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Washington Research Foundation Postdoctoral Fellow, Pacific Northwest National Laboratory

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ORCID: [0000-0002-4932-6699](https://orcid.org/0000-0002-4932-6699) GitHub: [JingshanDu](https://github.com/JingshanDu) Twitter: [@JingshanDu](https://twitter.com/JingshanDu)

EDUCATION	Northwestern University Evanston, IL
	Ph.D. , Materials Science and Engineering September 2021 Thesis: Complex Nanoparticle Systems: Structures, Structure–Property Relationships, and Dynamics Supervised by Prof. Chad A. Mirkin and Prof. Vinayak P. Dravid
	Certificate , Management for Scientists and Engineers, Kellogg School of Management August 2021
	Zhejiang University Chu Kochen Honors College Hangzhou, China
	B.Sc. (Hons) , Engineering: Materials Science and Engineering June 2015 Thesis: Direct Observation of AgCl–Ag Transformation Dynamics Using In-Situ Transmission Electron Microscopy Supervised by Prof. Deren Yang and Prof. David A. Weitz
RESEARCH AND DEVELOPMENT	Pacific Northwest National Laboratory Richland, WA
	Post Doctorate Research Associate , Physical & Computational Sciences Directorate 2021–present Advisor: Dr. James J. De Yoreo Washington Research Foundation Postdoctoral Fellow (2022–present) Principal Investigator, Environmental Molecular Sciences Laboratory (DOE SC BER) Capacity Award 60620: “Studying the Local Structure of Hydrogen Bond Networks via Low-Temperature Atomic-Resolution Electron Microscopy” (2022–2023); Capacity Award 60286: “Revealing the Interfacial Structures and Formation Dynamics of Nanocrystalline Ice Using in situ Electron Microscopy” (2022) Co-Lead Investigator, Environmental Molecular Sciences Laboratory (DOE SC BER) Capacity Award 60575: “Programmable Synthesis of Structurally Diverse and Functional Biomimetic Materials from Sequence-defined Polymers” (2022–2023) Topics: nanoscale crystal formation and transformation; ice nanostructures and their formation pathways; protein-directed crystallization; self-assembly of peptoids
	Northwestern University Evanston, IL
	Research Assistant , International Institute for Nanotechnology 2015–2021 Faculty Advisors: Prof. Chad A. Mirkin and Prof. Vinayak P. Dravid Ryan Fellow (2017–2020); Fellow, Hierarchical Materials Cluster Program (2016–2017) Nanolithography Subgroup Leader (2019–2021) Topics: nanoparticles as complex systems; nanoscale phase transformation; correlated and in-situ electron microscopy; combinatorial synthesis and characterization
	Harvard University Cambridge, MA
	Visiting Undergraduate , School of Engineering and Applied Sciences 2014–2015 Faculty Advisor: Prof. David A. Weitz Topics: nanoscale interfacial reactions; in-situ electron microscopy; graphene liquid cells

University of California, Los Angeles Los Angeles, CA
Visiting Undergraduate, California NanoSystems Institute Summer 2014
 Faculty Advisor: Prof. Xiangfeng Duan
 Fellow, Cross-disciplinary Scholars in Science and Technology Program
 Topics: mixed oxide electrocatalysts for oxygen evolution reaction

Kuang-Chi Institute of Advanced Technology Shenzhen, China
Assistant Engineer (Intern), Development Center Summer 2013
 Topics: design and fabrication of composite metamaterials

Zhejiang University Hangzhou, China
Undergraduate Research Assistant, State Key Laboratory of Silicon Materials 2013–2015
 Faculty Advisors: Prof. Deren Yang and Prof. Hui Zhang
 Project Lead, Ministry of Education of China National University Student Innovation Program Grant
 201310335067: “Composite Nanostructures of Noble Metals and Oxide Semiconductors and
 Their Applications in Clean Energy” (2013–2014)
 Topics: thermal-resistant metal/oxide hybrid nanostructures; shaped-controlled synthesis of noble
 metal nanocrystals

**TEACHING AND
 MENTORING**

Teaching Assistantship

MAT_SCI 466 Analytical Electron Microscopy (with Labs), Northwestern University, Spring 2018
 MAT_SCI 301 Materials Science Principles (with Labs), Northwestern University, Fall 2017

Tutorial and Workshop Instruction

Coherent Electron Microscopy Imaging and Analysis, Center for the Science of Synthesis Across Scales (DOE
 SC BES EFRC), April 26th, 2022

Mentored Graduate Research

Carolyn B. Wahl, Ph.D. Student, Materials Science and Engineering, Northwestern University, 2019–2021
 Topics: complex metal alloy nanoparticles

David D. Xu, Ph.D. Student, Chemistry, Northwestern University, 2019–2021
 Topics: upconverting nanoparticle arrays and libraries

Mingue Shin, Visiting Ph.D. Student, Materials Science and Engineering, Northwestern University, 2019–2020
 Topics: halide perovskite nano-LEDs

Qian Rong, Visiting Ph.D. Student, Materials Science and Engineering, Northwestern University, 2019
 Topics: hierarchically porous multicomponent oxide electrocatalysts for oxygen evolution

Donghoon Shin, Ph.D. Student, Materials Science and Engineering, Northwestern University, 2018–2021
 Topics: patterning and optoelectronics of halide perovskite nanocrystals

Mentored Undergraduate Research

Benjamin Kaiser, REU (NU MRSEC), Northwestern University, Summer 2018
 Topics: graphene-liquid interaction

Juan Diego Martin, REU (NNCI/SHyNE), Northwestern University, Summer 2017
 Topics: graphene-encapsulated imaging of microbes

Kevin Qiu, REU (NU MRSEC) and Undergraduate Research Assistant, Northwestern University, 2016–2018
 Topics: graphene-liquid interaction; graphene-encapsulated imaging of soft materials

**SYNERGISTIC
ACTIVITIES**

Society and Government Services

Planning Committee Representative, DOE Office of Science Basic Energy Sciences Early Career Network (BES ECN), 2022–present

President, SPIE Northwestern University Chapter, 2019–2020

Vice President, SPIE Northwestern University Chapter, 2018–2019

Editorial Roles

Associate Editor, *Frontiers for Young Minds*, 2023–present

Early Career Editorial Advisory Board, *ACS Biomaterials Science & Engineering*, 2022–2024

Guest Associate Editor, *Frontiers in Chemistry*, Nanotechnology for Natural Products, 2022

Conference and Seminar Organization

Symposium Organizer, *Microscopy & Microanalysis 2024*, July 28th–August 1st, 2024. Cleveland, OH.

Symposium: Correlative Microscopy Using Light, Electron, and X-ray Microscopy

Symposium Organizer, *2023 Materials Research Society Fall Meeting*, November 26th–December 1st, 2023.

Boston, MA. Symposium SF02: Crystallization and Assembly at Interfaces: Fundamental Breakthroughs Enabled by Data-Centric Analysis and In-Situ/Operando Techniques

Session Chair, *American Physical Society March Meeting 2023*, March 5th–10th, 2023. Las Vegas, NV.

Session T04: Surfaces, Interfaces & Materials

Conference Chair, *SPIE FOCUS: Light and Matter*, October 12th–13th, 2019. Evanston, IL

Coordinator, SPIE-MRSEC Student Seminar Series, Northwestern University, 2017–2018

Peer Review

Journals (select titles): *Accounts of Materials Research*, *Advanced Engineering Materials*, *AIP Advances*, *Chemical Communications*, *CrystEngComm*, *International Journal of Hydrogen Energy*, *Journal of Alloys and Compounds*, *Journal of Crystal Growth*, *Journal of Nanophotonics*, *Materials Chemistry and Physics*, *Materials Today Chemistry*, *Nanotechnology*, *Nature Communications*, *Optical Engineering*, *Thin Solid Films*

Conferences: *Pacific Northwest National Laboratory TechFest 2023*

K–12 Education

Competition Official, DOE Pacific Northwest High School Regional Science Bowl (2023)

Judge, Washington State Science and Engineering Fair (2022), Central Sound Regional Science and Engineering Fair (2022)

**SIGNIFICANT
RECOGNITIONS**

2023 APS FIP Distinguished Student Award, American Physical Society

2021 Carl Samans Excellence Award, ASM Chicago Regional Chapter

2021 MRS Graduate Student Award, Materials Research Society

2020 Extraordinary Potential Prize, Chinese Government Award for Outstanding Self-Financed Students Abroad

2020 International Institute for Nanotechnology Outstanding Research Award, Northwestern University

2020 SPIE Optics and Photonics Education Scholarship

2019 Perkin Scholarship, Society of Chemical Industry America

2019 IPMI Sabin Metal Ron Bleggi Award, International Precious Metals Institute

2018 Park AFM Scholarship, Park Systems Inc.

2015 Top 100 Bachelor's Thesis Award, Zhejiang University

2014 Chu Kochen Scholarship, Zhejiang University

2014 Chu Kochen Honors College Scholarship for Excellence, Zhejiang University

2014 National Scholarship (Undergraduate), Ministry of Education of China
2014 Cross-disciplinary Scholars in Science and Technology Award, University of California, Los Angeles
2012 Kwanjeong Educational Foundation Scholarship (awarded consecutively during 2012–2014)
2010 Chou Pei-yuan Award for Youths in Science and Technology Innovation, Chou Pei-yuan Foundation

FEATURED ON MEDIA

“Du Wins Distinguished Student Award.” Pacific Northwest National Laboratory News. April 2023.
“Du Named to Early Career Editorial Advisory Board.” Pacific Northwest National Laboratory News. March 2022.
“Jingshan Du receives award for excellence in materials and metallurgical engineering.” International Institute for Nanotechnology News. September 2021.
“Scholarship awarded for study of nanoparticle structures and dynamics.” International Institute for Nanotechnology News. May 2020.
“Du awarded SPIE Optics and Photonics Education Scholarship.” SPIE.org. May 2020.
“Park AFM Scholarship Awards - JINGSHAN DU.” *NanoScientific* **2018**, 13, 23–24 and the Park Systems website. May 2018.
“Asking Myself at the Finish Line of College.” Zhejiang University Homepage. April 2015.

PUBLICATIONS

Metrics: *h*-index = 13, citations > 1,000 (Google Scholar)

Reviews and Commentaries

- [1] Preventative Studies Should Begin Now for Detecting AI-Generated Microscopy Images.
Du, J. S.; Zhang, M.
Matter **2023**, in press. DOI:10.1016/j.matt.2023.04.009
- [2] Editorial: Nanotechnology for Natural Products.
Du, J. S.; Chen, T.; Liu, F.; Wang, S.; Zhang, J.; Zhang, R.
Frontiers in Chemistry **2022**, 10, 1069892. DOI:10.3389/fchem.2022.1069892
- [3] Is Open Access Worth the Cost?
Du, J. S.
The Scientist **2022**, 36 (2), 15–16. Online version: *TS Digest* **2022** (6:1), 9–10.
- [4] Twin Pathways: Discerning the Origins of Multiply Twinned Colloidal Nanoparticles.
Du, J. S.; Zhou, W.; Rupich, S. M.; Mirkin, C. A.
Angewandte Chemie International Edition **2021**, 60 (13), 6858–6863. DOI:10.1002/anie.202015166
- [5] Intermetallic Nanocrystals: Syntheses and Catalytic Applications.
Yan, Y.; **Du, J. S.**; Gilroy, K. D.; Yang, D.; Xia, Y.; Zhang, H.
Advanced Materials **2017**, 29 (14), 1605997. DOI:10.1002/adma.201605997
► Invited review.

Representative Research Reports

- [6] Intermetallic Nanocrystal Discovery Through Modulation of Atom Stacking Hierarchy.
Du, J. S., Dravid, V. P., Mirkin, C. A.
ACS Nano **2022**, 16 (12), 20796–20804. DOI:10.1021/acsnano.2c08038
► Featured on the Front Cover.
- [7] The Emergence of Valency in Colloidal Crystals Through Electron Equivalents.
Wang, S.†; Lee, S.†; **Du, J. S.**†; Partridge, B. E.; Cheng, H. F.; Zhou, W.; Dravid, V. P.; Lee, B.; Glotzer, S. C.; Mirkin, C. A. (†equal contribution)
Nature Materials **2022**, 21 (5), 580–587. DOI:10.1038/s41563-021-01170-5
► Highlighted by *Materials Today* News, The Science Times, Northwestern Engineering News, University of Michigan News, and Argonne National Laboratory Press Release; news reprinted by

- PHYS.ORG, NANO Magazine, AAAS EurekAlert, International Institute for Nanotechnology News, Advanced Photon Source Science Highlights, Laboratory Equipment, Nanotechnology World Association, SciTechDaily, Technology Org, AZoMaterials, Nanowerk News, etc.
- [8] Galvanic Transformation Dynamics in Heterostructured Nanoparticles.
Du, J. S.; He, K.; Xu, Y.; Wahl, C. B.†; Xu, D. D.†; Dravid, V. P.; Mirkin, C. A. (†mentored student)
Advanced Functional Materials **2021**, *31* (46), 2105866. DOI:10.1002/adfm.202105866
- [9] Bidirectional Nanomodification Enables Hierarchically Structured Mixed Oxide Electrodes for Oxygen Evolution.
 Rong, Q.†; **Du, J. S.**†; Chen, X.; Liu, Q.; Dravid, V. P. (†equal contribution, ‡mentored student)
Small **2021**, *17* (17), 2007287. DOI:10.1002/smll.202007287
 ► Highlighted by Northwestern Engineering News; news reprinted by International Institute for Nanotechnology News.
- [10] Halide Perovskite Nanocrystal Arrays: Multiplexed Synthesis and Size-Dependent Emission.
Du, J. S.†; Shin, D.†; Stanev, T. K.; Musumeci, C.; Xie, Z.; Huang, Z.; Lai, M.; Sun, L.; Zhou, W.; Stern, N. P.; Dravid, V. P.; Mirkin, C. A. (†equal contribution, ‡mentored student)
Science Advances **2020**, *6* (39), eabc4959. DOI:10.1126/sciadv.abc4959
 ► Highlighted by *Nature Electronics*, Perovskite-Info, and Northwestern Engineering News; news reprinted by International Institute for Nanotechnology News.
- [11] Colloidal Crystal “Alloys.”
 Wang, S.; **Du, J. S.**; Diercks, N. J.; Zhou, W.; Roth, E. W.; Dravid, V. P.; Mirkin, C. A.
Journal of the American Chemical Society **2019**, *141* (51), 20443–20450. DOI:10.1021/jacs.9b11109
- [12] Particle Analogs of Electrons in Colloidal Crystals.
 Girard, M.†; Wang, S.†; **Du, J. S.**†; Das, A.†; Huang, Z.; Dravid, V. P.; Lee, B.; Mirkin, C. A. Olvera de la Cruz, M. (†equal contribution)
Science **2019**, *364* (6446), 1174–1178. DOI:10.1126/science.aaw8237
 ► Highlighted by *MRS Bulletin*, *Quanta Magazine*, *The Economist* Espresso, Mashable India, Northwestern Now, and Argonne National Laboratory Press Release; news reprinted by PHYS.ORG, Advanced Photon Source Science Highlights, *Civil + Structural Engineer*, Nanowerk News, etc.
- [13] Interface and Heterostructure Design in Polyelemental Nanoparticles.
 Chen, P.-C.; Liu, M.; **Du, J. S.**; Meckes, B.; Wang, S.; Lin, H.; Dravid, V. P.; Wolverson, C.; Mirkin, C. A.
Science **2019**, *363* (6430), 959–964. DOI:10.1126/science.aav4302
 ► Highlighted by *Nano Today* and Northwestern Now; news reprinted by *Materials Today* News, PHYS.ORG, ScienceDaily, Nanowerk News, etc.
- [14] Windowless Observation of Evaporation-Induced Coarsening of Au-Pt Nanoparticles in Polymer Nanoreactors.
Du, J. S.; Chen, P.-C.; Meckes, B.; Kluender, E. J.; Xie, Z.; Dravid, V. P.; Mirkin, C. A.
Journal of the American Chemical Society **2018**, *140* (23), 7213–7221. DOI:10.1021/jacs.8b03105
 ► Highlighted by International Institute for Nanotechnology News.
- [15] Multi-Stage Transformation and Lattice Fluctuation at AgCl-Ag Interface.
Du, J. S.; Park, J.; Kim, Q.; Jhe, W.; Dravid, V. P.; Yang, D.; Weitz, D. A.
The Journal of Physical Chemistry Letters **2017**, *8* (23), 5853–5860. DOI:10.1021/acs.jpcclett.7b02875
- [16] The Structural Evolution of Three-Component Nanoparticles in Polymer Nanoreactors.
 Chen, P.-C.; **Du, J. S.**; Meckes, B.; Huang, L.; Xie, Z.; Hedrick, J. L.; Dravid, V. P.; Mirkin, C. A.
Journal of the American Chemical Society **2017**, *139* (29), 9876–9884. DOI:10.1021/jacs.7b03163

- [17] The Structural Fate of Individual Multicomponent Metal-Oxide Nanoparticles in Polymer Nanoreactors. **Du, J. S.**[†]; Chen, P.-C.[†]; Meckes, B.; Xie, Z.; Zhu, J.; Liu, Y.; Dravid, V. P.; Mirkin, C. A. (†equal contribution) *Angewandte Chemie International Edition* **2017**, *56* (26), 7625–7629. DOI:10.1002/anie.201703296
- [18] Embedding Ultrafine Pt Nanoparticles at Ceria Surface for Enhanced Thermal Stability. **Du, J. S.**[†]; Bian, T.[†]; Yu, J.; Jiang, Y.; Wang, X.; Yan, Y.; Li, Y.; Jin, C.; Zhang, H.; Yang, D. (†equal contribution) *Advanced Science* **2017**, *4* (9), 1700056. DOI:10.1002/advs.201700056
- [19] Developing an Aqueous Approach for Synthesizing Au and M@Au (M = Pd, CuPt) Hybrid Nanostars with Plasmonic Properties. **Du, J.**; Yu, J.; Xiong, Y.; Lin, Z.; Zhang, H.; Yang, D. *Physical Chemistry Chemical Physics* **2015**, *17* (2), 1265–1272. DOI:10.1039/C4CP04757E

Other Contributions

- [20] From Heterostructures to Solid-Solutions: Structural Tunability in Mixed Halide Perovskites. Shin, D.[‡]; Lai, M.[†]; Shin, Y.; **Du, J. S.**; Jibril, L.; Rondinelli, J. M.; Mirkin, C. A. (†equal contribution, ‡mentored student) *Advanced Materials* **2023**, *35* (11), 2205923. DOI:10.1002/adma.202205923
- [21] Site-Isolated Upconversion Nanoparticle Arrays Synthesized in Polyol Nanoreactors. Xu, D. D.[‡]; Wahl, C. B.[‡]; **Du, J. S.**; Irgen-Gioro, S.; Weiss, E. A.; Mirkin, C. A. (‡mentored student) *The Journal of Physical Chemistry C* **2021**, *125* (47), 26125–26131. DOI:10.1021/acs.jpcc.1c08562
- [22] Position- and Orientation-Controlled Growth of Wulff-Shaped Colloidal Crystals Engineered with DNA. Sun, L.; Lin, H.; Li, Y.; Zhou, W.; **Du, J. S.**; Mirkin, C. A. *Advanced Materials* **2020**, *32* (47), 2005316. DOI:10.1002/adma.202005316
- [23] Chain-End Functionalized Polymers for the Controlled Synthesis of Sub-2 nm Particles. Chen, P.-C.; Liu, Y.; **Du, J. S.**; Meckes, B.; Dravid, V. P.; Mirkin, C. A. *Journal of the American Chemical Society* **2020**, *142* (16), 7350–7355. DOI:10.1021/jacs.0c02244
- [24] Light-Responsive Colloidal Crystals Engineered with DNA. Zhu, J.; Lin, H.; Kim, Y.; Yang, M.; Skakuj, K.; **Du, J. S.**; Lee, B.; Schatz, G. C.; Van Duyne, R. P.; Mirkin, C. A. *Advanced Materials* **2020**, *32* (8), 1906600. DOI:10.1002/adma.201906600
- [25] Catalyst Discovery Through Megalibraries of Nanomaterials. Kluender, E. J.[†]; Hedrick, J. L.[†]; Brown, K. A.; Rao, R.; Meckes, B.; **Du, J. S.**; Moreau, L. M.; Maruyama, B.; Mirkin, C. A. (†equal contribution) *Proceedings of the National Academy of Sciences of the United States of America* **2019**, *116* (1), 40–45. DOI:10.1073/pnas.1815358116
 ► Highlighted by *Science News*, *Nature Review Chemistry*, and *Northwestern Now*; news reprinted by PHYS.ORG, Nanowerk News, etc.
- [26] Solution-Phase Photochemical Nanopatterning Enabled by High-Refractive-Index Beam Pen Arrays. Xie, Z.[†]; Gordiichuk, P.[†]; Lin, Q.-Y.; Meckes, B.; Chen, P.-C.; Sun, L.; **Du, J. S.**; Zhu, J.; Liu, Y.; Dravid, V. P.; Mirkin, C. A. (†equal contribution) *ACS Nano* **2017**, *11* (8), 8231–8241. DOI:10.1021/acsnano.7b03282
 ► Highlighted by *ACS Nano* **2017**, *11* (9), 8537.
- [27] Kinetically-Controlled Growth of Cubic and Octahedral Rh-Pd Alloy Oxygen Reduction Electrocatalysts with High Activity and Durability. Yan, Y.[†]; Zhan, F.[†]; **Du, J.**; Jiang, Y.; Jin, C.; Fu, M.; Zhang, H.; Yang, D. (†equal contribution) *Nanoscale* **2015**, *7* (1), 301–307. DOI:10.1039/c4nr04942j

- [28] Facile Synthesis of High-Quality Pt Nanostructures with Controlled Aspect-Ratio for Methanol Electro-Oxidation.
Li, Y.; Bian, T.; **Du, J.**; Xiong, Y.; Zhan, F.; Zhang, H.; Yang, D.
CrystEngComm **2014**, *16* (36), 8340–8343. DOI:10.1039/c4ce00713a
- [29] Langmuir Isotherm in Solution Adsorption Experiment.
Du, J.
Research and Exploration in Laboratory **2014**, *33* (10), 207–210. DOI:10.3969/j.issn.1006-7167.2014.10.049
- [30] A Design of a Remote-Control Telescope System for High-School Students.
Du, J.; Liu, Y.; Fu, S.; Lin, L.
Astronomical Research & Technology **2013**, *10* (2), 194–200. DOI:10.3969/j.issn.1672-7673.2013.02.014
► Featured on the Front Cover.

PATENTS AND DISCLOSURES

- [1] Structurally Modified Nanosheets of Metal Oxides and Related Methods.
US17/155,180. U.S. Patent Application. Publication No. US 2021/230753
- [2] Halide Perovskite Nanocrystal Array and Its Preparation.
PCT/US2020/063324. International Patent Application (PCT). Publication No. WO 2021/188168
- [3] Polymer-Assisted Synthesis of Ultrasmall Nanoparticles.
US16/832,453. U.S. Patent Application. Publication No. US 2020/0310248
- [4] Device and Method for Fluid Flow Rate Measurement.
CN201310001989.3. China Patent. Publication No. CN 103063868

INVITED TALKS

- [1] Nanoscale Defects and Melting Behaviors of Ice Revealed at Atomic Resolution.
Gordon Research Seminar: Crystal Growth and Assembly. June 17th–18th, 2023. Manchester, NH.
- [2] Discovering and Deciphering Bimetallic Nanocrystal Structures from a Library-on-a-Chip.
Ryan Fellows Reunion Symposium. September 9th, 2022. Evanston, IL.
- [3] From Making Crystals to Seeing Crystal Evolution: Developing New Imaging Capabilities to Understand Molecular Icing.
Pacific Northwest National Laboratory Linus Pauling Seminar. February 24th, 2021. Online.
- [4] Halide Perovskite Nanocrystal Arrays: Multiplexed Synthesis and Size-Dependent Emission.
SPIE-MRSEC Student Seminar Series. August 4th, 2020. Online.
- [5] Accelerating Complex Nanomaterial Discovery Using a Combinatorial Library Approach.
43rd International Precious Metals Institute Annual Conference. June 15th–18th, 2019. Reno, NV.
- [6] Classical Electron Equivalent Nanoparticles in Metal-like Colloidal Crystals.
36th John E. Hilliard Symposium, Northwestern University. May 16th, 2019. Evanston, IL.

CONTRIBUTED PRESENTATIONS

- [1] Nanoscale Defects and Melting Behaviors of Ice Revealed at Atomic Resolution.
Du, J. S.; De Yoreo, J. J.
Gordon Research Conference: Crystal Growth and Assembly. June 18th–23rd, 2023. Manchester, NH. (Poster)
- [2] Revealing the Flexibility of Hydrogen Bond Networks in Hexagonal Ice by Frozen Liquid-Cell Electron Microscopy.
Du, J. S.; De Yoreo, J. J.
American Physical Society March Meeting 2023. March 5th–10th, 2023. Las Vegas, NV. (Oral talk)
► Focus session speaker. APS DCP New Investigator Travel Award.
- [3] Modulation of Atom Stacking Hierarchy Leads to New Intermetallic Nanocrystal Structures.
Du, J. S.; Dravid, V. P.; Mirkin, C. A.
American Physical Society March Meeting 2023. March 5th–10th, 2023. Las Vegas, NV. (Poster)

- [4] Revealing the Flexibility of Hydrogen Bond Networks in Hexagonal Ice by Frozen Liquid Cell.
Du, J. S.; De Yoreo, J. J.
Gordon Research Seminar: Liquid Phase Electron Microscopy. October 8th–9th, 2022. Ventura, CA. (Poster)
Gordon Research Conference: Liquid Phase Electron Microscopy. October 9th–14th, 2022. Ventura, CA. (Poster)
- [5] Elucidating the Plasmonic Modes in Metal Nanojunctions with Nanoparticle Libraries.
Du, J. S.; Cherqui, C.; Schatz, G. C.; Dravid, V. P.; Mirkin, C. A.
2021 Materials Research Society Spring Meeting. April 18th–23rd, 2021. Online. (Oral talk)
- [6] Multiplexed Nanocrystal Arrays of Halide Perovskites.
Du, J. S.; Shin, D.; Dravid, V. P.; Mirkin, C. A.
2021 Materials Research Society Spring Meeting. April 18th–23rd, 2021. Online. (Oral talk)
- [7] Microscopy-Based Approaches to Characterizing Analogs of Classical Electrons in Colloidal Crystals Engineered with DNA.
Du, J. S.; Wang, S.; Dravid, V. P.; Mirkin, C. A.
Microscopy & Microanalysis 2020. August 3rd–7th, 2020. Online. (Oral talk)
 Proceedings paper: *Microscopy and Microanalysis 2020*, 26 (S2), 2016–2019.
 DOI:10.1017/S1431927620020152
- [8] Hierarchically Structured Mixed Oxide Electrodes for Oxygen Evolution Reaction: A Multimodal Electron Microscopy Study.
Du, J. S.; Rong, Q.; Chen, X.; Liu, Q.; Dravid, V. P.
Microscopy & Microanalysis 2020. August 3rd–7th, 2020. Online. (Oral talk)
 Proceedings paper: *Microscopy and Microanalysis 2020*, 26 (S2), 618–620.
 DOI:10.1017/S1431927620015305
- [9] Polymer Nanoreactor Approach for Combinatorial Investigation of Complex Nanoparticles.
Du, J. S.; Dravid, V. P.; Mirkin, C. A.
Gordon Research Seminar: Crystal Growth and Assembly, June 22nd–23rd, 2019. Manchester, NH. (Poster)
Gordon Research Conference: Crystal Growth and Assembly, June 23rd–28th, 2019. Manchester, NH. (Poster)
- [10] Attoliter Polymer Reactors as Combinatorial Tools for Understanding Alloy Nanocrystal Structure–Function Relationship.
Du, J. S.; Dravid, V. P.; Mirkin, C. A.
American Chemical Society Spring 2019 National Meeting, March 31st–April 4th, 2019. Orlando, FL (Oral talk)
- [11] Site-Specific Polymer Nanoreactors for Studying Complex Nanoparticles Using Correlative Electron Microscopy.
Du, J. S.; Chen, P.-C.; Dravid, V. P.; Mirkin, C. A.
2018 Materials Research Society Spring Meeting, April 2nd–6th, 2018. Phoenix, AZ. (Oral talk)
- [12] Using STEM to Probe the in-situ Dynamics of Multimetallic Nanoparticles Grown in Polymer Nanoreactors.
Du, J. S.; Chen, P.-C.; Dravid, V. P.; Mirkin, C. A.
Microscopy & Microanalysis 2017, August 6th–10th, 2017. St. Louis, MO. (Oral talk)
 Proceedings paper: *Microscopy and Microanalysis 2017*, 23 (S1), 872–873.
 DOI:10.1017/S1431927617005025
- [13] Multi-Stage Transformation and Lattice Fluctuation at AgCl-Ag Nanoparticle Interface.
Du, J. S.; Park, J.; Kim, Q.; Dravid, V. P.; Yang, D.; Weitz, D. A.
253rd American Chemical Society National Meeting, April 2nd–6th, 2017. San Francisco, CA. (Oral talk)
- [14] Surface-Embedded Pt/CeO₂ Hybrid Nanostructure with High Catalytic Activity and Thermal Stability.
Du, J.; Yu, J.[§]; Bian, T.; Jiang, Y.; Zhang, H.; Yang, D. (§replacement speaker)
7th National Meeting of Undergraduate Innovation and Entrepreneurship, October 18th–19th, 2014.

Xi'an, China. (Oral talk)

► Outstanding Paper Award. Highlighted by Zhejiang University Undergraduate School News.

[15] Controlled Synthesis of Au and M@Au Nanostars and Their LSPR Properties.

Du, J.; Zhang, H.; Yang, D.

Graduate Joint Forum on Technologies & Sensors, Cyrus Tang Center for Sensor Materials and Applications, Zhejiang University, June 13th, 2014. Hangzhou, China. (Poster)

**OTHER PUBLIC
ENGAGEMENT**

Popular Science and Education Writings

“Design and Implementation of Quantitative Astronomical Experiments for High School Students.”

China Science and Technology Education **2011** (11), 27–29.

“What Can High-School Students Do During a Total Solar Eclipse?” *Amateur Astronomer* **2010** (4), 72–73.

“Demonstration of Kepler’s Third Law by Tracing Galilean Moons.” *Physics Bulletin* **2010** (6), 20–24.

“A Guide to Solar-System Planet Observation.” *Science in 24 Hours* **2009** (7–8), 13–15.

“Let’s Try to Validate the Gravitational Lens Effect in General Relativity.” *Science in 24 Hours* **2009** (7–8), 16–17.

“Connecting Earth and Sky.” *Chinese National Astronomy* **2009** (7), 110.

“Observing the Beautiful Saturn.” *Science in 24 Hours* **2009** (6), 38–39.

General Public Talks

“Seeing Atoms and Chemical Bonds: How Far Has Modern Microscopy Reached?” *Hangzhou High School Astronomical Observatory 20th Anniversary Lectures*. January 30th, 2023. Online.

Featured Science Art

“A Bear Frozen in Its Midnight Dream.” False-colored cryogenic electron microscopy. A winner image of the 2019 NUANCE Image Contest; nominated to the 2019 NNCI Image Contest.

“Prominence.” An H- α narrow-band image of the sun. Published in *Hangzhou Daily*, March 19th, 2010, p B3.

**IMPORTANT
COMPETITION
RESULTS**

- 2015 Outstanding Winner, Zhejiang University Challenge Cup Undergraduate Academic Research Contest
Report Title: Platinum-Based Nanostructures with High Catalytic Activity and Thermal Stability
- 2014 Meritorious Winner, Interdisciplinary Contest in Modeling (MCM/ICM, COMAP)
Report Title: Bibliometrics, Biosystem, Better Choice: The Interdisciplinary Analysis of Network Influence
- 2013 First Prize, Kuang-Chi Metamaterials Mathematical Modeling Contest
Report Title: Microstructural Effect on the Electromagnetic Responses of Metamaterials
- 2010 First Prize, Chinese Adolescents Science and Technology Innovation Contest (CASTIC)
Report Title: Design and Implementation of Quantitative Astronomical Experiments for High School Students