Foundations of Nanoscience 24-27 April 2023 Snowbird, Utah

Sunday April 23

3:00-5:00 & 7:00-8:00 PM **REGISTRATION (Ballroom 1 Lobby)**

Monday April 24

7:45-8:45 AM Continental Breakfast & REGISTRATION (Ballroom 1 Lobby)

8:45-8:55	**Introduction: John Reif, Conference Chair and Andrew Turberfield, Program Chair (Ballroom 1)**			
Track on DNA Nanostructures: Semantomorphic Science A. Track Chair: Hao Yan, Arizona State University (Ballroom 1)				
8:55-9:35 AM	Keynote	Tristan Stérin, Abeer Eshra and Damien Woods	Hamilton Institute and Department of Computer Science, Maynooth University, Ireland	*Thermodynamically favoured computation on a Scaffolded DNA Computer*
9:35-10:00 AM	Invited	Chengde Mao	Department of Chemistry, Purdue University, USA	*DNA Crystal Engineering with High Resolutions*
10:00-10:20 AM	Contributed	Gregor Posnjak, Xin Yin, Paul Butler, Oliver Bienek, Mihir Dass, Ian Sharp and Tim Liedl	Faculty of Physics, LMU Munich, Germany	*Monocrystalline DNA origami-based diamonds show structural color in the UV*
10:20-11:30 AM Refreshments and Poster Session (Primrose Room)				
Posters Track on DNA Nanostructures: Semantomorphic Science A	Poster	Qi Yang, Fei Zhang, Xu Chang, Jung Yeon Lee and Minu Saji	Department of Chemistry, Rutgers University-Newark, USA	*DNA T-Shaped Crossover Tiles for 2D Tessellation and Nanoring Reconfiguration*
	Poster	Jung Yeon Lee, Qi Yang, Xu Chang, Tiffany R. Olivera and Fei Zhang	Department of Chemistry, Rutgers University, Newark, USA	*Self-assembly of DNA Parallel Double-Crossover Motifs into Nanotubes*
	Poster	Sepideh Kaviani, Jathavan Asohan and Hassan Fakih	Department of Chemistry, McGill University, Canada	*Sequence-Controlled DNA-polymer conjugates: studying the effect of polymer sequence, core packing, morphology, and size on the biological properties of self-assembled and UV cross-linked structures*
	Poster	Wolfgang Pfeifer, Enrique Ruiz, Michael Neuhoff, Yuchen Wang, Diana Lopez, Deepta Paramasamy, Patrick Halley, Yin Wei, Michael Poirier, Marcos Sotomayor and Carlos Castro	Department of Mechanical & Aerospace Engineering, The Ohio State University, USA	*Reprogramming dsDNA into functional DNA origami devices*
	Poster	Hemani Chhabra and J.P.K Doye	Department of Physics, University of Illinois at Urbana Champaign, USA	*Elastic mechanical properties of DNA origamis*
	Poster	Qi Shen, Qiancheng Xiong, Kaifeng Zhou, Qingzhou Feng, Longfei Liu, Taoran Tian, Chunxiang Wu, Yong Xiong, Thomas Melia, Patrick Lusk and Chenxiang Lin	Department of Cell Biology, Yale University, USA	*Functionalized DNA-Origami-Protein Nanopores Generate Large Transmembrane Channels with Programmable Size-Selectivity*
	Poster	Jacob Majikes, Joey Robertson, Amna Hasni, Shankar Haridas and J. Alexander Liddle	National Institute of Standards and Technology, USA	*A survey of DNA origami yield as a function of design*
	Poster	Minh Tri Luu and Shelley Wickham	School of Chemistry, The University of Sydney, Australia	*Hierarchical assembly of reconfigurable DNA origami chains*
Posters Track on Integrated Chemical Systems	Poster	Sneha Kumari, Ryanne Ehrman, Jonathan Martinez-Garcia, Priyanka Basak, Thomas Howlett, Yalini Wijesundara, Garbiele Meloni and Jeremiah Gassensmith	Department of Chemistry and Biochemistry, University of Texas at Dallas, USA	*Tuberculosis Vaccine Delivery via Stabilization in a Supramolecular Coordination Complex*
	Poster	Orikeda Trashi and Neha Satish	University of Texas at Dallas, USA	*Surface-modified dendrimers for slow release of active ingredients*
	Poster	Chen-Hsu Yu and Jonathan Sczepanski	Department of Chemistry, Texas A&M University, USA	*The influence of chirality on the behavior of oligonucleotides inside cells: revealing the potent cytotoxicity of G-rich L-RNA*
	Poster	Vismaya Walawalkar, Md Sakibur Sajal, Yann Gilpin, Marc Dandin and Rebecca E. Taylor	Department of Mechanical Engineering, Carnegie Mellon University, USA	*Capacitive measurements for rapid and affordable characterization of DNA origami nanostructures*
	Poster	Christopher Green, David Hastman, Divita Mathur, Igor Medintz and Sebastian Diaz	Center for Bio/Molecular Science and Engineering, US Naval Research Laboratory, Washington, DC, USA	*Peptide-PNA – A versatile and efficient strategy for quantum dot conjugation*
Track on Integrated Chemical Systems. Track Chair: Jeremiah Gassensmith, University of Texas at Dallas (Ballroom 1)				
11:30-12:10 PM	Keynote	Kristy Ainslie	Division of Pharmacoengineering & Molecular Pharmaceutics UNC Eshelman School of Pharmacy, USA	*Metals and Peptides and Polymers, Oh My! Following the Yellow Brick Road Towards a Universal Influenza Vaccine*
12:10-12:35 PM	Invited	Jonathan Sczepanski	Department of Chemistry, Texas A&M University, USA	*Heterochiral nucleic acid nanotechnology: exploiting L-oligonucleotides to develop more robust molecular devices*
12:35-12:55 PM	Contributed	Jennifer Frommer, Rachel O'Reilly and Andrew Turberfield	School of Chemistry, University of Birmingham, UK	*A new architecture for DNA-templated synthesis in which abasic sites protect reactants from degradation*
12:55-2:10 PM Lunch (Golden Cliff Room - Meal Ticket Required)				

Track on Chemical Tools for DNA Nanotechnology. Track Chair: Andrew Ellington, University of Texas at Austin (Ballroom 1)				
2:10-2:50 PM	Keynote	Jeff Nivala	Paul G. Allen School of Computer Science and Engineering, University of Washington, USA	*CRISPR tools for DNA data storage*
2:50-3:15 PM	Invited	David Taylor	Department of Molecular Biosciences, University of Texas at Austin, USA	*Reengineering RNA-guided CRISPR-Cas effector complexes*
3:15-3:35 PM	Contributed	Quentin Laurent, Sinan Faiad, Jathavan Asohan and Hanadi Sleiman	Department of Chemistry, McGill University, Canada	*Implication of Serum Albumin Binding to Self-Assembled Spherical Nucleic Acids*
3:35-4:40 PM Refreshments and Poster Session (Primrose Room)				
Posters Track on Chemical Tools for DNA Nanotechnology	Poster	Andrea Bardales, Joseph Mills and Dmitry Kolpashchikov	Chemistry Department, University of Central Florida, USA	*Double crossover (DX) tile templating the chemical synthesis of DNA oligonucleotides with switched polarity.*
	Poster	Alasdair Clark and Glenn Burley	University of Glasgow, UK	*Assembly of DNA origami dimers using the fluorous effect*
	Poster	Thorsten L Schmidt, Bastian Joffroy, Kristin Joffroy, Michael Matthies, Jory Lietard, Mark Somoza, Alex Lovely, James Monaghan and Elisha Krieg	Physics Department, Kent State University, USA	*OLEA: Oligonucleotide Library Enrichment and Amplification*
	Poster	Yunqi Yang, Qinyi Lu, Marcello DeLuca, Po-An Lin, Yu Chen, Shuang Wang, Gaurav Arya, Yonggang Ke and Stefan Zauscher	Department of Mechanical Engineering and Materials Science, Duke University, USA	*Spatiotemporal Control of Polynucleotide Brush Growth on DNA Origami and Entropic Mesoscale Assembly*
	Poster	Yichen Li, Sierra Sterling, Yonggang Ke and Tao Ye	Materials and Biomaterials Science and Engineering, University of California, Merced, USA	*DNA Origami Placement on Nanopatterned Self-assembled Monolayers*
Posters Track on Protein and Viral Nanostructures	Poster	Ryanne Ehrman, Ikeda Trashi, Nancy Tran, Sneha Kumari and Jeremiah Gassensmith	University of Texas at Dallas, USA	*Optimization of PhotoPhage-mediated Photothermal Therapy for Enhanced Immunogenic Cell Death in Triple-Negative Breast Cancer*
	Poster	Eric Szmuc, David Walker, Dmitry Kireev, Deji Akinwande, Derek Lovley, Benjamin Keitz and Andrew Ellington	College of Natural Sciences, University of Texas-Austin, USA	*Engineering Geobacter pili for self-assembled metal:organic filaments*
Posters Track on Biomedical Nanotechnology A	Poster	Zahra Marvi and Geraldine Merle	Department of Chemical Engineering, Polytechnique Montreal, Canada	*Electrochemical Immunosensing of Aureolysin as an early marker for Staphylococcus aureus infection*
	Poster	Leo Sala, Alicja Domaracka and Jaroslav Kočišek	Dynamics of Molecules and Clusters Department, J. Heyrovský Institute of Physical Chemistry of the CAS, Prague, Czechia	*Interaction of ionizing radiation with DNA origami nanostructures*
	Poster	Seppe Driesen, Karen Leirs, Mirjam Kümmerlin, Aida Montserrat Pagès, Achillefs N. Kapanidis and Jeroen Lammertyn	Department of Biosystems, KU Leuven, Belgium	*DNA nanosensors - combining DNA origami with MNAzymes to generate highly localized signals for sensitive biosensing applications*
	Poster	Sarah Sandler, Nicole Weckman, Sarah Yorke, Akashaditya Das, Kaikai Chen, Richard Guitterez and Ulrich Keyser	Cavendish Laboratory, Physics, University of Cambridge, UK	*Nanopore Sensing with DNA Nanostructures Reveals Guide-Intrinsic Mismatch Tolerance of CRISPR/dCas9*
	Poster	Weitao Wang, Bhavya Chopra, Vismaya Walawalkar, Zijuan Liang, Rebekah Adams, Markus Deserno, Xi Ren and Rebecca Taylor	Department of Mechanical Engineering, Carnegie Mellon University, USA	*Membrane binding-assisted cellular uptake of DNA nanostructures*
Track on Protein and Viral Nanostructures. Track Chair: Nicole Steinmetz, University of California San Diego (Ballroom 1)				
4:40-5:20 PM	Keynote	Frank Sainsbury	Griffith Institute for Drug Discovery, Griffith University, Australia	*Templating Assembly of Virus-Like Particles: Payloads to Precision Materials*
5:20-5:45 PM	Invited	Ivonne González-Gamboa and Nicole Steinmetz	University of California San Diego, USA	*Inter-Coat Protein Molecule Loading into TMGMV*
5:45-5:55 PM	Project Update	Jacob Majikes	The Molecular Programming Society	*Community update: the Molecular Programming Society textbook initiative*
Dinner (On Your Own) / Track Chairs' Dinner (Aerie Restaurant)				

Tuesday April 25				
7:45-8:30 AM Continental Breakfast (Ballroom 1 Lobby)				
Track on Biomedical Nanotechnology. Track Chair: Thom LaBean, North Carolina State University (Ballroom 1)				
8:30-8:55 AM	Invited	Nayan Agarwal and Ashwin Gopinath	Department of Mechanical Engineering, Massachusetts Institute of Technology, USA	*Polyplex Micellization Strategy Enables Salt-Free and Buffer-Free Silica Growth on DNA Origami Nanostructures*
8:55-9:20 AM	Invited	Swechchha Pradhan, Carter Swanson, Chloe Leff, Isadonna Tengganu, Melissa Bergeman, Ian Hogue and Rizal Hariadi	School of Molecular Sciences, Arizona State University, USA	*Viral attachment blocking chimera composed of DNA origami and nanobody inhibits Pseudorabies Virus infection in vitro*
9:20-9:40 AM	Contributed	Ian Thompson, Jason Saunders, Liwei Zheng, Nicolo Maganzini, Amani Hariri, Jing Pan and H. Tom Soh	Department of Electrical Engineering, Stanford University, USA	*An Antibody-based Molecular Switch for Continuous Real-Time Biosensing*
9:40-10:00 AM	Contributed	Neha Chauhan and Xing Wang	Carl R. Woese Institute for Genomic Biology (IGB), University of Illinois at Urbana-Champaign, USA	*DNA Nets for Rapid/Sensitive Detection of the SARS-CoV-2 Virus*
10:00-10:20 AM	Contributed	Renukka Yaadav, Kateryna Trofymchuk, Mihir Dass, Vivien Behrendt, Benedikt Hauer, Jan Schuetz, Cindy Close, Viktorija Glembockyte, Tim Liedl, Albrecht Brandenburg and Philip Tinnefeld	Department of Chemistry and Center for NanoScience, Ludwig-Maximilians-University, Germany	*Bringing Attomolar Detection to the Point-of-care with DNA Origami Nanoantennas*
10:20-11:30 AM Refreshments and Poster Session (Primrose Room)				
Posters Track on Biomedical Nanotechnology B	Poster	Byoung-Jin Jeon, Matteo M. Guareschi, Jaimie M. Stewart, Emily Wu, Ashwin Gopinath, Netzahualcóyotl Arroyo-Currás, Philippe Dauphin-Ducharme, Philip S. Lukeman, Kevin W. Plaxco and Paul W. K. Rothemund	Department of Bioengineering, California Institute of Technology, USA	*Modular DNA origami-based electrochemical detection of DNA and proteins*
	Poster	Swathi Manda, Le Luo, Yunjeong Park, Busra Demir, Ersin Emre-Oren, M.P. Anantram, Marco Rolandi and Ashwin Gopinath	Department of Mechanical Engineering, Massachusetts Institute of Technology, USA	*DNA nanopores as artificial membrane channels for origami-based bioelectronics*
	Poster	Praneetha Sundar Prakash, Eric Wiener, Foram M. Joshi, Glenn Cremers, Tom F. A. de Greef, Marius Ader, Thomas Kurth, Diana P. N. Gonçalves and Thorsten L. Schmidt	Department of Physics, Kent State University, USA	*Barcoded Immunostaining*
	Poster	Travis Douglas and Leo Chou	Institute of Biomedical Engineering, University of Toronto, Canada	*A spatially defined and decorated DNA nano-platform to investigate immune cell Fc-gamma receptor biology*
	Poster	Prathamesh Chopade, Rishabh Shetty, Tal Sneh and Rizal Hariadi	Center for Molecular Design and Biomimetics at the Biodesign Institute, Arizona State University, USA	*Low-cost DNA origami nanoarrays for digital diagnostics*
	Poster	Ioanna Smyrlaki and Björn Högberg	Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Sweden	*Notch engagement by Jag1 nanoscale clusters indicates a force-independent mode of activation*
	Poster	Brittany L. Mueller, Jordan Hammock, Jisela N. Soto, Antonio Perez and Dmitry M. Kolpashchikov	University of Central Florida, USA	*Molecular Beacon Probe-Based DNA Nanodevice with a Concentration Threshold Function*
	Poster	Emily Wu, Nayan Agarwal and Ashwin Gopinath	Department of Mechanical Engineering, Massachusetts Institute of Technology, USA	*Highly Sensitive Quantification via Monofunctionalized DNA Origami Nanoparticle Conjugates*
	Poster	Hao Yan and Lu Yu	Center for Molecular Design and Biomimetics, Biodesign Institute, Arizona State University, USA	*Disulfide-mediated rapid cytosolic uptake of multifunctional DNA nanocarrier for targeted cancer therapy*
Posters Track on Principles and Theory of Self-Assembly	Poster	Wolfgang Pfeifer, Enrique Ruiz, Michael Neuhoff, Yuchen Wang, Diana Lopez, Deepta Paramasamy, Patrick Halley, Yin Wei, Michael Poirier, Marcos Sotomayor and Carlos Castro	Department of Mechanical & Aerospace Engineering, The Ohio State University, USA	*Reprogramming dsDNA into functional DNA origami devices*
	Poster	Muhammad Ghufran Rafique, Jacob Remington, Finley Clark, Abelrahman Elmanzalawy, Jianing Li, Dmytro Perepichka and Hanadi Sleiman	Department of Chemistry, McGill University, Canada	*Donuts from DNA: Supramolecular nano-toroids from the self-assembly of functionalized multi-block DNA amphiphiles*
	Poster	Greg Cantrall, Steven Abel and Gaurav Chauhan	Department of chemical and biomolecular engineering, University of Tennessee Knoxville, USA	*Effects of macromolecular crowding on the collapse and adsorption of biopolymers with nonuniform bending stiffness*
Track on Principles and Theory of Self-Assembly. Track Chair: Rebecca Schulman, Johns Hopkins University (Ballroom 1)				
11:30-12:10 PM	Keynote	Petr Sulc, Joakim Bohlin, Ard Louis, Andrew Turberfield, John Russo, Michael Matthies, Lorenzo Rovigatti, Flavio Romano, Diogo Pinto, Francesco Sciortino and Hao Liu	School of Molecular Sciences, Arizona State University, USA	*SAT-assembly: a new platform for inverse design problem in self-assembly and its applications to 3D metamaterial lattices, capsids, and polycubes*
12:10-12:35 PM	Invited	Dino Osmanovic and Elisa Franco	Department of Mechanical and Aerospace Engineering, University of California, Los Angeles, USA	*Designing Chemical Reactions to Control Phase Separated Droplets*
12:35-12:55 PM	Contributed	Marcello DeLuca, Yunqi Yang, Wolfgang Pfeifer, Tao Ye, Michael Poirier, Yonggang Ke, Stefan Zauscher, Carlos Castro and Gaurav Arya	Thomas Lord Department of Mechanical Engineering and Materials Science, Duke University, USA	*Modeling DNA origami self-assembly and organization at long length and time scales*
12:55-2:10 PM Lunch (Golden Cliff Room - Meal Ticket Required)				

Track on Synthetic Biology. Track Chair: Alex Deiters, University of Pittsburgh (Ballroom 1)				
2:10-2:50 PM	Keynote	Farren Isaacs	Yale University, USA	*Biologically Inspired Engineering for Probing, Programming, and Recoding Organisms*
2:50-3:15 PM	Invited	James Chappell	Department of Biosciences, Rice University, USA	*Creating programmable RNA memory and sensing systems for microbiome engineering*
3:15-3:35 PM	Contributed	Madeline Meyer and Ming Hammond	Department of Chemistry, University of Utah, USA	*RNA-based biosensors to image glycine dynamics in live cells*
3:35-4:40 PM Refreshments and Poster Session (Primrose Room)				
Posters Track on Synthetic Biology	Poster	Zhao Zhang, Edwin Chapman and Zhaomeng Feng	Department of Neuroscience, University of Wisconsin−Madison, USA	*Functionalization and higher-order organization of liposomes and nanodiscs*
	Poster	Baiyang Liu and James Chappell	Rice University, USA	*A portable regulatory RNA array design enables tunable and complex regulation across diverse bacteria*
	Poster	Yannik Dreher, Kevin Jahnke and Kerstin Göpfrich	Biophysical Engineering Group, Max Planck Institute for Medical Research, Heidelberg, Germany	*Engineering Membrane Properties for the Light-Triggered Cargo Loading and Division of DNA-Containing Giant Unilamellar Lipid Vesicles*
	Poster	Nathan Ricks and Ming Hammond	Department of Chemistry, University of Utah, USA	*MalON: an Intensiometric Protein Biosensor for Malate*
	Poster	Tyler Simons and Ming Hammond	Department of Chemistry, University of Utah, USA	*Harnessing RNA-protein interactions for new biosensing applications*
	Poster	Meghan Rainier and Ming Hammond	Department of Chemistry, University of Utah, USA	*Real-Time Imaging of Antibiotics and Therapeutic Nucleic Acids Delivery in Gram-Negative Bacteria Utilizing Fluorophores Conjugated to Cell-Penetrating Peptides*
	Poster	Mahdi Dizani, Siddharth Agarwal, Dino Osmanovic and Elisa Franco	Department of Mechanical and Aerospace Engineering, University of California at Los Angeles, USA	*Light-based control of artificial DNA organelle growth in synthetic cells*
	Poster	Jorge Guerrero, Afsaneh Sadremomtaz and Reza Zadegan	Joint School of Nanoscience and Nanoengineering, Department of Nanoengineering, North Carolina A&T State University, USA	*A new approach to organize, edit and add data for DNA-based data storage*
	Poster	Scotty Squire, Sepehr Sebghati, Sudeshna Manna and Ming Hammond	Department of Chemistry, University of Utah, USA	*Application of 'Smart' Fluorophores to Assess Drug Permeability in Bacteria*
Posters Track on DNA Nanosystems: Programmed Function A	Poster	Anirudh Madhvacharyula, Ruixin Li, Alexander Swett and Jong Hyun Choi	School of Mechanical Engineering, Purdue University, USA	*Geometrical Frustration at the Nanoscale via DNA Origami*
	Poster	Yancheng Du, Ruixin Li, Aishwary Shrivastava and Jong Hyun Choi	School of Mechanical Engineering, Purdue University, USA	*Sliding DNA Stars with Controllable Auxetic Properties*
	Poster	Olivia Zou, Nathaniel Conrad, Byoung-Jin Jeon, Deborah K. Fygenson and Paul W. K. Rothemund	Department of Bioengineering, California Institute of Technology, USA	*Engineering DNA liquids for macroscopic separation of biomolecules*
	Poster	Christoph Pauer, Aidin Lak, Tim Liedl and Joe Tavacoli	Faculty of Physics, LMU Munich, Germany	*Potential applications for magnetic DNA Origami*
Track on DNA Nanosystems: Programmed Function A. Track Chair: Friedrich Simmel, Technical University Munich (Ballroom 1)				
4:40-5:20 PM	Keynote	Damien Baigl	Department of Chemistry, Ecole Normale Superieure, France	*Synthetic self-assembly with life-like properties*
5:20-5:40 PM	Contributed	Ranjan Sasmal, Gde Bimananda Mahardika Wisna, Youssef Hassan, Carter Swanson, Prof. Hao Yan and Rizal F. Hariadi	Arizona State University, USA	*Short amphiphilic DNA hairpins for DNA-gated nanopores and signal-transduction across membranes*
5:40-7:20 PM Refreshments and Combined Poster Session ... all Monday and Tuesday posters (1 date-specific drink ticket per person) (Primrose Room)				
7:20-8:20 PM ISNSCE Award Address (Ballroom 1)				

Wednesday April 26				
7:45-8:30 AM Continental Breakfast (Ballroom 1 Lobby)				
Track on Computational Tools for Self-Assembly. Track Chair: William Shih, Harvard University (Ballroom 1)				
8:30-9:10 AM	Keynote	Basile Wicky	Department of Biochemistry, University of Washington, USA	*Designing de novo interactomes for biomolecular computations*
9:10-9:35 AM	Invited	David Fernandez Bonet and Ian T. Hoffecker	Department of Gene Technology, KTH Royal Institute of Technology, Sweden	*Spatial reconstruction of self-assembled DNA barcode networks*
9:35-10:00 AM	Invited	Alex J. Lee, Joshua A. Rackers and William P. Bricker	University of New Mexico, USA	*Machine-learned electron densities of nucleic acids*
10:00-10:20 AM	Contributed	Matthew Sample, Michael Matthies and Petr Sulc	School for Engineering of Matter, Transport, and Energy, Arizona State University, USA	*Hairygami: Analysis of DNA Nanostructure's Conformational Change Driven by Functionalizable Overhangs*
10:20-11:30 AM Refreshments and Poster Session (Primrose Room)				
Posters Track on DNA Nanosystems: Programmed Function B	Poster	Ece Büber, Tim Schröder, Michael Scheckenbach, Mihir Dass, Henri G. Franquelim and Philip Tinnefeld	Department of Chemistry and Center for NanoScience, Ludwig-Maximilians-University, Germany	*Unveiling Particle Shape with FRET-Enabled DNA Origami Curvature Sensors*
	Poster	Yu-Hsuan Peng, Krishna Gupta, Syuan-Ku Hsiao, Andre Ruland, Günter K. Auernhammer, Manfred F. Maitz, Susanne Boye, Claudia Gerri, Alf Honigmann, Carsten Werner and Elisha Krieg	Institute for Biofunctional Polymer Materials, Leibniz Institute of Polymer Research Dresden, Germany	*Design of DNA crosslinker libraries for programmable cell culture matrices*
	Poster	Krishna Gupta and Elisha Krieg	Institute for Biofunctional Polymer Materials, Leibniz Institute for Polymer Research, Dresden, Germany	*An isothermal nucleic acid amplification assay for modular detection of viral pathogens*
	Poster	Olga Mass, Shibani Basu, Lance Patten, Ewald Terpetschnig, Alexander Krivoshey, Anatoliy Tatarets, Ryan Pensack, Bernard Yurke, William Knowlton and Jeunghoon Lee	Micron School of Materials Science & Engineering, Boise State University, USA	*Excitons of Opposite Chirality in Dimer Enantiomorphs Templated by DNA Holliday Junction*
	Poster	Hannah Sleath, Janna Lowensohn, Bortolo Mognetti, Yuval Elani and Lorenzo Di Michele	Department of Chemistry, Imperial College London, UK	*Engineering Artificial Cell Chemotaxis using DNA Nanotechnology*
	Poster	Lea Wassermann, Michael Scheckenbach, Anna Baptist, Viktorija Glembockyte and Amelie Heuer-Jungemann	Max Planck Institute of Biochemistry, Martinsried, Germany	*Full site-specific addressability in DNA origami-templated silica nanostructures*
	Poster	Rajiv Teja Nagipogu and John Reif	Department of Computer Science, Duke University, USA	*Improving the Kinetics of Strand Displacement Systems via Leak Cancellation*
	Poster	Gde Bimananda Mahardika Wisna, Ranjan Sasmal, Youssef Hassan and Rizal Hariadi	Department of Physics, Arizona State University, USA	*Stretching the limits: Unleashing the power of DNA Origami force clamp for high-throughput single-molecule biophysics under multi-axial tension*
	Poster	Enrique Ruiz, Diana Lopez, Deepta Paramasamy, Patrick Halley, Michael Poirier, Yin Wei, Carlos Castro and Wolfgang Pfeifer	The Ohio State University, USA	*Rapid in vitro release of ssDNA from complex templates*
	Poster	Nirbhik Acharya, Amarnath Singam, Gde Bimananda Mahardika Wisna, Ranjan Sasmal, Swarup Dey, Carter Swanson, Hao Yan and Rizal Hariadi	Center for Molecular Design and Biomimetics, The Biodesign Institute, Arizona State University, USA	*Sensing with minimal scarring: Detection of luminal nucleic acid targets using transmembrane DNA nanosensors*
Posters Track on Computational Tools for Self-Assembly	Poster	David Fernandez Bonet and Ian Torao Hoffecker	Department of Gene Technology, KTH Royal Institute of Technology, Sweden	*Unsupervised graph learning for DNA network reconstruction*
	Poster	Michael Matthies, Erik Poppleton, Joakim Bohlin and Jonah Procyk	Biodesign Institute, Arizona State University, USA	*oxDNA ecosystem: design, analysis and archival of nanostructures.*
	Poster	Po-An Lin, Simiao Ren, Yunqi Yang, Qingyi Lu, Leslie Collins, Stefan Zauscher, Yonggang Ke and Gaurav Arya	Department of Mechanical Engineering and Materials Science, Duke University, USA	*Inverse Design of Hydrophobic Brush Patches on DNA Origami for Mesoscale Assembly of Superlattices*
Track on DNA Nanosystems: Programmed Function B. Track Chair: Friedrich Simmel, Technical University Munich (Ballroom 1)				
11:30-11:55 AM	Invited	Ruixin Li, Anirudh Madhvacharyula, Yancheng Du, Alexander Swett, Harshith Adepu, Aishwary Shrivastava and Jong Hyun Choi	School of Mechanical Engineering, Purdue University, USA	*Auxetic Metastructures from DNA*
11:55-12:20 PM	Invited	Lorenzo Di Michele	Department of Chemical Engineering and Biotechnology, University of Cambridge, UK	*Synthetic cells from smart nucleic-acid condensates*
12:20-12:40 PM	Contributed	Yu-Hsuan Peng, Krishna Gupta, Syuan Ku Hsiao, Andre Ruland, Günter K Auernhammer, Menfred F Maitz, Susanne Boye, Claudia Gerri, Alf Honigmann, Carsten Werner and Elisha Krieg	Institute for Biofunctional Polymer Materials, Leibniz Institute of Polymer Research Dresden, Germany	*DNA-encoded viscoelastic matrices for advanced cell and organoid culture*
12:40-1:00 PM	Contributed	Yasmine Radwan, Hemani Chhabra, Christopher Maffeo, Kirill A. Afonin, Meni Wanunu and Aleksei Aksimentiev	University of Illinois at Urbana Champaign, USA	*Multiplexed electronic counting of scarce protein targets using nucleic acid nanoparticles*
1:00-2:10 PM Lunch (Golden Cliff Room - Meal Ticket Required)				

Track on Molecular Machinery. Track Chair: Andrew Turberfield, University of Oxford (Ballroom 1)				
2:10-2:50	Keynote	Friedrich Simmel	Department of Bioscience, TUM School of Natural Sciences, TU Munich, Germany	*Molecular machines and motors made from DNA origami*
2:50-3:15	Invited	Pallav Kosuri, Lauren Takiguchi, Amanda Wacker and Ryan Fantasia	Salk Institute, USA	*Origami Movement Microscopy*
3:15-3:35	Contributed	Rakesh Mukherjee, Javier Cabello-Garcia, Luke Fehily, Aditya Sengar, Krizan Jurinovic and Thomas Ouldridge	Department of Bioengineering, Imperial College London, UK	*Enzyme-free copying, kinetic proofreading, and replication with DNA strand displacement*
3:35-4:40 PM Refreshments and Poster Session (Primrose Room)				
Posters Track on DNA Nanostructures: Semantomorphic Science B	Poster	Minhwan Chung, Kun Zhou, John Powell, Chenxiang Lin and Martin Schwartz	Yale Cardiovascular Research Center, Department of Internal Medicine, Yale School of Medicine, Yale University, USA	*A Molecular Clamp for Probing Protein Structure Under Force*
	Poster	Kun Zhou, Minhwan Chung, John Powell, Martin Schwartz and Chenxiang Lin	Department of Cell Biology, Yale University, USA	*DNA Origami Force Clamp for Mechanical Actuation of Tension-Sensitive Proteins*
	Poster	Manoj Gupta and Rebecca Taylor	Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh,	*Serum-resistant gammaPNA nanostructures formed using parallel and anti-parallel binding*
	Poster	Hao Liu, Matthew Sample, Michael Matthies, Hao Yan and Petr Sulc	Center for Molecular Design and Biomimetics at the Biodesign Institute, Arizona State University, USA	*Self-assembly and characterization of DNA origami superlattices*
	Poster	Max Earle, Casey Platnich and Ulrich Keyser	Department of Physics, University of Cambridge, UK	*Microfluidic DNA self-assembly methods for digital data storage*
	Poster	Irina Martynenko, Elisabeth Erber, Gregor Posnjak and Tim Liedl	Department of Physics, Ludwig Maximilian University of Munich, Germany	*Nanotexturing of substrates with three-dimensional DNA origami*
	Poster	Keitel Cervantes-Salguero, Austin Biaggne, John M. Youngsman, Brett M. Ward, Young C. Kim, Lan Li, John A. Hall, William B. Knowlton, Elton Graugnard and Wan Kuang	Micron School of Materials Science and Engineering, Boise State University, USA	*Strategies for Single-Molecule Orientation Control: Intercalation and Stretching*
Posters Track on Molecular Machinery	Poster	Stanislav Tsitkov, Juan B. Rodriguez III, Neda Bassir Kazeruni, May Sweet, Takahiro Nitta and Henry Hess	Department of Biomedical Engineering, Columbia University, USA	*The rate of microtubule breaking increases exponentially with curvature*
	Poster	Francesca Smith, John Goertz, Thomas Ouldridge and Molly Stevens	Department of Materials, Imperial College London, UK	*Characterisation of RNA/DNA hybrid strand displacement kinetics*
	Poster	Richard Kosinski, Barbara Sacca, Elsa Sanchez-Garcia, Joel Mieres Perez, Yasser Ruiz-Blanco and Kenny Bravo Rodriguez	Bionanotechnology, CENIDE and ZMB, University of Duisburg-Essen, Germany	*The role of DNA nanostructures in the catalytic properties of an allosterically regulated protease*
	Poster	Matthias Vogt, Martin Langecker, Matthias Gouder, Enzo Kopperger, Florian Rothfischer, Friedrich Simmel and Jonathan List	TUM School of Natural Sciences, Technical University of Munich, Germany	*Storage and triggered release of mechanical energy in a DNA-based nanorobotic arm*
	Poster	Sourav Deb, Fenil Kamdar, Dhairya Somaiya and Manish Kumar Gupta	Dhirubhai Ambani Institute of Information and Communication Technology Gandhinagar, India	*Golay Codec for JPEG DNA Standards*
	Poster	Hon Lin Too and Zhisong Wang	National University of Singapore, Singapore	*Exhaustive classification and systematic free-energy profile study of single-stranded DNA inter-overhang migration*
Track on DNA Nanostructures: Semantomorphic Science B. Track Chair: Hao Yan, Arizona State University (Ballroom 1)				
4:40-5:05 PM	Invited	Philip Lukeman	Department of Chemistry, St. John's University, New York, USA	*Multiscale Polyvalent Biosensing using DNA Nanotechnology & Electrochemistry*
5:05-5:30 PM	Invited	Golbarg Mohammadiroozbahani, Patricia Colosi, Attila Oravecz, Yuchen Wang, Kalven Bonin, Michael Darcy, Elena Sorokina, Wolfgang Pfeifer, Yin Wei, Gaurav Arya, Melike Lakadamyali, Laszlo Tora, Michael Poirier and Carlos Castro	Department of Mechanical and Aerospace Engineering, The Ohio State University, USA	*Engineering DNA nanodevices to Interface with Biomolecules*
5:30-5:50 PM	Contributed	Cindy Ng, Anirban Samanta, Ole Aalund Mandrup, Emily Tsang, Sarah Youssef, Lasse Hyldgaard Klausen, Mingdong Dong, Minke A. D. Nijenhuis and Kurt V. Gothelf	Interdisciplinary Nanoscience Center (iNANO), Aarhus University, Denmark	*Triplex origami: Folding double-stranded DNA with triplex-forming oligonucleotides*
5:50-7:20 PM Refreshments and Combined Poster Session ... all Wednesday and Thursday posters (1 date-specific drink ticket per person) (Primrose Room)				
7:20-7:40 PM ISNSCE Business Meeting (Primerose Room)				
7:40-8:10 PM Robert Dirks Prize Address (Ballroom 1)				

Thursday April 27				
7:45-8:30 AM Continental Breakfast (Ballroom 1 Lobby)				
Track on Nucleic Acid Nanostructures In Vivo. Track Chair: Björn Högberg, Karolinska Institutet (Ballroom 1)				
8:30-8:55 AM	Invited	Anna Romanov, Eike Wamhoff, Larance Ronsard, Jared Feldman, Blake Hauser, Grant Knappe, Aaron Schmidt, Daniel Lingwood, Mark Bathe and Darrell Irvine	Department of Biological Engineering, MIT, USA	*Enhancing antibody responses by multivalent antigen display on thymus-independent DNA origami scaffolds*
8:55-9:15 AM	Contributed	Divita Mathur, Katherine Rogers, Sebastian Diaz, Megan Muroski, William Klein, Okhil Nag, Kwahun Lee, Lauren Field, James Delehanty and Igor Medintz	Case Western Reserve University, USA	*The cytosolic stability of DNA nanostructures*
9:15-9:35 AM	Contributed	Wendy Xueyi Wang, Travis R. Douglas, Haiwang Zhang, Afrin Bhattacharya, Meghan Rothenbroker, Wentian Tang, Yu Sun, Zhengping Jia, Julien Muffat, Yun Li and Leo Y.T. Chou	Institute of Biomedical Engineering, University of Toronto, Canada	*Visualizing DNA origami distribution in cells and tissues using origamiFISH*
9:35-9:55 AM	Contributed	Yang Wang and Bjorn Hogberg	Department of Medical Biochemistry and Biophysics, Karolinska Institutet, Sweden	*Towards a wireframe DNA nanorobot for immunotherapy and its stability in vivo*
9:55-11:05 AM Refreshments and Poster Session (Primrose Room)				
Posters Track on Nucleic Acid Nanostructures In Vivo	Poster	Madeline Mumbleau and Ming Hammond	Department of Chemistry, University of Utah, USA	*Characterizing the use of the RNA aptamer-dye system HBC-Pepper in Bacteria*
Posters Track on Nanophotonics and Superresolution	Poster	Matthew Barclay, Azhad Chowdhury, Austin Biaggne, Jonathan Huff, Nicholas Wright, Paul Davis, Lan Li, William Knowlton, Bernard Yurke, Ryan Pensack and Daniel Turner	Micron School of Materials Science and Engineering, Boise State University, USA	*Probing DNA Structural Heterogeneity by Identifying Conformational Subensembles of a Bicovalently Bound Cyanine Dye*
	Poster	Nicholas Wright, Jonathan Huff, Matthew Barclay, Christopher Wilson, German Barcenas, Katelyn Duncan, Maia Ketteridge, Olena Obukhova, Alexander Krivoshey, Anatoliy Tatarets, Ewald Terpetschnig, Jacob Dean, William Knowlton, Bernard Yurke, Lan Li, Olga Mass, Paul Davis, Jeunghoon Lee, Daniel Turner and Ryan Pensack	Micron School of Material Science and Engineering, Boise State University, USA	*Intramolecular Charge Transfer and Ultrafast Nonradiative Decay in DNA-Tethered Asymmetric Nitro- and Dimethylamino-Substituted Squaraines*
	Poster	Austin Biaggne, Lawrence Spear, Maia Ketteridge, Ryan Rau, Dipak Panthi, William B. Knowlton, Bernard Yurke and Lan Li	Micron School of Materials Science and Engineering, Boise State University, USA	*Machine Learning-Driven Multiscale Modeling of DNA-Templated Dye Aggregates for Excitonic Applications*
	Poster	Mihir Dass, Lena Raab, Roman Anasal, Chris Pauer, Gregor Posnjak, Ulrich Rührmair and Tim Liedl	Fakultät für Physik, LMU Munich, Germany	*DNA origami-assembled metasurfaces with dynamic response*
	Poster	Joseph Melinger, Sebastian Diaz, Adam Meares, Kimihiro Susumu, Divita Mathur, Igor Medintz, Matthew Chiriboga, Paul Cunningham, Gisella Pascual, Lance Patten, Simon Roy, Ryan Pensack, Jeunghoon Lee, Bernard Yurke and William Knowlton	Electronics Science and Technology Division, Naval Research Laboratory, USA	*Using Synthetic Chemistry to Tune Excitonic Coupling in DNA-Organized Dye Aggregates*
	Poster	Gissela Pascual, Christopher K. Wilson, German Barcenas, Bernard Yurke, Ryan D. Pensack, Lan Li, Olga A. Mass, Ewald. A. Terpetschnig, William B. Knowlton and Jeunghoon Lee	Micron School of Materials Science & Engineering, Boise State University, USA	*Towards Control of Excitonic Coupling of Hydrophilic Squaraine Dyes Templated in DNA Holliday Junctions*
	Poster	Sara Rocchetti, Jeremy Baumberg, Ulrich Keyser, Alexander Ohmann, Rohit Chikkaraddy and Gyeongwon Kang	Department of Physics, University of Cambridge, UK	*Highly amplified plasmonic forces from DNA-origami scaffolded single dyes in nanogaps*
	Poster	Brian Rolczynski, Sebastian Diaz, Youngchan Kim, Igor Medintz and Joseph Melinger	Electronics Science and Technology Division, US Naval Research Laboratory, USA	*Understanding Coherent Motion in Heterogeneous Multi-Chromophore Networks Using Genetic Algorithm Methods*
	Poster	Katelyn Duncan, Hannah Byers, Madaline Houdek, Simon Roy, Austin Biaggne, Matthew Barclay, Lance Patten, Jonathan Huff, Donald Kellis, Christopher Wilson, Jeunghoon Lee, Paul Davis, Olga Mass, Lan Li, Daniel Turner, John Hall, William Knowlton, Bernard Yurke and Ryan Pensack	Micron School of Materials Science & Engineering, Boise State University, USA	*Electronic Structure and Excited-State Dynamics of DNA-Templated Monomers and Aggregates of Asymmetric Polymethine Dyes*
	Poster	Chi Chen, Xin Luo, Alexander Kaplan, Moungi Bawendi, Robert Macfarlane and Mark Bathe	Department of Biological Engineering, Massachusetts Institute of Technology, USA	*Scalable Fabrication of 2D Quantum Dot/Rod-Origami 2D Arrays with Wireframe DNA Origami*
	Poster	Hao Liu, Xinyu Zhou, Jiapei Jiang, Zijian Wan, Hao Yan, Petr Sulc and Shaopeng Wang	Biodesign Center for Bioelectronics and Biosensors, Arizona State University, USA	*Label-free Real-time Tracking of the DNA Self-assembly Dynamics using Evanescent Scattering Microscopy*
	Poster	Daria Sukhareva, Gde Bimanada Mahardika Wisna, Jonathan Zhao, Deeksha Satyabola, Subhajit Roy, Michael Matthies, Petr Šulc, Hao Yan and Rizal F Hariadi	School of Molecular Science, Arizona State University, USA	*Using DNA Origami nanostructures and 3D DNA PAINT to create strong cryptography systems*
Track on Nanophotonics and Superresolution. Track Chair: Ralf Jungmann, Max Planck Institute for Biochemistry (Ballroom 1)				
11:05-11:45 AM	Keynote	Guillermo Acuna	Photonic Nanosystems, Department of Physics, University of Fribourg, Switzerland	*Self-assembled optical antennas for controlling the emission of single molecules: unidirectionality, spectral reshaping and coupling.*
11:45-12:10 AM	Invited	Florian Schueder, Felix Rivera-Molina, Phylica Kidd, Sylvi Stoller, Derek Toomre and Joerg Bewersdorf	Department of Cell Biology, Yale School of Medicine, USA	*Highly multiplexed imaging with fluorogenic and speed DNA-PAINT*
12:10-12:35 AM	Invited	Viktorija Glembockyte, Lennart Grabenhorst, Martina Pfeiffer, Thea Schinkel, Mirjam Kümmerlin, Alexander Murr, Gereon Brüggenthies and Philip Tinnefeld	Department of Chemistry, and Center for NanoScience, Ludwig Maximiliam University of Munich, Germany	*A modular platform for developing tunable single-molecule sensors*

12:35-12:55 AM	Contributed	Xu Zhou, Deeksha Satyabola, Hao Liu, Shuoxing Jiang, Xiaodong Qi, Lu Yu, Su Lin, Yan Liu, Neal W. Woodbury and Hao Yan	Center for Molecular Design and Biomimetics at the Biodesign Institute, Arizona State University, USA	*Two-Dimensional Excitonic Networks Directed by DNA Templates as an Efficient Model Light-Harvesting and Energy Transfer System*
12:55 PM Conference Close				