley Minter (Departments of Chemistry and Materials Science and Engineering, University of Utah)	DNA as a structural scaffold for self-assembly of an enzyme cascade to enhance bioelectrocatalytic activity for fuel cell and battery applications
	Poster	Haorong Chen and Jong Hyun Choi (School of Mechanical Engineering, Purdue University)	Reconfiguration of DNA Origami Structures through Modulation of Mechanical Properties with Chemical Adduct
	Poster	William L. Patterson III, <b>Masudur Rahman</b> , Herbert Sizek, Philip Sizek, Hong Zhong and Michael Norton (Department of Chemistry, Marshall University)	Preparation of 7.2kb DNA origami scaffold using polymerase chain reaction and lambda exonuclease digestion

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Poster	<b>Anna Ponomarenko</b> , Vladimir Brylev, Ksenia Sapozhnikova, Alexey Ustinov, Dmitry Klinov, Nikolay Barinov, Timofey Zatsepin, Igor Prokhorenko, Dmitry Ryasantsev and Vladimir Korshun (Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry, Russia)	Branched building blocks for DNA nanotechnology
Poster	Swati Krishnan, Vera Arnaut, Daniela Ziegler and Friedrich Simmel (Department of Physics, Technische Universität München, Germany)	Interaction of DNA origami channels with lipid membranes
Poster	<b>Amani Hariri</b> , Graham Hamblin, Yasser Gidi, Hanadi Sleiman and Gonzalo Cosa (Department of Chemistry and Center for Self-Assembled Chemical Structures, McGill University, Canada)	Stepwise growth of surface-grafted DNA nanotubes visualized at the single molecule level
Poster	<b>J.V. Le</b> , Yi Luo, Christopher Lucas, Michael Poirier and Carlos Castro (Interdisciplinary Biophysics Graduate Program, The Ohio State University)	Characterization of Nucleosome Structure using DNA Origami
Poster	<b>Guido Grossi</b> , Ebbe Andersen and Jørgen Kjems (Center for DNA Nanotechnology, Interdisciplinary Nanoscience Center, and Department of Molecular Biology and Genetics, Aarhus University, Denmark)	A DNA origami nanostructure to control enzymatic activities
Post-Deadline Poster	Masayuki Endo, Yuki Suzuki and Hiroshi Sugiyama (Institute for Integrated Cell-Material Sciences & Department of Chemistry, Kyoto University, Japan)	Direct visualization of the dynamic process of DNA origami assembly on the lipid bilayer surface

#### Posters: Track on Synthetic Biology (Mezzanine Level Lobby at top of the stairs)

Poster	<b>Johann Elbaz</b> and Christopher Voigt (Department of Biological Engineering, MIT)	Genetic Encoded DNA Nanostructures in Living Cells
Poster	<b>Joao Rosa</b> and Björn Högberg (Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Sweden)	Nucleotide sequence preference of BseGI

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Poster	<b>Alexander Green</b> , Jongmin Kim, Mario Teichmann, Pamela Silver, James Collins and Peng Yin (Department of Chemistry and Biochemistry, Arizona State University)	Ribocomputers: Synthetic RNA Networks for Sophisticated In Vivo Computation
Poster	Christian Cuba Samaniego, Vahid Mardanlou, Hari Subramanian, Claire Huynh Tran, Jonathan James Lloyd, Sho Kitada and <b>Elisa Franco</b> (University of California at Riverside)	Oscillations and bistability in molecular networks built with RNA aptamers

**4:00-5:00 PM REGISTRATION (Ballroom 1 Lobby)**

**13 April 2015 - Track on Synthetic Biology. Track Chair: Alex Deiters, University of Pittsburgh (Ballroom 1)**

4:20-5:00	Keynote	<b>Floyd Romesberg</b> (Department of Chemistry, The Scripps Research Institute)	A semi-synthetic organism with an expanded genetic alphabet
5:00-5:25	Invited Talk	Jia Zhao, Travis Nelson and <b>Cliff Strains</b> (Department of Chemistry, University of Nebraska)	Ligand Gated Split-Small GTPases
5:25-5:50	Invited Talk	<b>Niles Pierce</b> (California Institute of Technology)	Dynamic RNA Nanotechnology

***Dinner (On Your Own)***

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Tuesday 14 April 2015

7:45-9:45 AM **REGISTRATION (Ballroom 1 Lobby)**

**14 April 2015 - Track on Principles and Theory of Self-Assembly. Track Chair: Rebecca Schulman, Johns Hopkins University (Ballroom 1)**

8:30-9:10	Keynote	<b>Erik Luijten</b> (Northwestern University)	New Insights into Some Principles of Self-Assembly
9:10-9:30	Contributed Talk	Katherine Dunn, Frits Dannenberg, Thomas Ouldridge, Marta Kwiatkowska, Jonathan Bath and <b>Andrew Turberfield</b> (Department of Physics, University of Oxford, UK)	Guiding the folding pathway of DNA origami
9:30-9:55	Invited Talk	<b>W. Benjamin Rogers</b> and Vinodhan Manoharan (School of Engineering and Applied Sciences, Harvard University)	Sculpting phase diagrams: freezing by heating, switchable crystals, and more
9:55-10:20	Invited Talk	<b>Sung Hoon Kang</b> (Johns Hopkins University)	Steering Evaporation-Induced Self-Assembly of Nanopost Arrays by Interplay between Mechanics and Surface Chemistry

**10:20-11:10 Refreshments and Poster Session (Principles and Theory of Self-Assembly / Biomedical Nanotechnology) (Mezzanine Level Lobby at top of the stairs)**

**Posters: Track on Principles and Theory of Self-assembly (Mezzanine Level Lobby at top of the stairs)**

Poster	Steven Swasey, Leonardo Leal, Olga Lopez-Acevedo, Alex Chiu, James Pavlovich and Elisabeth Gwinn (Dept. of Chemistry and Biochemistry, UCSB)	Silver (I) as DNA glue: Ag <sup>+</sup> -mediated guanine pairing revealed by relaxing Watson-Crick constraints
Poster	<b>John Schreck</b> , Jonathan Doye, Flavio Romano, Ard Louis, Thomas Ouldridge, Vid Kocar and Roman Jerala (Department of Chemistry, University of Oxford, UK)	Coarse-grained modeling of the structure and self-assembly of DNA polyhedra

**Posters: Track on Biomedical Nanotechnology (Mezzanine Level Lobby at top of the stairs)**

Poster	<b>Ronit Freeman</b> , Nicholas Stephanopoulos, Shantanu Sur, Job Boekhoven, Sungsoo Lee and Samuel Stupp (Feinberg School of Medicine, Northwestern University)	Instructing Cells with Programmable Peptide-DNA Hybrids
Poster	Abdul Mohammed, Allison Chisenhall, Daniel Schiffels, Deborah Fygenson and Rebecca Schulman (Department of Chemical and Biomolecular Engineering, Johns Hopkins University)	Self-Assembly of Multi-Nanotube Architectures Using DNA Origami Seed Structures

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Poster	<b>Hans Christian Høiberg</b> , Steffen Lyngé Sparvath, Mie Elholm Birkbak, Irene Maria Hansen, Jens Biasevich, Ebbe Sloth Andersen and Jørgen Kjems (Aarhus University)	RNA Nano-Octahedron for RNA Interference
Poster	<b>Eugen Stulz</b> , Gabriella Marth, Florence Benn, Iwona Mames, James Wood, Joanna Pursey, Lauren Sargisson, Andrew Turberfield and Dafydd Jones (School of Chemistry and Institute for Life Sciences, University of Southampton, UK)	DNA bio-nanotechnology incorporating functionalized nucleotides
Poster	<b>Daniel Schiffels</b> , Fernando Vargas-Lara, Jack F. Douglas and James Alexander Liddle (Center for Nanoscale Science and Technology, National Institute of Standards and Technology)	Assembly of Superparamagnetic Iron Oxide Nanoparticles on DNA Nanostructures
Poster	<b>Gabriella Marth</b> , Lauren Sargisson, Sam Mackey, Eugen Stulz, Florence Benn, Jonathan Bath, Andrew Turberfield, Dafydd Jones and Katherine Dunn (School of Chemistry and Institute for Life Science, University of Southampton, UK)	A self-assembled three enzyme cascade on various DNA templates
Poster	<b>Diana Goncalves-Schmidt</b> , Marcus Binner, Christiane Jungnickel, Laura Bray, Raul D. Rodriguez, Steve W. Poser, Michael Schlierf, Andreas Androutsellis-Theotokis and Carsten Werner (Leibniz-Institute for Polymer Research, Max Bergman Center of Biomaterials Dresden, Germany)	Selective photothermal targeting of Glioblastoma Multiforme cancer stem cells by gold nanorods
Poster	Carl W. Brown III, Matthew R. Lakin, <b>Aurora Fabry-Wood</b> , Nicholas A. Baker, Eli K. Horwitz, Darko Stefanovic and Steven Graves (Center for Biomedical Engineering, University of New Mexico)	Modular DNA-based Biosensors for Isothermal Detection of Double-Stranded DNA, Oligonucleotides, and Small Molecules
Poster	<b>Nicholas Stephanopoulos</b> , Ronit Freeman, Hilary North, Shantanu Sur, Su Jeong, Faifan Tantakitti, John Kessler and Samuel Stupp (Feinberg School of Medicine, Northwestern University, Chicago)	Bioactive DNA-Peptide Nanotubes Enhance the Differentiation of Neural Stem Cells Into Neurons

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	Poster	Stefan Howorka, <b>Jonathan R. Burns</b> (Department of Chemistry, University College London, UK)	Membrane-Spanning DNA Nanopores: Functional Nanostructures for Single-Molecule Sensing, Cancer Research, and Synthetic Biology
<b>14 April 2015 - Track on Biomedical Nanotechnology. Track Chair: Thomas LaBean, North Carolina State University (Ballroom 1)</b>			
11:10-11:50	Keynote	<b>Katharina Ribbeck</b> (Biological Engineering, Massachusetts Institute of Technology)	Bioinspired Hydrogels – Tuning Selective Transport and Microbial Interactions
11:50-12:10	Contributed Talk	<b>Veikko Linko</b> and Mauri Kostiainen (Department of Biotechnology and Chemical Technology, Aalto University)	DNA Origami as the Assembly Toolkit in Nanotechnology: Cellular Delivery Vehicles, Nanoreactors and Metallic Nanostructures
12:10-12:35	Invited Talk	Leopold Green, Jaimie Marie Stewart, Hari Subramanian, Vahid Mardanlou, Jongmin Kim, Rizal Hariadi and <b>Elisa Franco</b> (Department of Mechanical Engineering, University of California at Riverside)	Dynamic Self-Assembly of Nucleic Acid Nanotubes
<b>12:35-2:00</b>	<b><i>Lunch (Golden Cliff Room - Blue Meal Ticket Required)</i></b>		
<b>14 April 2015 - Track on Nanophotonics and Superresolution. Track Chair: Tim Liedl, Ludwig Maximilians University, Munich (Ballroom 1)</b>			
2:00-2:40	Keynote	<b>Mark Brongersma</b> (Geballe Laboratory for Advanced Materials, Stanford University)	Device Applications of Metafilms and Metasurfaces
2:40-3:00	Contributed Talk	<b>Amy Szuchmacher Blum</b> , Omar K. Zahr and Jennifer I.L. Chen (Department of Chemistry, McGill University, Canada)	Self-assembled Metamaterials on a Viral Coat Protein Template
3:00-3:20	Contributed Talk	<b>Peng Yin</b> (Wyss Institute for Biologically Inspired Engineering, Harvard University)	DNA probes for highly multiplexed, precisely quantitative, ultra-resolution imaging
3:20-3:45	Invited Talk	<b>Na Liu</b> (Max Planck Institute for Intelligent Systems, Stuttgart, Germany)	Active 3D plasmonics
<b>3:45-4:40</b>	<b><i>Refreshments and Poster Session (Nanophotonics and Superresolution / Integrated Chemical Systems) (Mezzanine Level Lobby at top of the stairs)</i></b>		
<b>Posters: Track on Nanophotonics and Superresolution (Mezzanine Level Lobby at top of the stairs)</b>			
	Poster	Anton Kuzyk, Robert Schreiber, Sasha Govorov, Tim Liedl and Na Liu (Max Planck Institute for Intelligent Systems, Stuttgart, Germany)	Reconfigurable 3D plasmonic metamolecules

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Poster	<b>Maximilian T. Strauss</b> , Johannes B. Woehrstein, Luvena L. Ong, Bryan Wei, David Yu Zhang, Ralf Jungmann and Peng Yin (Wyss Institute for Biologically Inspired Engineering, Harvard University)	Sub-diffraction metafluorophores with digitally programmable optical properties
Poster	Yonseob Kim and Nicholas Kotov (Department of Chemical Engineering, University of Michigan)	Chiroptical Nanocomposites
Poster	Maximilian Urban, Chao Zhou, Xiaoyang Duan and Na Liu (Max Planck Institute for Intelligent Systems, Stuttgart, Germany)	Towards Dynamic Plasmon Rulers
Poster	<b>Maier Avendano</b> , Ralf Jungmann, Jeffrey Werbin and Peng Yin (Department of Systems Biology, Harvard Medical School)	Quantitative, multiplexed super-resolution imaging via programmable autonomous blinking
Poster	<b>Chao Zhou</b> , Xiaoyang Duan and Na Liu (Max Planck Institute for Intelligent Systems, Stuttgart, Germany)	A plasmonic walker
Poster	Kelly Schutt, Christopher Green, Noah Morris, Elias Lindau, William Hughes, Elton Graugnard and Wan Kuang (Department of Materials Science and Engineering, Boise State University)	Super-Resolution Defect Characterization of 2D DNA Origami Arrays
Poster	<b>Mingjie Dai</b> , Ralf Jungmann and Peng Yin (Wyss Institute, Harvard University)	Visualising individual molecular features with fluorescence Digital Molecular Imaging (DMI)
Poster	Florian Schueder, Sarit Agasti, Yu Wang, Johannes Woehrstein, Juanita Lara, Ralf Jungmann and Peng Yin (Wyss Institute for Biologically Inspired Engineering, Harvard University)	Ultra-multiplexed and super-resolution imaging with Exchange-PAINT for in situ single-cell proteomic mapping



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<b>Posters: Track on Integrated Chemical Systems (Mezzanine Level Lobby at top of the stairs)</b>			
	Poster	<b>Mikael Madsen</b> , Jakob Knudsen, Niels Kjeldsen, Lei Liu, Qiang Li, Jie Song, Jesper Sørensen, Rasmus Christensen, Anne Louise Kodal, Johannes Woehrstein, Shelley Wickham, Maximilian Strauss, Florian Schueder, Abhichart Krissanaprasit, Peng Yin, Ralf Jungmann, Mingdong Dong and Kurt Gothelf (Centre for DNA Nanotechnology, iNANO, Aarhus University, Denmark)	Graphene Nanoribbons and Conjugated Organic Polymers with Oligonucleotide Brushes for Single Molecule Wiring on DNA-origami
<b>14 April 2015 - Track on Integrated Synthetic Systems. Track Chair: Amar Flood, Indiana University (Ballroom 1)</b>			
4:40-5:20	Keynote	<b>Alan Rowan</b> , Paul Kouwer and Maarten Jaspers (Institute for Molecules and Materials, Department of Organic Chemistry, Radboud University Nijmegen, The Netherlands)	Self-Assembling Polymer Networks the key to cell control
5:20-5:45	Invited Talk	<b>Christine Luscombe</b> , David Zeigler and Katherine Mazzio (Department of Chemistry, University of Washington)	Manipulating the backbone structure of pi-conjugated semiconducting polymers
5:45-6:10	Invited Talk	<b>J. D. Tovar</b> (Department of Chemistry, Department of Materials Science and Engineering, and Institute for NanoBioTechnology, Johns Hopkins University)	Carving pi-ways into biomaterials: electronic delocalization via peptide self-assembly
<b>6:10-8:00</b>	<b><i>Refreshments and Combined Poster Session (Monday and Tuesday Tracks) (Golden Cliff Room - Red Meal Ticket Required)</i></b>		

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### Wednesday 15 April 2015

**7:45-9:45 AM REGISTRATION (Ballroom 1 Lobby)**

**15 April 2015 - Track on DNA Nanostructures II; Track Chair: Nadrian Seeman, New York University (Ballroom 1)**

8:30-8:55	Invited Talk	Abdul Mohammed and <b>Rebecca Schulman</b> (Department of Chemical and Biomolecular Engineering, Johns Hopkins University)	DNA Nanotubes as Components for Self-Wiring and Dynamic Self-Organization
8:55-9:20	Invited Talk	<b>Yonggang Ke</b> , Luvena Ong, Wei Sun, Jie Song, Mingdong Dong, Peng Yin and William Shih (Wyss Institute for Biologically Inspired Engineering, Harvard University)	Two-dimensional DNA Crystals Self-Assembled from DNA Bricks
9:20-9:45	Invited Talk	Jonas Funke and <b>Hendrik Dietz</b> (Department of Physics, Technische Universität München, Germany)	Placing molecules with Bohr radius resolution using a DNA-based positioning device
9:45-10:10	Invited Talk	<b>James Canary</b> , Miao Ye, Ruojie Sha and Nadrian Seeman (Department of Chemistry, New York University)	Links and Crosslinks on the Way to DNA-Directed Assembly of Organic Materials

**10:10-11:05 Refreshments and Combined Poster Session (DNA Nanostructures II / Computational Tools for Self-Assembly) (Mezzanine Level Lobby at the top of the stairs)**

**Posters: Track on DNA Nanostructures II (Mezzanine Level Lobby at top of the stairs)**

Poster	<b>Rasmus Peter Thomsen</b> , Rasmus Schøler Sørensen and Jørgen Kjems (iNANO, Aarhus University, Denmark)	A functionalizable DNA nanopore
Poster	<b>Michael Hudoba</b> , Carlos Castro, Yi Luo and Michael Poirier (Department of Mechanical and Aerospace Engineering, Ohio State University)	DNA Origami Structure with Tunable Structure Dynamics
Poster	<b>Seham Helmi</b> , Christoph Ziegler, Dominik Kauert and Ralf Seidel (Westfälische Wilhelms-Universität, Germany)	Shape-Controlled Synthesis of Gold Nanostructures Using DNA Origami Molds
Poster	John Harb, Bibek Uprety and Adam Woolley (Department of Chemical Engineering, Brigham Young University)	DNA-Templated Fabrication of ~10 nm Diameter Nanorod-Seeded Wires
Poster	Michelle Pillers and Marya Lieberman (Department of Chemistry and Biochemistry, University of Notre Dame)	Physical and chemical changes of DNA origami in response to heat and solvent exposure

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Poster	<b>Jacob Majikes</b> and Thom Labean (Department of Materials Science & Engineering, North Carolina State University)	Mini-M13 workbench scaffold: Prototyping 2404-base origami for parallel I-motifs and multi-staple pool anneals
Poster	<b>Kazuki Hirahara</b> , Satoshi Murata and <b>Shin-Ichiro M. Nomura</b> (Department of Bioengineering and Robotics, University of Tohoku)	Designing Artificial Membrane Channel From DNA Origami
Poster	Alan Shaw, Erik Benson and Björn Högberg (Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Sweden)	Production of Functionalized DNA origami
Poster	John Devany and D. Kuchnir Fygenson (Department of Physics, University of California, Santa Barbara)	Spontaneous nucleation of HX-tiled DNA nanotubes of defined circumference
Poster	<b>Simon Vecchioni</b> , Emily Toomey, Mark C. Capece, Shalom J. Wind and Lynn Rothschild (Columbia University)	BioWires: A Pathway for Ag <sup>+</sup> -mediated, DNA- and RNA-nanowire synthesis in Escherichia coli

#### Posters: Track on Computational Tools for Self-Assembly (Mezzanine Level Lobby at top of the stairs)

Poster	<b>Ben Snodin</b> , Domen Presern, Flavio Romano, Thomas Ouldrige, Ard Louis and Jonathan Doye (Department of Chemistry, University of Oxford, UK)	Simulating large self-assembled DNA nanostructures using a coarse-grained model of DNA
Poster	<b>Keyao Pan</b> and Mark Bathe (Department of Biological Engineering, Massachusetts Institute of Technology)	Algorithmic Design of Topology and Sequence for Scaffolded DNA Origami
Poster	<b>Sakul Ratanaalert</b> , Remi Veneziano, Fei Zhang, Hao Yan and Mark Bathe (Department of Biological Engineering, Massachusetts Institute of Technology)	Algorithmic Design of DNA-Based Cages
Poster	<b>Reem Mokhtar</b> , Sudhanshu Garg, Harish Chandran, Hieu Bui, Tianqi Song and John Reif (Department of Computer Science, Duke University)	A Python Implementation of a DNA Graph Rewriting System (DAGRS)

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15 April 2015 - Track on Computational Tools for Self-Assembly. Track Chair: William Shih, Wyss Institute and Harvard Medical School (Ballroom 1)				
11:05-11:45	Keynote	<b>Graham Johnson</b> (University of California, San Francisco)	Towards Whole Cells Modeled in 3D Molecular Detail and Community Curated with cellPACK	
11:45-12:05	Contributed Talk	<b>Chen-Yu Li</b> , Elisa A. Hemmig, Jinglin Kong, Jejoong Yoo, Silvia Hernández-Ainsa, Ulrich F. Keyser and Aleksei Aksimentiev (Center for Biophysics and Computational Biology, University of Illinois at Urbana-Champaign)	Ionic Conductivity, Structural Deformation, and Programmable Anisotropy of DNA Origami in Electric Field	
12:05-12:25	Contributed Talk	<b>Petr Sulc</b> , Flavio Romano, Thomas Ouldridge, Jonathan Doye and Ard Louis (Center for Studies in Physics and Biology, The Rockefeller University)	Coarse-grained modelling of RNA for RNA nanotechnology	
<b>12:25-1:40</b>	<b><i>Lunch (Golden Cliff Room - Blue Meal Ticket Required)</i></b>			
15 April 2015 - Track on DNA Nanotechnology and Analytical Methods I. Track Chair: Andrew Ellington, University of Texas at Austin (Ballroom 1)				
1:40-2:20	Keynote	<b>Erkang Wang</b> (State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, P. R. China)	The Synthesis and Applications of DNA Protected Silver Nanoclusters	
2:20-2:45	Invited Talk	<b>Ilya Finkelstein</b> (University of Texas at Austin)	Microfluidic DNA Curtains Reveal How Molecular Machines Move on Crowded DNA	
2:45-3:10	Invited Talk	<b>Georg Seelig</b> (University of Washington)	DNA strand displacement from the test tube to the cell	
3:10-3:35	Invited Talk	<b>Shaojun Dong</b> (State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, P. R. China)	Performance of DNA and Aptamer at Graphene Sensing Interface	
<b>3:35-4:25</b>	<b><i>Refreshments and Poster Session (DNA Nanotechnology and Analytical Methods / DNA Nanostructures III) (Mezzanine Level Lobby at top of the stairs)</i></b>			

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Posters: Track on DNA Nanotechnology and Analytical Methods (Mezzanine Level Lobby at top of the stairs)		
Poster	<b>Lucia R. Wu</b> , J. Sherry Wang, John Z. Fang and David Yu Zhang (Department of Bioengineering, Rice University)	Continuously Tunable Nucleic Acid Hybridization Probes
Poster	<b>Shaojun Guo</b> (Physical Chemistry and Applied Spectroscopy, Los Alamos National Laboratory)	Rational Tuning of the Electrocatalytic Nanobiointerface by DNA for "Turn-off" Biofuel Cells-based Self-Powered Biosensor for p53 Protein
Poster	<b>Cosimo Ducani</b> , Giulio Bernardinelli and Björn Högberg (Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Sweden)	Rolling circle replication requires single-stranded DNA binding protein to avoid double-stranded DNA production
Poster	Akinori Kuzuya, Masafumi Kaino, Ryosuke Watanabe and Yuichi Ohya (Dept. Chem. Mater. Eng., Kansai University)	Functional DNA Nanodevices Made of DNA Sudare - A Relaxed DNA Origami Derivative
Poster	<b>Hsin-Chih Yeh</b> , Judy Obliosca, Yu-An Chen, Cong Liu and Yen-Liang Liu (Department of Biomedical Engineering, University of Texas at Austin)	Enzyme-Free N6-Methyladenosine Detection using cNCBs
Poster	Bingling Li, Yu Jiang, Sanchita Bhadra and Andrew Ellington (Center for Systems and Synthetic Biology, The University of Texas at Austin)	Coupling Isothermal Amplification with Strand Exchange Circuits for Robust and Portable Molecular Diagnostics
Posters: Track on DNA Nanostructures III (Mezzanine Level Lobby at top of the stairs)		
Poster	<b>Julia Sandmaier, Veronika Szalai, Daniel Schiffels</b> , Fernando Vargas-Lara, Jack Douglas and James Liddle (Center for Nanoscale Science and Technology, National Institute of Standards and Technology)	DNA Oligonucleotide Conformation on Au Nanoparticles: Simulations and Experiments
Poster	Kerstin Goepfrich, Thomas Zettl, Anna E. C. Meijering, Silvia Hernandez-Ainsa, Samet Kocabey, Tim Liedl and Ulrich F. Keyser (Cavendish Laboratory, University of Cambridge, UK)	Ion channel-like DNA-tile nanostructures in lipid membranes
Poster	<b>Jin Bae</b> and David Zhang (Department of Bioengineering, Rice University)	Thermodynamic Parameters of Modified Nucleic Acids

## Foundations of Nanoscience Meeting (FNANO 2015) - April 13-16, 2015, Snowbird, UT

### Snowbird Cliff Lodge

Poster	Isaac Gallego, Martha Grover and Nicholas V. Hud (School of Chemistry & Biochemistry, Georgia Institute of Technology)	Folding and Imaging of DNA Nanostructures in an Anhydrous and Hydrated Deep Eutectic Solvent
Poster	Nikhil Gopalkrishnan and Peng Yin (Wyss Institute for Biologically Inspired Engineering, Harvard University)	Robust Isothermal Assembly of a DNA Nanostructure using Developmental Self-Assembly
Poster	<b>Hieu Bui</b> , Sudhanshu Garg, Tianqi Song, Reem Mokhtar and John Reif (Department of Computer Science, Duke University)	Design DNA Hairpin Systems for Localized DNA Hybridization Reactions
Poster	Thomas Gerling, Klaus Wagenbauer, Andrea Neuner and Hendrik Dietz (Department of Physics, Technische Universität München, Germany)	Controlling the intramolecular dynamics of a shape-complementary, non-basepairing DNA device
Poster	<b>Klaus Wagenbauer</b> , Thomas Gerling, Andrea Neuner and Hendrik Dietz (Department of Physics, Technische Universität München, Germany)	Hierarchical and reversible assembly of shape-complementary nonbasepairing DNA components

#### 15 April 2015 - Track on DNA Nanotechnology and Analytical Methods II. Track Chair: Andrew Ellington, University of Texas at Austin (Ballroom 1)

4:25-4:50	Invited Talk	<b>Rachel O'Reilly</b> (Department of Chemistry, University of Warwick)	Templation in materials synthesis
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#### 15 April 2015 - Special Track on Inorganic Nanoscale Devices II. Track Chair: Andrew Turberfield, University of Oxford (Ballroom 1)

4:50-5:30	Keynote	<b>Michael Roukes</b> , Applied Physics and Biological Engineering, California Institute of Technology	Single-molecule analysis with nanomechanical systems
<b>5:30-7:30</b>	<b><i>Reception and Combined Poster Session (Wednesday and Thursday Tracks) ISNSCE AWARD ADDRESS (Golden Cliff Room - Red Meal Ticket Required)</i></b>		

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**Thursday 16 April 2015**

**16 April 2015 - Track on Molecular Motors. Track Chair: Andrew Turberfield, University of Oxford (Ballroom 1)**

8:30-9:10	Keynote	<b>Ayusman Sen</b> (Department of Chemistry, Pennsylvania State University)	Designing Self-powered Nanomotors and Pumps
9:10-9:30	Contributed Talk	<b>Alexander E Marras</b> , Lifeng Zhou, Hai-Jun Su and Carlos E Castro (Department of Mechanical and Aerospace Engineering, The Ohio State University)	Fabricating and Actuating DNA Origami Mechanisms
9:30-9:50	Contributed Talk	<b>Henri Palacci</b> , Ofer Idan, Megan Armstrong, Ashutosh Agarwal, Takahiro Nitta and Henry Hess (Department of Biomedical Engineering, Columbia University)	Velocity Fluctuations in Kinesin-Microtubule Gliding Motility Assays originate from Variations in Motor Attachment Geometry
9:50-10:15	Invited Talk	<b>Zhisong Wang</b> (Department of Physics, National University of Singapore, Singapore)	Track-walking molecular motors beyond burn-the-bridge methods
<b>10:15-11:10</b>	<b>Refreshments and Poster Session (Molecular Motors / Self-Assembly Across Scales / Protein and Viral Nanostructures) (Mezzanine Level Lobby at top of the stairs)</b>		
<b>Posters: Track on Molecular Motors (Mezzanine Level Lobby at top of the stairs)</b>			
	Poster	Tae-Gon Cha, Jing Pan, Chengde Mao and Jong Hyun Choi (School of Mechanical Engineering, Purdue University)	Design Principles of DNA Enzyme Walkers
	Poster	<b>Jonathan List</b> (Department of Physics, Technische Universität München)	Motion of Mechanically Interlocked DNA Nanostructures
<b>Posters: Track on Self-Assembly Across Scales (Mezzanine Level Lobby at top of the stairs)</b>			
	Poster	<b>Günther Pardatscher</b> (Department of Physics, Technische Universität München, Germany)	Nanostructured DNA on Ebeam-Patterned Biochips
	Poster	<b>Stacy Copp</b> , Danielle Schultz, Steven Swasey and Elisabeth Gwinn (Department of Physics, UCSB)	Atomically precise arrays of fluorescent silver clusters: a modular approach for metal cluster photonics on DNA nanostructures

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Poster	<b>Per L�othman</b> , Tijmen Hageman, L.A. Woldering, N. J. Bienia, M. C. Elvenspoek, Andreas Manz and Leon Abelmann (KIST Europe, Germany)	Macroscopic Self-assembly via turbulent Flow and Magnetic Interaction
Poster	<b>Tijmen A.G. Hageman</b> , Per A. L�othman, Andreas Manz, Leon Abelmann, Nikodem J. Biena, Leon A. Woldering and Miko C. Elwenspoek (KIST Europe, Germany)	Disturbing energy of a macroscopic self-assembly reactor
Poster	Carsten Schuldt, Jessica Lorenz, Martin Glaser, Tina H�andler, Maximilian M�obius-Winkler, Teresa Tschirner, J�org Schnau�, Josef K�as and <b>David Smith</b> (Fraunhofer Institute for Cell Therapy and Immunology, Leipzig, Germany)	Expanded experimental parameter space of semiflexible polymer assemblies through programmable nanomaterials
Poster	<b>Nikolay Frik</b> , Marco Nobile, Daniela Besozzi and Thom Labean (Department of Materials Science and Engineering, North Carolina State University)	Useful Disorder: Engineering Self-Assembly and Randomized Neuromimetic Networks for Sensing and Computation
Poster	<b>Thomas Schaus</b> , Tony Cho, Joanna Robaszcwski and Peng Yin (Wyss Institute for Biologically Inspired Engineering at Harvard University)	Macroscopic Self-Assembly of Complex Structures Inspired by DNA
Poster	<b>Grigory Tikhomirov</b> , Philip Petersen and Lulu Qian (Bioengineering, California Institute of Technology)	Creating combinatorial patterns with DNA origami arrays
<b>Posters: Track on Protein and Viral Nanostructures (Mezzanine Level Lobby at top of the stairs)</b>		
Poster	Amy M. Wen, Katrina Pangilinan, Pengfei Cao, Rigoberto C. Advincula and Nicole F. Steinmetz (Department of Biomedical Engineering, Case Western Reserve University)	Engineering Hybrid Virus-Dendron Nanostructures for Cell Delivery and Imaging



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#### 16 April 2015 - Track on Self-Assembly Across Scales. Track Chair: Marya Lieberman, University of Notre Dame (Ballroom 1)

11:10-11:50	Keynote	<b>Michelle Khine</b> (Department of Biomedical Engineering, UC Irvine)	Multi-Scale Self-Assembled Wrinkles
11:50-12:15	Invited Talk	Feng Zhou, Hyojeong Kim and <b>Haitao Liu</b> (Department of Chemistry, University of Pittsburgh)	DNA-Based Nanofabrication Under Extreme Chemical Environments
12:15-12:40	Invited Talk	Ronald McNeil Jr. and <b>Paul Paukstelis</b> (Department of Chemistry & Biochemistry, University of Maryland)	Building from the core: layer-by-layer assembly of 3D DNA crystals
<b>12:40-2:00</b>	<b><i>Lunch (On Your Own)</i></b>		

#### 16 April 2015 - Track on Protein and Viral Nanostructures. Track Chair: Nicole Steinmetz, Case Western Reserve University (Ballroom 1)

2:00-2:40	Keynote	<b>Mauri Kostiainen</b> (Department of Biotechnology and Chemical Technology, Aalto University, Finland)	Crystalline Assemblies from Nanoparticles and Patchy Protein Cages
2:40-3:05	Invited Talk	Zhuo Chen, Na Li, Anna Schlimme and <b>Jeremiah Gassensmith</b> (Department of Chemistry, University of Texas at Dallas)	Multivalent Viral Nanocapsids
3:05-3:30	Invited Talk	<b>James Culver</b> (Institute for Bioscience and Biotechnology Research and Department of Plant Sciences and Landscape Architecture, University of Maryland)	Virus Based Biofabrication of Device Surfaces
3:30-3:55	Invited Talk	<b>John Lewis</b> (Department of Oncology, University of Alberta, Canada)	Virus-Based Nanoparticles as Tools for Intravital Imaging in Oncology