

Author names with an underline indicate the presenters of the contributed talks. Those also prefaced with † are student/postdoc presenters who are eligible for the ISNSCE Best Presentation Award. If you believe there is an error, please notify the organizing committee.

Day 1: Monday, August 17th

Start Time	Activity	Chair
8:00 am	Registration/Check in	
9:00 am	Introduction to Tutorials - Peng Yin	
9:05 am	Tutorial 1 - Design Three-Dimensional DNA Brick Structures Yonggang Ke (Emory University and Georgia Institute of Technology)	
10:05 am	Break (15 min)	
10:20 am	Tutorial 2 - DNA-PAINT: Super-Resolution Microscopy with DNA Molecules Ralf Jungmann (Max Planck Institute of Biochemistry and Ludwig Maximilian University of Munich)	
11:20 am	Break (15 min)	
11:35 am	Tutorial 3 - NUPACK: Analysis and Design of Nucleic Acid Systems Nick Porubsky (California Institute of Technology)	
12:35 pm	Lunch on your own	
2:00 pm	Opening Remarks - William Shih	
2:15 pm	Plenary Talk 1 - Limits to Polymer I/O George Church (Harvard Medical School)	Ralf Jungmann
3:15 pm	A Rewritable, Random-Access DNA-Based Storage System † <u>Seyed Mohammadhossein Tabatabaei Yazdi</u> , Yongbo Yuan, Jian Ma, Huimin Zhao and Olgica Milenkovic	
3:40 pm	Break (15 min)	
3:55 pm	DNA barrels: Cylindrical NanoPegboards Assembled from DNA † <u>Shelley Wickham</u> , Jianghong Min, Nandhini Ponnuswamy and William Shih	Yonggang Ke
4:20 pm	High-Confidence Amplification-Free Counting of Single Nucleic Acid Biomarkers by Repetitive Probing † <u>Alexander Johnson-Buck</u> , Xin Su, Maria Giraldez, Meiping Zhao, Muneesh Tewari and Nils Walter	
4:45 pm	Simulation-Guided DNA Probe Design for Consistently Ultraspecific Hybridization † <u>J. Sherry Wang</u> and David Zhang	
5:05 pm	Poster Session 1	
6:30 pm	Day 1 close	

Day 2: Tuesday, August 18th

Start Time	Activity	Chair
9:00 am	Plenary Talk 2 - Evolution as Learning Leslie Valiant (Harvard University)	Scott Summers
10:00 am	Dominance and T-invariants for Petri Nets and Chemical Reaction Networks † Robert Brijder	
10:25 am	Synthesizing and Tuning Chemical Reaction Networks with Specified Behaviours Neil Dalchau, Niall Murphy, Rasmus Petersen and Boyan Yordanov	
10:50 am	Break (25 min)	
11:15 am	Degradation Controlled Non-linearities in DNA Networks Kevin Montagne, Guillaume Gines and Yannick Rondelez	Jinglin Fu
11:40 am	Microscopic Agents Programmed by DNA Circuits † Guillaume Gines , Anton Zadorin, Teruo Fujii and Yannick Rondelez	
12:05 pm	Universal Computation and Optimal Construction in the Chemical Reaction Network-Controlled Tile Assembly Model † Nicholas Schiefer and Erik Winfree	
12:30 pm	Lunch on your own	
2:00 pm	Plenary Talk 3 - Integrating DNA Origami with Microfabricated Photonic Crystal Cavities Paul Rothemund (California Institute of Technology)	Elton Graugnard
3:00 pm	Toward Fast and Efficient Computer Controlled DNA-Based Molecular Machines: using Single-Molecule Fluorescence and Microfluidics † Toma Tomoy , Roman Tsukanov, Yair Glick, Miran Liber, Yaron Berger, Doron Gerber and Eyal Nir	
3:25 pm	Break (20 min)	
3:45 pm	Designing DNAzyme-Based Walkers Jing Pan, Tae-Gon Cha and Jong Hyun Choi	Hareem Maune
4:10 pm	Controllable Ribonucleoprotein Motors Engineered from Myosin and RNA † Tosan Omabegho and Zev Bryant	
4:35 pm	Tuning the Collective Behavior of Myosin Ensembles Using DNA Origami Scaffolds and DNA Nanotubes † Rizal Hariadi , Ruth Sommese and Sivaraj Sivaramakrishnan	
5:00 pm	Poster Session 2	
6:30 pm	Day 2 close	

Day 3: Wednesday, August 19th

Start Time	Activity	Chair
9:00 am	Plenary Talk 4 - Exploring the Space of DNA Signatures Lila Kari (University of Waterloo and University of Western Ontario)	Shinnosuke Seki
10:00 am	Reflections on Tiles (in Self-Assembly) Matthew Patitz, Jacob Hendricks and †Trent Rogers	
10:25 am	Optimal Program-Size Complexity for Self-Assembly at Temperature 1 in 3D <u>Scott Summers</u> , David Furcy and Samuel Micka	
10:50 am	Break (25 min)	
11:15 am	Molecular Ping-Pong Game of Life on a 2D Origami Array <u>Natasha Jonoska</u> and Nadrian C. Seeman	Matthew Patitz
11:40 am	Flipping Tiles: Concentration Independent Coin Flips in Tile Self-Assembly † <u>Cameron Chalk</u> , Bin Fu, Alejandro Huerta, Mario Maldonado, Eric Martinez, Robert Schweller and Tim Wylie	
12:05 pm	Efficient Universal Computation by Molecular Co-transcriptional Folding Cody Geary, Pierre-Etienne Meunier, Nicolas Schabanel and <u>Shinnosuke Seki</u>	
12:30 pm	Lunch on your own for attendees (Steering Committee Meeting/Luncheon in conference space)	
2:00 pm	Plenary Talk 5 - Digital Alchemy for Optimized Self Assembly Sharon Glotzer (University of Michigan)	Yossi Weizmann
3:00 pm	Designs and Algorithms for DNA Folding of Custom 3D Polyhedra † <u>Abdulmelik Mohammed</u> , Eugen Czeizler, Erik Benson, Johan Gardell, Sergej Masich, Björn Högberg and Pekka Orponen	
3:25 pm	Break (20 min)	
3:45 pm	New Geometric Algorithms for Fully Connected Staged Self-Assembly Erik D. Demaine, Sándor Fekete, Christian Scheffer and † <u>Arne Schmidt</u>	Björn Högberg
4:10 pm	Leader Election and Shape Formation with Self-Organizing Programmable Matter Zahra Derakhshandeh, Robert Gmyr, † <u>Thim Strothmann</u> , Rida Bazzi, Andrea W. Richa and Christian Scheideler	
4:35 pm	Coarse-Grained Modelling of RNA † <u>Petr Sulc</u> , Flavio Romano, Thomas Ouldridge, Christian Matek, Jonathan Doye and Ard Louis	
5:00 pm	Poster Session 3	
6:30 pm	Day 3 close	

Day 4: Thursday, August 20th

Start Time	Activity	Chair
9:00 am	Plenary Talk 6 - Production of DNA Nanostructures in Bacteria Chris Voigt (Massachusetts Institute of Technology)	Yannick Rondelez
10:00 am	Guiding Systematic Improvements of a DNA-Actuated Enzyme Nanoreactor through Single Molecule Analysis † Soma Dhakal , Matthew Adendorff, Minghui Liu, Hao Yan, Mark Bathe and Nils Walter	
10:25 am	Leakless DNA Strand Displacement Systems † Chris Thachuk , Erik Winfree and David Soloveichik	
10:50 am	Break (20 min)	
11:10 am	Supervised Learning in an Adaptive DNA Strand Displacement Circuit Matthew R. Lakin and Darko Stefanovic	Andrew Phillips
11:35 am	Automated Design and Verification of Localized DNA Computation Circuits † Michael Boemo , Andrew Turberfield and Luca Cardelli	
12:00 pm	Group photo & Lunch (provided by Guild Biosciences)	
1:10 pm	On Low Energy Barrier Folding Pathways for Nucleic Acid Sequences † Leigh-Anne Mathieson and Anne Condon	Darko Stefanovic
1:35 pm	Stochastic Simulation of the Kinetics of Multiple Interacting Nucleic Acid Strands Joseph Schaeffer , Chris Thachuk and Erik Winfree	
2:00 pm	Board Bus Important information: * Your name badge has designations for the outing and banquet if you signed up to attend one or both. Please understand that due to limited space, staff will be checking badges before boarding buses and before entering the banquet and only registered attendees will be allowed.	
Buses depart 2:20pm from Northwest Building	Social Activity – Boston Harbor Sightseeing Cruise (3-4 pm) Rowes Wharf Harbor Charles Riverboat Company ~20 minute scenic walk to Banquet (Staff will lead banquet attendees to the banquet hall for dinner. If anyone chooses to take a cab, one can use Metro Cab Boston 617.254.6060 or any taxi on the road. Or Uber/Lyft is a good alternative option.)	
4:30 to 4:45 guests arrive at venue Banquet	Banquet Dinner (three course dinner/bar) The Exchange Conference Center Boston Fish Pier 212 Northern Avenue Boston, MA 02210 Dinner ends at 8:00pm Buses return to Sheraton Commander Hotel 8:00pm (Buses will be outside of the banquet from ~7:45pm. Cruise guests not attending the banquet are free to enjoy the city at their leisure and ride the bus at this location.)	

Day 5: Friday, August 21st: Nanoday

Start Time	Activity	Chair
8:25 am	Introduction - Sungwook Woo	
8:30 am	<i>DNA and Nanotechnology</i> Nadrian C. Seeman (New York University)	Kurt Gothelf
9:00 am	<i>Designer DNA Architectures for Programmable Self-Assembly</i> Hao Yan (Arizona State University)	
9:30 am	<i>Programming Functional Structured DNA Assemblies</i> Mark Bathe (Massachusetts Institute of Technology)	
10:00 am	Break	
10:30 am	<i>Self-Assembly of Polymers and Other Molecules Conjugated to DNA</i> Kurt Gothelf (Aarhus University)	Hao Yan
11:00 am	<i>The Frame Guided Assembly</i> Dongsheng Liu (Tsinghua University)	
11:30 am	<i>Creating Combinatorial Patterns with DNA Origami Arrays</i> Lulu Qian (California Institute of Technology)	
12:00 pm	Lunch (provided) & Awards ceremony	
1:30 pm	<i>Knowledge-Driven Design of Probes and Primers for Nucleic Acid Analysis</i> David Yu Zhang (Rice University)	Friedrich Simmel
2:00 pm	<i>DNA Circuitry and NextGen Sequence Informatics</i> Andrew Ellington (University of Texas at Austin)	
2:30 pm	<i>Synthetic Biology: Reprogramming Life</i> James J. Collins (Massachusetts Institute of Technology)	
3:00 pm	Break	
3:30 pm	<i>Nucleic Acid-Based Components for Artificial Cells</i> Friedrich Simmel (Technical University Munich)	Lulu Qian
4:00 pm	<i>Expansion Microscopy</i> Edward Boyden (Massachusetts Institute of Technology)	
4:30 pm	<i>DNA Nanoswitches: From Force Spectroscopy to Instrument-Free Interaction Analysis</i> Wesley P. Wong (Harvard Medical School)	
5:00 pm	Closing Remarks - William Shih and Peng Yin	
5:15 pm	Day 5 close	