

Foundations of Nanoscience Meeting (FNANO) 11-15 April, 2011, Snowbird UT

11 April, 2011 Symposium in Honor of Nadrian Seeman; Symposium Organizer Hao Yan

1:30-1:40		Hao Yan	Introductory Remarks
1:40-2:00	Invited Talk	Chengde Mao	TBA
2:05-2:25	Invited Talk	Erik Winfree	The Computer Science of Molecular Programming
2:30-2:50	Invited Talk	Hao Yan	Designer DNA Architectures for Nanobiotechnology
2:55-3:15	Invited Talk	Paul Rothemund	Stacking bonds: programming molecular recognition using the geometry of DNA nanostructures
3:20-3:40	Invited Talk	Bernard Yurke	Using DNA nanotubes to investigate hydrodynamics
4:05-4:25	Invited Talk	William Shih	Self-assembly of DNA into nanoscale three-dimensional shapes
4:30-4:50	Invited Talk	Hanadi Sleiman	Dynamic Three-Dimensional DNA Nanostructures: Loading and Selective Release of Cargo for Biological and Materials Applications
4:55-5:15	Invited Talk	Hongzhou Gu	A proximity-based programmable DNA nanoscale assembly line
5:20-5:40	Invited Talk	Andrew Turberfield	DNA Molecular Machinery
5:45-6:05	Invited Talk	Kurt Vesterager Gothel	A DNA Tile Actuator with 11 Discrete States
6:10-6:30	Invited Talk	Friedrich Simmel	On the relation of DNA nanotechnology and (bio)physics

12 April, 2011 Blitz session; session chair Shogo Hamada

7:30			Breakfast
8:00-8:30 am			Short presentations of Tuesday posters

12 April, 2011 Track on Molecular Motors; Track Chair Andrew Turberfield

8:30-9:10	Keynote	Richard Berry	Co-operative switching, Turnover, and Mechanochemistry in a biological macromolecular complex
9:10-9:30	Contributed Talk	Ken Komiya	Autonomous Restoration of a DNA Track for a Sustained Walk of a DNA Walking Device Driven by Nicking Reaction

9:30-9:55	Invited Talk	Bradley Nelson	Self-Scrolling Artificial Bacterial Flagella, Their Characterization, and Potential Applications
9:55-10:15	Contributed Talk	Shelley Wickham	A burnt-bridges DNA motor on a DNA origami substrate
	Poster	Damian Ackermann	A double-standed DNA rotaxane
	Poster	Albert Fahrenbach	The Violenes: Building Blocks for Artificial Molecular Machines
	Poster	Hao Li	A Light-Stimulated Molecular Machine Driven by Radical Pairing Interactions in Water
	Poster	Jessie Minick	Operation of a DNA-Based Nanomachine in Human Blood
	Poster	Richard Muscat	A Programmable Molecular Robot
	Poster	Thomas Ouldridge	Coarse-grained modelling of DNA nanotechnology
	Poster	Mehmet Cagatay Tarha	Molecular Sorting Based on Motor Protein Powered Direct Transport
	Poster	Thomas Tøring	Reversible pH-Regulated Control of Photosensitized Singlet Oxygen Production Using a DNA i-Motif
	Poster	Jaroslav Vacek	Molecular Rotors: Evaluation of Friction
	Poster	Ryuji Yokokawa	Experimental and Numerical Analysis of Polar Oriented Microtubule Array in Nanotracks
10:15-10:50	Tuesday AM poster session, refreshments		
12 April, 2011 Track on Principles and Theory of Self-Assembly; Track Chair Paul W. K. Rothemund			
10:50-11:15	Invited Talk	Caroline Ross	Templated self-assembly of block copolymer thin films using topographical features
11:15-11:40	Invited talk	Steve Whitelam	Dynamic pathways of self-assembly driven by competing nonspecific and specific interactions
11:40-12:05	Invited Talk	Mark Alber	Role reversals in bacterial self-organization
12:05-12:25	Contributed Talk	Jennifer Padilla	Programmed Hierarchical Self Assembly of a Quasiperiodic Tiling Pattern
	Poster	Harish Chandran	Speeding up DNA Circuits using Localized Hybridization
	Poster	David Doty	Parallelism and Time in Hierarchical Self-Assembly

	Poster	Shogo Hamada	Theory of Substrate-Assisted Self-Assembly of DNA Nanostructures
	Poster	Henry Hess	A Thermodynamic Model for Cooperative Self-Assembly
	Poster	Matthew Patitz	Self-Assembly with Geometric Tiles
12:30-1:30			Lunch

12 April, 2011 Track on Self-Assembled Surface Chemistry; Track Chair Lloyd Smith

1:30-2:10	Keynote	John Rogers	TBA
2:10-2:35	Invited Talk	Nicholas Abbott	Ordering of Liquid Crystalline Materials on Self-Assembled Surfaces
2:35-3:00	Invited Talk	Robert Blick	TBA
3:00-3:20	Contributed Talk	Tao Ye	Nanoscale patterning of individual DNA molecules using a scanning probe microscope
	Poster	Jana Chocholousova	Self-Assembly of Azahelicenes on Ag(1,1,1): STM and Computational Study
	Poster	Eric Josephs	Assembling complex and dynamic structures from single-molecule patterns of DNA
	Poster	John Kulp	Surface Adsorption and Assembly of GG-X-GG, X5, X10, and beta-Helical Peptides
	Poster	Todd Monson	Self-Assembled Manganese Oxide Nanocomposite Supercapacitor Electrodes
	Poster	Risheng Wang	DNA Nanostructures Assembly on Patterned Surfaces
3:20-4:00			Tuesday PM poster session, refreshments

12 April, 2011 Track on Integrated Chemical Systems; Track Chair Fraser Stoddart

4:00-4:40	Keynote	Jeffrey Zink	Multifunctional Mechanized Inorganic Nanoparticles for Imaging, Targeting and Drug Delivery
4:40-5:05	Invited Talk	Alshakim Nelson	Magneto-responsive Materials Via Self-Assembly
5:05-5:30	Invited Talk	Alexander Star	Building and Destroying Carbon Nanostructures
5:30-5:55	Invited Talk	Amar Flood	Bioinspired design of molecular devices: Photodriven foldamers for anion regulation

	Poster	Michael Ambrogio	Controlled Release from Mesoporous Silica Nanoparticles
	Poster	Gokhan Barin	Copper-Complexed Rotaxane Struts in a Metal–Organic Framework
	Poster	Dennis Cao	Dynamic Synthesis of Interlocked Structures and Probing Co-Conformational Changes in Desymmetrized [2]Catenanes
	Poster	Jeremiah Gassensmith	Metal-Organic Frameworks from β -Cyclodextrin
	Poster	David Hanifi	Novel n-type C3-symmetric Discotic Materials: Synthesis, Self Assembly and Physical Properties
	Poster	Deepak K. Prusty	A fluorogenic reaction based on heavy-atom removal for ultrasensitive DNA detection
	Poster	Nathan Strutt	Host-Guest Complexes of Functionalized Pillar[5]arene
	Poster	Yong Zhao	Exploring the Chemical Reactivity of Nitrogen-doped Carbon Nanotube Cups

12 April, 2011 ISNSCE Award Address

	5:55-6:35 pm	Nadiran C. Seeman	DNA: Not Merely the Secret of Life
--	--------------	-------------------	------------------------------------

Combined Poster Session--All Tuesday Track Posters

	6:45-8:00 pm		Tuesday evening reception and poster session
--	--------------	--	--

13 April, 2011 Blitz session; session chairs Harish Chandran and Sarah Goldberg

	7:00 AM		Breakfast
	7:30-8:00 am		Brief presentations for Wednesday posters

13 April, 2011 Track on Self-Assembled Protein and Viral Nanostructures; Track Chair Bogdan Dragnea

	8-8:40	Keynote	Nicole Steinmetz	GREEN NANOMEDICINES: FROM BLACK-EYED PEAS TO PLATFORM DEVELOPMENT
	8:40-9:05	Invited Talk	Jim De Yoreo	The Energetics of Conformational Transitions Force 2D S-layer Assembly to Follow Multistage Pathways
	9:05-9:25	Contributed Talk	Amy Blum	Novel self-assembly properties in an engineered tobacco mosaic virus coat protein

9:25-9:50	Invited Talk	Ann-Marie Broome	Building targeted-split enzyme nanomolecule complexes using directed self-assembly
	Poster	Tais Doll	Design and biophysical analysis of self-assembling polypeptide nanoparticles
	Poster	John Kulp	SELF-REPORTING AND ACTUATION OF CYCLIC BETA TRIPEPTIDE POLYMERS

13 April, 2011 Track on Computational Models for Self Assembly; Track chair William Shih

8:30-9:10	Keynote	Rhiju Das	Can videogaming uncover new bioengineering rules? Preliminary results from the EteRNA project
9:10-9:35	Invited Talk	Shawn Douglas	Programming Matter for Molecular Biomimicry
9:35-10	Invited Talk	Niles Pierce	NUPACK: Analysis and design of nucleic acid systems
10-10:25	Invited Talk	Mark Bathe	CanDo: Computer-aided engineering for DNA origami
	Poster	Harish Chandran	Domain Based Thermodynamic and Kinetic Simulation of DNA Nanosystems
	Poster	Scott Dunham	HIERARCHICAL MODELING FOR ORDERED BINDING OF PEPTIDES TO SOLID SURFACES
	Poster	William Sherman	Nucleic Acid Tube Grapher (NATuG) 2
	Poster	Niels Vinther Voigt	Prediction of 3D DNA Origami Structures and TEM Images

10:25-11

Wednesday AM poster session and refreshments

12:30-1:30

Lunch

13 April, 2011 Track on Top-down meets Bottom-up; Track Chair Mark Stoykovich

1:30-2:10	Keynote	Craig Hawker	Tricking Nature: Generating Complex Nanoscale Patterns through Bottom-up Self-Assembly
2:10-2:30	Contributed Talk	Serdar Onses	Patterning Multiple DNA Sequences with Registry and Specificity at Nanoscale
2:30-2:55	Invited Talk	Robert McLeod	TBA
	Poster	Mark Stoykovich	Enhanced stability of self-assembled polymer nanostructures by molecular crosslinking

	Poster	Jerzy Szablowski	Microscale integration of nanobreadboards: placement and orientation of DNA origami and their interconnection on lithographically patterned silicon.
3:00-4:00	Wednesday PM poster session and refreshments		
13 April, 2011 Track on Self-assembled DNA Nanostructures Session A; track chair Nadrian Seeman			
4:05-4:45	Keynote	Oleg Gang	Nanoscale systems assembled with DNA: from structures to functionalities
4:45-5:10	Invited Talk	Ebbe Sloth Andersen	Opening the DNA box - studied by FRET spectroscopy and microscopy
5:10-5:35	Invited Talk	Hendrik Dietz	Exploring the multi-layer DNA origami folding process
5:35-6	Invited Talk	Paul Paukstelis	A rationally designed 3D DNA crystal with non-canonical base pairs: successes and surprises
	Poster	Jean-michel Arbona	DNA origamis: mechanisms of formation and melting, structure fluctuations.
	Poster	Hieu Bui	Nanoscale Photonic Devices Fabricated Using DNA Origami Nanotubes
	Poster	Carlos Castro	A DNA Origami Caliper Device for the Study of Single Molecule Conformational Dynamics
	Poster	Petr Cigler	DNA-programmable crystallization of viral capsid-gold alloy structures
	Poster	Justin Conway	Assembly Of Three Dimensional DNA Super-Structures
	Poster	Zhengtao Deng	Stain Free High-Resolution Imaging of DNA Origami Based Nanostructures Using Scanning Transmission Electron Microscopy
	Poster	PALASH DUTTA	DNA Directed Artificial Light Harvesting Antenna
	Poster	Antti-Pekka Eskelinen	Assembly of Single-Walled Carbon Nanotubes on DNA Origami Templates through Streptavidin-Biotin Interaction
	Poster	Sarah Goldberg	Connecting the nanodots: programmable nanofabrication of fused metal shapes on DNA templates

Poster	Dongran Han	Toward Designing and Constructing Complex and functionalized
Poster	Rasmus Schøler Sørensen	Functional patterning of DNA origami by parallel enzymatic modification
Poster	Yousuke Katsuda	Direct observation of the movement of DNA modifying enzymes in the DNA nanostructure
Poster	Fabian Kilchherr	Toward studying equilibrium unbinding/binding transitions of single protein complexes under force - enabled by DNA Origami
Poster	Anton Kuzyk	DNA origami for assembly of metal nanoparticles clusters
Poster	Phillip Milnes	Synthesis of materials by multi-step DNA templated chemistry
Poster	Suchetan Pal	Discrete Gold Nanorod Architectures Scaffolded by DNA Origami for Nanophotonic Applications
Poster	Robert Schreiber	General Route to Metallization of Arbitrarily-shaped DNA Origami Structures
Poster	Max Scheible	Assembly and Characterization of DNA Origami-based Nanoribbons
Poster	Verena Schueller	Rigid DNA Origami Breadboard Model for Single-Molecule FRET Calibration
Poster	Danielle Schultz	Stabilization of fluorescent silver clusters by RNA homopolymers and their DNA analogs: C,G vs A,T(U) Dichotomy
Poster	Ruojie Sha	A DNA Crystal Designed to Contain Two Molecules per Asymmetric Unit

	Poster	Ngo Yin Wong	Novel Functionalization Allows Directed and Reversible Protein Assembly on 1D, 2D, and 3D DNA Nanostructures
	Poster	David Zhang	Integrating Strand Displacement Circuitry with DNA Tile Self-assembly

13 April, 2011 Combined Poster Session--All Wednesday Track Posters

7:45-9:15 Wednesday Evening Poster Session and Dessert Bonanza

14 April, 2011 Blitz session; session chair Philip Lukeman

7:00 AM Breakfast

7:30-8:00 am Brief presentations for Thursday and Friday posters

14 April, 2011 Track on Fullerene Nanostructures; Track Chair Jie Liu

8:05-8:45	Keynote	Chongwu Zhou	Carbon Nanotube Nanoelectronics and Macroelectronics
8:45-9:10	Invited Talk	Philip Collins	Self-Assembly of Robust Single Molecule Circuits
9:10-9:35	Invited Talk	Stefano Curtarolo	Viscous State Effect on the Activity of Fe Nanocatalysts
9:35-10:00	Invited Talk	Yuegang Zhang	Graphene Pattern formation guided by catalyst self-assembly
	Poster	Bruce Hinds	Electrophoretic and electroosmotic flow through carbon nanotube membranes as protein channel mimetic pumps
	Poster	Robert Davis	Carbon Nanotube Localization by Floating Potential Dielectrophoresis: Elucidating the Shutoff Mechanism
	Poster	Si-ping Han	DNA Linker Enforced Surface Assembly of Ultradense Parallel CNT Arrays
	Poster	julien iehl	New functionalized hexakisadducts of C60 as dodecareceptors
	Poster	Adam Whalley	Toroidal Carbon Nanotubes
10:00-10:45			Thursday AM poster session and refreshments

14 April, 2011 Track on Self-assembled Computer Circuit and System Architectures; Track chair Chris Dwyer

10:45-11:25	Keynote	A. P. De Silva	2011: A Small Space Odyssey with Computing Molecules
11:25-11:45	Contributed Talk	Lulu Qian	Debugging DNA strand displacement circuits: a detective story
11:45-12:05	Contributed Talk	Takahiro Nishimura	Prototype demonstration of a photonic DNA processor: a photonically-controlled DNA nanomachine of sensing, computing, and actuating
12:05-12:30	Invited Talk	Milan Stojanovic	TBA
	Poster	Eugen Czeizler	A Design Framework for Carbon Nanotube Circuits affixed on DNA Origami Tiles
	Poster	YANLI GENG	Metallization of DNA origami structures for nanocircuits
	Poster	Mohammad Mottaghi	A Review of Optical Techniques for Memory Address Multiplexing
	Poster	Jun Pang	Modeling and Experimental Verification of an Optical Computing System
	Poster	Viresh Thusu	Markov Model Analysis of Self-Assembled, Label-Free Biomolecular Sensors using Resonance Energy Transfer Logic
12:30-1:30			Lunch

14 April, 2011 Track on Self-assembly across scales: Track Chair Karl Bohringer

1:30-2:10	Keynote	Hiroyuki Fujita	Role of Self-Assembly for Heterogeneous Integration Technology
2:10-2:35	Invited Talk	Roya Maboudian	Self Assembled Monolayers: Fundamental Aspects and Applications to M/NEMS Technology
2:35-3:00	Invited Talk	Juergen Brugger	TBA
3:00-3:25	Invited Talk	Schwartz	TBA
	Poster	Peter Allen	Pattern generation with engineered DNA chemical reaction networks
	Poster	David Gracias	Self-folding across length scales
	Poster	Sergio Grunder	MOFs with Extended Struts: Designing the Pore Size of Self-Assembled Frameworks

	Poster	Ji Hoo	PROGRAMMABLE BATCH ASSEMBLY OF SILICON MICRO-COMPONENTS AND 01005 SMT DEVICES WITH 100% YIELD
	Poster	Pramod Mathai	Simultaneous Positioning and Orienting of a Single Nano-object Using Flow Control
	Poster	Kwang Soon Park	ANALYSIS OF SELF-ASSEMBLY OF THIN PART AT FLUIDIC INTERFACE AND ITS MODIFICATION FOR ORIENTATION-SPECIFIC ASSEMBLY
	Poster	Adam Woolley	Formation, surface assembly and metallization of thin, branched DNA origami nanostructures for nanoelectronics applications
3:25-4:20			Thursday PM Poster session and reception

14 April, 2011 Track on Self-assembled DNA Nanostructures Session A; track chair Nadrian Seeman

4:20-4:45	Invited Talk	HIROSHI SUGIYAMA	Visualization of DNA structural change in the DNA nanostructure
5:10-5:35	Invited Talk	Ingo Stein	Single-Molecule Four-Color FRET Visualizes Energy-Transfer Paths on DNA Origami
5:35-6:00	Invited Talk	Tim Liedl	General Route to Metallization of Arbitrarily-shaped DNA Origami Structures
4:45-5:10	Invited Talk	Thorsten Schmidt	Polyamide and G-Quadruplex Controlled Assembly of DNA
	Poster	Hieu Bui	Nanoscale Photonic Devices Fabricated Using DNA Origami Nanotubes
	Poster	Petr Cigler	DNA-programmable crystallization of viral capsid-gold alloy structures
	Poster	Masayuki Endo	Programmed assembly of DNA nanostructures using designed DNA origami tiles
	Poster	Amethyst Finch	DNA Architectures for Templated Materials Growth
	Poster	Elton Graugnard	DNA Strand Invasion as an Optical Switch in Fluorescence Resonance Energy Transfer Transmission Lines
	Poster	Graham Hamblin	Programming Curvature in DNA Nanotubes

	Poster	Ali Hashemi	PAMAM Dendrimers Complexation With DNA Wrapped SWCNT As Novel Drug Delivery Agent: A Molecular Dynamics Simulation
	Poster	Ralf Jungmann	Study of Kinetic Processes and Super-Resolution Fluorescence Microscopy on DNA Origami
	Poster	Yonggang Ke	Compact 3D DNA-origami Packed on a Hexagonal Lattice
	Poster	Seung Hyeon Ko	Factors Affecting the Speed and Yield of Qdot Binding to DNA Origami
	Poster	Wenyan Liu	Crystalline Two-Dimensional DNA-Origami Arrays
	Poster	Philip Lukeman	Photocleavage Controlled DNA Switches and Nanochemistry for Noobs
	Poster	Richard Muscat	Programmable DNA Templated Synthesis
	Poster	Anthony Pearson	Alignment of DNA Origami to Block Copolymer Patterned Arrays of Gold Nanoparticles
	Poster	Rasmus Schøler Sørensen	Modular and automated production of DNA Origami
	Poster	Zhen-Gang Wang	Signal-Triggered DNA Machines
	Poster	Sungwook Woo	Stacking bonds: programming molecular recognition using the geometry of DNA nanostructures

14 April, 2011 Combined Poster Session--All Thursday and Friday Track Posters

6:45-8:00 pm

Thursday Evening Sushi Reception and Poster Session

15 April, 2011 Track on Biomedical Nanotechnology; Track Chair Thom LaBean

8:00 AM

Breakfast

8:30-9:10

Keynote

James Lee

TBA

9:10-9:35

Invited Talk

Abhijit Rangnekar

TBA

9:35-10

Invited Talk

Jiwook Shim

The Prospects for 3rd Generation DNA Sequencing with a Nanopore

Poster

Ali Hashemi

Enantioselective Synthesis Based on DNA Wrapped Carbon Nanotubes: Can They Induce Chirality?

Poster

Luc Jaeger

Self-assembling RNA nanorings as siRNA delivery systems

10-10:20

Contributed Talk

Yevgeniy Kalinin

Three-Dimensional Chemical Patterning for Cellular Self-Assembly

	Poster	Minseok Kwak	DNA-functionalized blend micelles: mix and fix polymeric hybrid nanostructures
	Poster	Daniel Lubrich	Bead Microarray on Holey Substrate with Non-Physical Encoding
	Poster	Daniel Lubrich	Highly Scalable DNA Nano-Barcodes for Multiplexed Bio-Analytics
10:20-10:35			Friday refreshment break
15 April, 2011 Track on Synthetic Biology; Track Chair Rick Wagner			
10:35-11:15	Keynote	Luc Brunsveld	TBA
11:40-12:00	Contributed Talk	Faisal Aldaye	The engineering of an artificial enzymatic pathway using in vivo RNA scaffolding
11:15-11:40	Invited Talk	Indraneel Ghosh	Supramolecular Architectures for Sensors and Inhibitors
12:00-12:25	Invited Talk	Kevin Plaxo	TBA
	Poster	Alexander Deiters	Light-Regulation of DNA Assembly and DNA Function with Applications to Biological Systems
	Poster	Camille Delebecque	In vivo nucleic acid assemblies for spatial organization in Synthetic Biology
	Poster	Ofer Idan	Active self-assembly of millimeter-long nanowires and nanospools by biomolecular motors
	Poster	Maximilian Weitz	Stochastic Dynamics in RNA Transcriptional Circuits