

## Divita MATHUR

Assistant Professor  
Dept of Chemistry, Millis G22B  
Case Western Reserve University  
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### Current Appointments

- 07/2022 – Assistant Professor, Dept of Chemistry, Case Western Reserve University, Cleveland, OH
- Merge the architectural and biological properties of nucleic acids for biomedical and nanoscale applications.

### Education

- Iowa State University, Ames, IA Ph.D., 2010-2016  
Major: Bioinformatics & Computational Biology  
Dissertation: *Dynamic Self-Assembling DNA Nanosystems: Design and Engineering.*
- Delhi Technological University, New Delhi, India B.E., 2006-2010  
Major: Biotechnology

### Previous Research & Professional Experience

- 2016 – 2022 Navy Contractor, Center for Bio/Molecular Science and Engineering, US Naval Research Laboratory, Washington, DC
- Team member of a group focussed on the development of high efficiency bio-inspired light-harvesting networks, and novel biomaterial sensors based on the interface of optically active components and biological moieties.
- 2016 – 2022 Postdoctoral Scientist, then Research Assistant Professor, College of Science, George Mason University, Fairfax, VA  
*Advisors: Dr. Igor Medintz & Dr. Joel Schnur*
- Development of bio-mimetic DNA-based nanoscale substrates for harnessing energy transfer in optically-active dyes.
  - Facile organization of inorganic nanoparticles for enhanced plasmonic and photonic abilities.
- 2011 – 2016 Graduate Research Assistant, Department of Genetics, Development, and Cell Biology, Iowa State University, Ames, IA  
*Advisors: Dr. Eric Henderson & Dr. Jack Lutz*
- Facile and scalable engineering of DNA nanostructures using DNA *scaples*.
  - Engineering of a dynamic DNA nanosystem for interrogating molecular interactions.
- 2009 Undergraduate Summer Trainee, University of Nebraska, Lincoln, NE  
*Advisor: Dr. Vadim Gladyshev*
- *In silico* identification of key conserved sequences in genome assemblies that indicate telomeric length changes.
- 2008 Undergraduate Summer Trainee, The Indian Institute of Technology, Roorkee, India  
*Advisor: Dr. Ritu Barthwal*
- Characterization of a DNA palindromic sequence using correlation spectroscopy.

## Current Funding

- 2022 – 2025 NIH K99/R00 Pathway to Independence Award
- IC: National Institute of Biomedical Imaging and Bioengineering
  - Award No: R00EB030013-03
  - Title: *Cytosolic Access and Instability of DNA nanoparticles*
  - The goals of this project are to study the cytosolic access and stability of DNA nanoparticles by the integration of calcium and use of noncanonical nucleic acids, and identify the rate of breakdown and mechanisms of stabilization of DNA nanoparticles in the cell cytosol.
  - Role: Principal Investigator
  - Total cost (with IDC): \$747,000
- 2023 – 2024 CWRU Expanding Horizons Initiative
- Title: *Fluorescent Ophthalmic Viscosurgical Devices for Cataract Surgery*
  - The proposed work will develop fluorescent viscoelastic polymers to improve ocular surgical environments during cataract rectification.
  - Role: co-PI
  - Total direct cost: \$30,000
- 2023 – 2024 CWRU Expanding Horizons Initiative
- Title: *Plant Transformation using Nucleic Acid Nanoparticles*
  - The proposed work seeks to develop DNA nanoparticles as vehicles for delivering proteins and genes into plants.
  - Role: PI
  - Total direct cost: \$30,000

## Pending Funding

- 2023 – 2025 NSF Improving Undergraduate STEM Education: Directorate for STEM Education
- Award No: N/A
  - Title: *Addressing Differences in Mono-Disciplinary Perspectives to Augment Interdisciplinary STEM Learning*
  - Develop a pedagogical formulation for Interdisciplinary STEM learning that diagnoses student gaps in disciplinary perspectives and uses collaborative activities to address the gaps prior to learning the main topic.
  - Role: Principal Investigator
  - Total cost (with IDC): \$100,000
- 2023 – 2027 NSF Designing Materials to Revolutionize and Engineer our Future
- Award No: N/A
  - Title: *Spatial and Temporal Control of Energy Transfer at the Atomic Scale in DNA Photonic Materials*
  - The overall objectives will Investigate the role of donor-acceptor distance and orientation on energy transfer and disentangle the electronic and vibrational excited-state dynamics to build improved photonic materials.
  - Role: Co-Principal Investigator
  - Total cost (with IDC): \$2,000,000

## Previous Funding

- 2021 – 2022 NIH K99/R00 Pathway to Independence Award
- IC: National Institute of Biomedical Imaging and Bioengineering
  - Award No: 1K99EB030013-01A1
  - Title: *Cytosolic Access and Instability of DNA nanoparticles*
  - The goals of this project are to study the cytosolic access and stability of DNA nanoparticles by the integration of calcium and use of noncanonical nucleic acids, and identify the rate of breakdown and mechanisms of stabilization of DNA nanoparticles in the cell cytosol.
  - Role: Principal Investigator
  - Annual direct cost: \$86,000 (K99 Phase)
- 2020 – 2021 US Department of the Navy
- Award No: N00173-20-2-C006
  - Title: *Innovative Solutions to Important Research Issues in Bio/Molecular Science and Engineering*
  - This project investigated the areas of biomaterials, biomedical sensors, bio/molecular interactions and their applications. The project focussed on the development of biosensors and microfluidic devices; fabrication of nano alloys, controlled release materials, fuel cells and other novel materials.
  - Role: Co-Principal Investigator
  - Annual direct cost: \$2,051,281

## Publications (Citations: 530; h-index: 15)

### Journal Articles at CWRU (\*corresponding author; +student author)

1. Oktay, E., Alem, F., Hernandez, K., Girgis, M., Green, C., **Mathur, D.**, Medintz, I.L., Narayanan, A., Veneziano, R. *DNA origami presenting the receptor binding domain of SARS-CoV-2 elicit robust protective immune response*. **Communications Biology** 2023, DOI: 10.1038/s42003-023-04689-2. Impact Factor: 6.5.
2. **Mathur, D.\***, Galvan, A.R.+, Green, C.M., Liu, K.+, Medintz, I.L., *Uptake and Stability of DNA Nanostructures in Cells: A Cross-Sectional Overview of the Current State of the Art*. **Nanoscale** 2023, DOI: <https://doi.org/10.1039/D2NR05868E>. IF: 8.3.
3. Díaz, S.A.\*, Patten, L.K., Pariona, G.P., Meares, A., Chiriboga, M.+, Susumu, K., Roy, S.K., Knowlton, W.B., Cunningham, P.D., **Mathur, D.**, Yurke, B., Medintz, I.L., Lee, J.\*, Melinger, J.S.\*, *Towards Control of Excitonic Coupling in DNA-Templated Cy5 Aggregates: The Principal Role of Chemical Substituent Hydrophobicity and Steric Interactions*. **Nanoscale** 2023, DOI: 10.1039/D2NR05544A. IF: 8.3.
4. Chiriboga, M.C., Green, C.M., **Mathur, D.**, Hastman, D.A., Melinger, J.S., Veneziano, R., Medintz, I.L., Díaz, S.A.\*, *Structural and optical variation of pseudoisocyanine aggregates nucleated on DNA substrates*. **Methods and Applications in Fluorescence** 2023, DOI: 10.1088/2050-6120/acb2b4 IF: 3.21.
5. Rolczynski, B.S.\*, Díaz, S.A., Kim, Y.C., **Mathur, D.**, Klein, W.P., Medintz, I.L., Melinger, J.S.\*, *Determining Interchromophore Effects for Energy Transport in Molecular Networks Using Machine-Learning Algorithms*. **Physical Chemistry Chemical Physics** 2023, DOI: 10.1039/D2CP04960K. IF: 3.67.
6. **Mathur, D.**, Thakur, M., Díaz, S.A., Susumu, K., Stewart, M.H., Oh, E., Walper, S.A., Medintz, I.L., *Hybrid Nucleic Acid-Quantum Dot Assemblies as Multiplexed Reporter Platforms for Cell-Free Transcription*

*Translation-Based Biosensors*. **ACS Synthetic Biology** 2022 DOI: 10.1021/acssynbio.2c00394. IF: 5.11. **Journal Cover**.

7. Huff, J.S., Díaz, S.A., Barclay, M.S., Chowdhury, A.U., Chiriboga, M., Ellis, G.A., **Mathur, D.**, Patten, L.K., Roy, S.K., Sup, A., Biaggne, A., Rolczynski, B.S., Cunningham, P.D., Li, L., Lee, J., Davis, P.H., Yurke, B., Knowlton, W.B., Medintz, I.L., Turner, D.B., Melinger, J.S., Pensack, R.D., *Tunable Electronic Structure via DNA-Templated Heteroaggregates of Two Distinct Cyanine Dyes*. **The Journal of Physical Chemistry C** 2022 DOI: 10.1021/acs.jpcc.2c04336. IF: 4.126.

#### Journal Articles prior to CWRU

1. **Mathur, D.\***, Rogers, K.E.+, Díaz, S.A., Muroski, M.E., Klein, W.P., Nag, O.K., Lee, K., Field, L.D., Delehanty, J.B., Medintz, I.L.\*, *Determining the Cytosolic Stability of Small DNA Nanostructures in Cellula*. **Nano Letters** 2022 DOI: 10.1021/acs.nanolett.2c00917. IF: 11.19. **Journal Cover**.
2. Chowdhury, A.U., Díaz, S.A., Huff, J.S., Barclay, M.S., Chiriboga, M., Ellis, G.A., **Mathur, D.**, Patten, L.K., Sup, A., Hallstrom, N., Cunningham, P.D., Lee, J., Davis, P.H., Turner, D.B., Yurke, B., Knowlton, W.B., Medintz, I.L., Melinger, J.S., Pensack, R.P., *Tuning between Quenching and Energy Transfer in DNA-Templated Heterodimer Aggregates*. **The Journal of Physical Chemistry Letters** 2022 DOI:10.1021/acs.jpcllett.2c00017. IF: 6.475.
3. Meares, A., Susumu, K., **Mathur, D.**, Lee, S.H., Mass, O.A., Lee, J., Pensack, R.D., Yurke, B., Knowlton, W.B., Melinger, J.S., Medintz, I.L., *Synthesis of Substituted Cy5 Phosphoramidite Derivatives and Their Incorporation into Oligonucleotides Using Automated DNA Synthesis*. **ACS Omega** 2022 DOI:10.1021/acsomega.1c06921. IF: 3.512.
4. Chiriboga, M.C., Green, C.M., Hastman, D.A.+, **Mathur, D.**, Wei, Q., Díaz, S.A., Medintz, I.L., Veneziano, R., *Rapid DNA origami nanostructure detection and classification using the YOLOv5 deep convolutional neural network*. **Scientific Reports** 2021 DOI:10.1038/s41598-022-07759-3. IF: 4.379.
5. Chiriboga, M.C.+, Díaz, S.A., **Mathur, D.**, Hastman, D.A., Melinger, J.S., Veneziano, R., Medintz, I.L., *Understanding Self-Assembled Pseudoisocyanine Dye Aggregates in DNA Nanostructures and Their Exciton Relay Transfer Capabilities*. **The Journal of Physical Chemistry B** 2021 DOI:10.1021/acs.jpcc.1c09048. IF: 2.991. **Journal Cover**.
6. **Mathur, D.**; Samanta, A.; Ancona, M.; Díaz, S.A.; Kim, Y.C.; Melinger, J.S.; Goldman, E.R.; Sadowski, J.P.; Ong, L.L.; Yin, P.; Medintz, I.L., *Understanding Förster Resonance Energy Transfer in the Sheet Regime with DNA Brick-Based Dye Networks*. **ACS Nano** 2021, **15** (10), 16452–16468. IF: 15.88.
7. Cunningham, P. D.; Spillmann, C. M.; Melinger, J. S.; Ancona, M. G.; Kim, Y. C.; **Mathur, D.**; Buckhout-White, S.; Goldman, E. R.; Medintz, I. L., *Förster Resonance Energy Transfer in Linear DNA Multifluorophore Photonic Wires: Comparing Dual versus Split Rail Building Block Designs*. **Advanced Optical Materials** 2021, **9**, 2100884. IF: 9.9. **Journal Cover**.
8. Green, C. M.; Hastman, D. A.; **Mathur, D.**; Susumu, K.; Oh, E.; Medintz, I. L.; Díaz, S. A., *Direct and Efficient Conjugation of Quantum Dots to DNA Nanostructures with Peptide-PNA*. **ACS Nano** 2021, **15** (5), 9101-9110. IF: 15.88.
9. **Mathur, D.**; Kim, Y. C.; Díaz, S. A.; Cunningham, P. D.; Rolczynski, B. S.; Ancona, M. G.; Medintz, I. L.; Melinger, J. S., *Can a DNA Origami Structure Constrain the Position and Orientation of an Attached Dye Molecule?* **The Journal of Physical Chemistry C** 2021, **125** (2), 1509-1522. IF: 4.1. **Journal Cover**.

10. Hastman, D. A.; Melinger, J. S.; Aragonés, G. L.; Cunningham, P. D.; Chiriboga, M.; Salvato, Z. J.; Salvato, T. M.; Brown, C. W., 3rd; **Mathur, D.**; Medintz, I. L.; Díaz, S.A., *Femtosecond Laser Pulse Excitation of DNA-Labeled Gold Nanoparticles: Establishing a Quantitative Local Nanothermometer for Biological Applications*. **ACS Nano** 2020, **14** (7), 8570-8583. IF: 15.88.
11. Mazuski, R. J.; Díaz, S. A.; Wood, R. E.; Lloyd, L. T.; Klein, W. P.; **Mathur, D.**; Melinger, J. S.; Engel, G. S.; Medintz, I. L., *Ultrafast Excitation Transfer in Cy5 DNA Photonic Wires Displays Dye Conjugation and Excitation Energy Dependency*. **The Journal of Physical Chemistry Letters** 2020, **11** (10), 4163-4172. IF: 6.71.
12. Brintlinger, T. H.; Buckhout-White, S.; Bassim, N. D.; **Mathur, D.**; Samanta, A.; Robinson, J. T.; Idrobo, J.-C.; Stroud, R. M.; Goldman, E. R.; Ancona, M. G., *Chemical Mapping of Unstained DNA Origami Using STEM/EDS and Graphene Supports*. **ACS Applied Nano Materials** 2020, **3** (2), 1123-1130. IF: 3.9.
13. Green, C. M.; **Mathur, D.**; Medintz, I. L., *Understanding the Fate of DNA Nanostructures inside the Cell*. **The Journal of Materials Chemistry B** 2020, **8** (29), 6170-6178. IF: 5.0. **Journal Cover**.
14. **Mathur, D.**; Klein, W. P.; Chiriboga, M.; Bui, H.; Oh, E.; Nita, R.; Naciri, J.; Johns, P.; Fontana, J.; Díaz, S. A., et al., *Analyzing Fidelity and Reproducibility of DNA Templated Plasmonic Nanostructures*. **Nanoscale** 2019, **11** (43), 20693-20706. IF: 6.8.
15. **Mathur, D.**; Medintz, I. L., *The Growing Development of DNA Nanostructures for Potential Healthcare-Related Applications*. **Advanced Healthcare Materials** 2019, **8** (9), e1801546. IF: 7.3. **Journal Cover**.
16. Cunningham, P. D.; Kim, Y. C.; Díaz, S. A.; Buckhout-White, S.; **Mathur, D.**; Medintz, I. L.; Melinger, J. S., *Optical Properties of Vibronically Coupled Cy3 Dimers on DNA Scaffolds*. **The Journal of Physical Chemistry B** 2018, **122** (19), 5020-5029. IF: 2.8.
17. Toeppa, A.J.; Schauta, R.G.; Scotta, B.D.; **Mathur, D.**; Berens, A.J.; Petersen, C.A., *Leishmania Incidence and Prevalence in U.S. Hunting Hounds Maintained via Vertical Transmission*. **Veterinary Parasitology: Regional Studies and Reports** 2017, **10**, 75-81. IF: 1.73.
18. **Mathur, D.**; Samanta, A.; Oh, E.; Díaz, S. A.; Susumu, K.; Ancona, M. G.; Medintz, I. L., *Quantum Dot Encapsulation Using a Peptide-Modified Tetrahedral DNA Cage*. **Chemistry of Materials** 2017, **29** (14), 5762-5766. IF: 9.5.
19. **Mathur, D.**; Medintz, I. L., *Analyzing DNA Nanotechnology: A Call to Arms for the Analytical Chemistry Community*. **Analytical Chemistry** 2017, **89** (5), 2646-2663. IF: 6.7. **Journal Cover**.
20. **Mathur, D.**; Henderson, E. R., *Programmable DNA Nanosystem for Molecular Interrogation*. **Scientific Reports** 2016, **6**, 27413. IF: 3.9.
21. **Mathur, D.**; Henderson, E. R., *Complex DNA Nanostructures from Oligonucleotide Ensembles*. **ACS Synthetic Biology** 2012, **2** (4), 180 - 185. IF: 5.5.

## Proceedings

1. **Mathur, D.**, Kim, Y.C., Díaz, S. A., Ellis, G. A., Cunningham, P. D., Rolczynski, B. S., Ancona, M. G., Medintz, I. L., and Melinger, J. S.. 2021. *Exploring the Holliday Junction in a DNA nanostructure for creating excitonic dimers*. In **2021 IEEE 21st International Conference on Nanotechnology (NANO)**. 360-363.

2. Green, C.M., Hastman, D. A., **Mathur, D.**, Susumu, K., Medintz, I. L., and Díaz, S. A. 2021. *Parameters guiding the self-assembly of quantum dots and DNA origami by peptide-PNA*. In **2021 IEEE 21st International Conference on Nanotechnology (NANO)**. 448-450.
3. **Mathur, D.**; Klein, W.P.; Bui, H.; Oh, E.; Naciri, J.; Fontana, J.; Díaz, S.A.; Medintz, I.L., *Competitive Binding of Golf Nanospheres and Nanorods on DNA Origami Substrates*. **Colloidal Nanoparticles for Biomedical Applications**, XV 11255, 1125509.
4. Koehler, C.; **Mathur, D.**; Henderson, E.; Lutz, R., *Probing the Security of DNA Origami*. **2018 IEEE International Symposium on Software Reliability Engineering Workshops** 2018, 138-139.
5. Tun, T.T.; Lutz, R.; Nakayama, B.; Yu, Y.; **Mathur, D.**; Nuseibeh, B., *The Role of Environmental Assumptions in Failures of DNA Nanosystems*. **2015 IEEE/ACM International Workshop on Complex Faults and Failures in Large Software Systems** 2015, 27-33.
6. Ellis, S. J.; Henderson, E. R.; Klinge, T. H.; Lathrop, J. I.; Lutz, J. H.; Lutz, R. R.; **Mathur, D.**; Miner, A. S. *Automated Requirements Analysis for a Molecular Watchdog Timer*, **Proceedings of the 29th ACM/IEEE international conference on Automated software engineering**, ACM: 2014; pp 767-778.
7. Lutz, R. R.; Lutz, J. H.; Lathrop, J. I.; Klinge, T. H.; **Mathur, D.**; Stull, D. M.; Bergquist, T. G.; Henderson, E. R. *Requirements Analysis for a Product Family of DNA Nanodevices*, 2012 **20th IEEE International Requirements Engineering Conference (RE)**, IEEE: 2012; pp 211-220.
8. Lutz, R.; Lutz, J.; Lathrop, J.; Klinge, T.; Henderson, E.; **Mathur, D.**; Sheasha, D.A., *Engineering and Verifying Requirements for Programmable Self-Assembling Nanomachines*. **34th IEEE International Conference on Software Engineering** 2012, 1361-1364.

### Book Chapters

1. Green, C.M., **Mathur, D.**, Susumu, K., Oh, E., Medintz, I.L., Diaz, S.A., 2022, *Polyhistidine-Tag-Enabled Conjugation of Quantum Dots and Enzymes to DNA Nanostructures*, **Bioluminescence**, Springer Nature.

### Teaching & Mentoring Experience

1. Fall 2022 CHEM 304 Quantitative Analysis Laboratory.
2. Graduate Teaching Assistant, Human Anatomy (GDCB255L) & Physiology (GDCB256L) laboratories, Iowa State University, 2014-2015; Average instructor rating = 4.6/5.
3. Advising Mentoring activity (\*co-authored publications.)

Sara Desai	Undergraduate Freshman	Case Western Reserve Univ.	2023-
Era Srivastava	Undergraduate Freshman	Case Western Reserve Univ.	2023-
Anshul Nayak	Undergraduate Freshman	Case Western Reserve Univ.	2023-
Alex Hagar	Undergraduate Sophomore	Case Western Reserve Univ.	2023-
Heather Everson	Graduate student (PhD)	Case Western Reserve Univ.	2022-
Kayla Neyra	Graduate student (PhD)	Case Western Reserve Univ.	2022-
Puja Bhavsar	Highschool Senior	International Academy East	2022-
Zach Schmalz	Undergraduate Sophomore	Case Western Reserve Univ.	2022-
Kevin Liu*	Undergraduate Senior	Case Western Reserve Univ.	2022-
Angelica Galvan*	Graduate student (PhD)	University of Maryland	2022-
Nandana Vinod	Undergraduate Sophomore	Case Western Reserve Univ.	2022-23
Jameel Kelley	Graduate student (Masters)	Iowa State University	2021-22
Katherin Rogers*	Graduate student (PhD)	University of Maryland	2020-22
Matthew Chiriboga*	Graduate student (PhD)	George Mason University	2018-22
David Hastman*	Graduate student (PhD)	University of Maryland	2018-21
Yeonwoo Kim	Highschool Senior	Thomas Jefferson High School	2018
Chase Koehler*	Undergraduate Junior	Iowa State University	2015-16
Gabrielle Ortman	Undergraduate Junior	Iowa State University	2015-16
Brian Nakayama*	Graduate student (Masters)	Iowa State University	2014-15
Michael McKinney	Undergraduate Sophomore	Denison University	2013

4. Guest lecturer, *Naval Research Enterprise Internship Program*, **The American Society for Engineering Education** with Dr Igor Medintz, 2020, 2021.
5. NSF Panelist, *Emerging Researchers National Conference* 2018.
6. Trained under **Project LEA/RN workshop**, Iowa State University, 2015

## Honors & Awards

1. Article *Direct and Efficient Conjugation of Quantum Dots to DNA Nanostructures with Peptide-PNA* received the NRC/ASEE Postdoctoral Research Publication Award at the US Naval Research Laboratory, 2022.
2. Article *Förster Resonance Energy Transfer in Linear DNA Multifluorophore Photonic Wires: Comparing Dual versus Split Rail Building Block Designs* received the Annual Research Publication Award at the US Naval Research Laboratory, 2022.
3. NIH Pathway to Independence award, 2021.
4. Article *Femtosecond Laser Pulse Excitation of DNA-Labeled Gold Nanoparticles: Establishing a Quantitative Local Nanothermometer for Biological Applications* received the Alan Berman Research Publication Award at the US Naval Research Laboratory, 2021.
5. Article *Understanding the Fate of DNA Nanostructures inside the Cell* featured in the Journal of Materials Chemistry B HOT papers.
6. Article *The Growing Development of DNA Nanostructures for Potential Healthcare-Related Applications* featured in the WBC2020 – Advanced Biomaterials special issue.
7. The James Cornette Travel Award, Bioinformatics & Computational Biology Program, Iowa State University, 2015.

8. Conference paper *Automated Requirements Analysis for a Molecular Watchdog Timer* received the IFIP TC2 Manfred Paul Award for Excellence in Software: Theory and Practice.
9. The James Cornette Travel Award, Bioinformatics & Computational Biology Program, Iowa State University, 2015.
10. The Departmental Services Award, Genetics Development & Cell Biology Department, Iowa State University, 2014.
11. The James Cornette Research Fellowship (\$4000 summer support), Bioinformatics & Computational Biology Program, Iowa State University, 2014, 2012.
12. Best student seminar, Bioinformatics & Computational Biology Program, Iowa State University, 2014.

### Review & Editorial Activities

1. Review Editor, *Frontiers in Chemistry (Analytical Chemistry)*
2. 2022 *ad hoc* NIH INN Study Section member
3. 2022 *ad hoc* NSF Graduate Research Fellowship Program (GRFP) reviewer
4. 2017 *ad hoc* NSF EFRI panel member
5. *Ad hoc* referee for
 

<ol style="list-style-type: none"> <li>(a) AAAS <i>Science</i></li> <li>(b) ACS <i>Applied Materials &amp; Interfaces, Chemical Biology, Applied Nano Materials, Analytical Chemistry</i></li> <li>(c) Wiley <i>Particle &amp; Particle Systems Characterization, ChemPlusChem, ChemistrySelect, Small</i></li> <li>(d) RSC <i>Chemical Science, The Journal of Materials Chemistry B, Nanoscale, Physical Chemistry Chemical Physics</i></li> </ol>	<ol style="list-style-type: none"> <li>(e) Elsevier <i>Biomembranes, Journal of Photochemistry &amp; Photobiology, A: Chemistry, Chemical Physics</i></li> <li>(f) Springer <i>Silicon</i></li> <li>(g) Springer Nature <i>Nature Nanotechnology, Scientific Reports</i></li> <li>(h) Cell Press <i>iScience</i></li> <li>(i) Other referee activities include AIP, book proposals, university grants, etc.</li> </ol>
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6. Topic Editor, MDPI *Biosensors*.
7. 2015 Graduate Student Representative for faculty search committee, *Physical Biology of the Cell*.

### Conference & Seminar Activities

1. Conference organization:
  - Session Chair, *Biomedical Applications of Plasmonic Nanoparticles II, SPIE Photonics West*, San Francisco, CA, USA, 2020.
  - Co-organizer, **the Mid-Atlantic DNA Nanotechnology Symposium**, National Institutes of Standards and Technology, Gaithersberg, MD USA, 2017, 2019, & 2022.
2. Invited oral presentations:
  - *Synthetic DNA Nanostructures as Platforms for Precise Nanoparticle Organization*, Case Western Reserve University **Macromolecular Science and Engineering Department Colloquium**, Cleveland, OH, USA, 2023.



- *Synthetic DNA Nanotechnology: Reprogramming a Familiar Molecule*, North Carolina State University **Tissue Engineering Group**, Virtual, 2023.
- *Synthetic DNA Nanostructures as Platforms for Precise Nanoparticle Organization*, Case Western Reserve University **Biophysics Colloquium**, Cleveland, OH, USA, 2022.
- *Synthetic DNA Nanotechnology: Reprogramming a Familiar Molecule*, Case Western Reserve University **Dept of Biomedical Engineering**, Cleveland, OH, USA, 2022.
- *DNA Origami*, **CWRU Origins Science Scholars Program**, Case Western Reserve University (in-person), Cleveland, OH, USA, 2022.
- *The cytosolic stability of DNA nanostructures*, **Global Nanobiotechnology Consortium**, University of South Florida (virtual & in-person), FL, USA, 2022.
- *Synthetic DNA Nanostructures as Platforms for Precise Nanoparticle Organization*, **Case Western Reserve University Dept of Chemistry**, Cleveland, OH, USA, 2021.
- *Can a DNA nanostructure constrain the position and orientation of an attached dye molecule?*, **Laboratory for Molecular Programing**, Iowa State University, IA, USA, 2021.
- *Enzyme-controlled release of QD in a DNA icosahedron*, **SPIE Photonics West Conference**, San Francisco, CA, USA, 2020.
- *DNA self-assembly: A nanoscale building block for bottom-up fabrication*, **George Mason University Department of Physics**, Fairfax, VA, USA, 2018.
- *DNA Nanotechnology: The Programmable Building Block of Life*, **Simpson College**, Indianola, IA, 2014.

### 3. Contributed oral presentations:

- *Behavior of DNA Nanostructures inside the cell cytosol*, **2023 Foundations of Nanosciences Conference**, Snowbird, UT, USA, 2023.
- *Identifying the cytosolic fate of DNA nanostructures*, **2021 TechConnect World**, National Harbor, MD, USA, 2021.
- *Multiplexed Biosensing with Quantum Dots and Cell-Free Systems*, **Engineering and Utilizing Biological Sensors in the CASBAH: current efforts and future directions**, Virtual, 2021.
- *Can a DNA nanostructure constrain the position and orientation of an attached dye molecule?*, **The 21st IEEE International Conference on Nanotechnology**, 2021.

### 4. Contributed poster presentations (limited to presenting author posters):

- Mathur, D.; Kim, Y. C.; Díaz, S. A.; Cunningham, P. D.; Rolczynski, B. S.; Ancona, M. A.; Medintz, I. L.; Melinger, J. S., *Can a DNA Nanostructure Constrain the Position and Orientation of an Attached Dye Molecule?* In **Foundations of Nanosciences**, Virtual, 2021.
- Mathur, D.; Muroski, M.; Díaz, S. A.; Klein, W.; Field, L.; Delehanty, J. B.; Medintz, I. L., *The Physiological Fate of DNA Crosshairs in the Cell Cytosol*. In **Mid-Atlantic DNA Nanotechnology (MADNano)**, 2019.
- Mathur, D.; Samanta, A.; Oh, E.; Díaz, S. A.; Susumu, K.; Ancona, M. A.; Medintz, I. L., *Quantum Dot Encapsulation Using a Peptide-Modified Tetrahedral DNA Cage*. In **Foundations of Nanosciences**, Snowbird, Utah, USA, 2017.
- Mathur, D.; Buckhout-White, S.; Person, C.; Chapin, A. A.; Goldman, E.; Medintz, I. L., *Coding DNA Restriction into Dynamic Nanosystems: Merging Molecular Logic with Synthetic Biology*. In **DNA23**, Austin, Texas, USA, 2017.
- Mathur, D.; Henderson, E. R., *Autonomous DNA Nanosystem for Interrogating Molecular Interactions*. In **Synthetic Biology: Engineering, Evolution & Design (SEED)**, Boston, Massachusetts, USA, 2015.
- Mathur, D.; Henderson, E. R., *Deconstructing DNA Origami: Eliminating the Scaffold*. In **Foundations of Nanosciences**, Snowbird, Utah, USA, 2012.