OLEG GANG
Curriculum Vitae

Professor, Department of Chemical Engineering, and Department of Applied Physics and Applied Mathematics
Columbia University
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A. Research Interests

- Soft Matter
- Nanoscale and Molecular Self-Assembly Phenomena
- Nano-Materials Fabrications and Properties
- Applications of X-ray scattering to soft materials and interfaces
- Biological and optical applications of nanoscale materials

B. Education and professional preparation

1994 M.Sc. in Physics, Bar-Ilan University, Israel
Thesis "Satellites and hyper-satellites in x-ray spectra of transition metals", Adviser Prof. M. Deutsch

2000 Ph.D. in Physics with Highest Distinction
Bar-Ilan University, Israel
Thesis "Surface Ordering in Chain Molecules", Adviser Prof. M. Deutsch

1999-2002 Postdoctoral Research Associate, Division of Applies Sciences and Engineering, Harvard University, Cambridge, MA
Developed the novel methodology to study the behavior of liquids and wetting phenomena at nanoscales. Adviser Prof. P. Pershan

C. All academic and non-academic positions

2016-present	Full Professor, Department of Chemical Engineering, Columbia University, NY
2016-present	Full Professor, Department of Applied Physics and Applied Mathematics, Columbia University, NY
2008- present	Leader, Soft Matter and Biomaterials Theme, and Materials Synthesis and Characterization Facility, Center for Functional Nanomaterials at Brookhaven National Laboratory
2011- present	Scientist with continuous appointment, Center for Functional Nanomaterials, Brookhaven National Laboratory
2009- 2011	Scientist, Center for Functional Nanomaterials, Brookhaven National Laboratory
2006- 2009	Associate Scientist, Center for Functional Nanomaterials, Brookhaven National Laboratory
2004- 2005	Assistant Scientist, Center for Functional Nanomaterials and Physics Department, Brookhaven National Laboratory
2002- 2004	Goldhaber Fellow, Physics Department, Brookhaven National Laboratory, Upton, NY

1999- 2002	Postdoctoral Research Associate, Division of Applied Sciences and Engineering, Harvard University, Cambridge, MA
1994-1999	Ph.D. Research Assistant, Bar-Ilan University, Israel
1992- 1994	M.Sc. Research Assistant, Bar-Ilan University, Israel
1988-1990	B.Sc. student, specialization in theoretical solid state physics, Chernivtsi National University, Ukraine

D.Teaching and mentoring experience

1. Courses taught

at Columbia University: Graduate level Soft Matter Physics, Topics in X-ray Scattering
at Yale University and at Stony Brook University: Topics in X-ray Scattering
at Bar-Ilan University: Undergraduate level laboratory courses Optics, Condensed Matter physics and Atomic physics

2. Adviser for students and postdoctoral fellows, PhD committee participation

Ph. D. thesis advisor for the following students, (graduation year) and the first positions after graduation are shown

- Ashley Shay (currently)
- Daniel Redeker (currently)
- Eric Shen (currently)
- Katerina Rose DeOlivares (currently)
- Gloria Lee(currently)
- Alexia Yu (currently)
- Crystal Lee (currently)
- Manuela Campos (currently)
- David Gabriel Schauer (currently)

- Cheng Chi (2013), Technical Staff member at IBM
  PhD Thesis "Assembly and Properties of DNA Programmable Nanoclusters"
  Chemistry Department, SUNY at Stony Brook
- Ye Tian (2015), Professor, Nanjing University
  PhD Thesis "DNA-programmable Nano-systems: Design, Reconfiguration and Optical Properties", Chemistry Department, SUNY at Stony Brook
- Yan Xiong (2022), postdoctoral fellow at Johns Hopkins University
- Aaron Michelson (2022), staff scientist at Brookhaven National Lab
- Brian Minevich (2024)
- Dan McKeen (2025)
- Daphne Shen (2025)

M.Sc. advisor for:

- James Huang (2019) M.Sc., Department of Applied Physics and Applied Mathematics Columbia University
- Shuting Xiang (2019) M.Sc., Department of Chemical Engineering, Columbia University
- Wenxuan Lian (2015) M.Sc. Thesis "Light-driven Nanoscale Assembly, Material Science

Department, SUNY at Stony Brook
- Kelly Neer (2013); M.Sc. Thesis "Plasmonic clusters by self-assembly", Chemistry Department, SUNY at Stony Brook
- Guangnan Hu (2012); M.Sc. Thesis "DNA-PNA constructs for directed nanoparticle assembly", Chemistry Department, SUNY at Stony Brook

Postdoctoral advisor for the following fellows, (year completed) and the first positions after the postdoc are shown

- Zohar Arnon (currently)
- Elad Arad (currently)
- Mingxin He (currently)
- Changan Li (currently)
- Hanbi Ji (currently)
- Feiyue Teng, Scientist (2024), Waters Corporation
- Shih-Ting (Christine), (2022) Wang, Professor, Northwestern University
- Honghu Zhang (2023), Staff scientist, Brookhaven National Laboratory
- Guolong Zhu (2023), Professor at Fairleigh Dickinson University
- Jason Kahn (2019) Staff scientist, Brookhaven National Laboratory
- Zhiwei Lin (2019) Scientist, NIST
- Cheng Tian (2017) Scientist at Pharmaceutical company
- Ye Tian (2017) Prof. at Nanjing University
- Kumara Mudalige, co-advised with B. Sherman (2012), Scientist at US FDA
- Yugang Zhang (2015), Beamline scientist at NSLS II, Brookhaven National Laboratory
- Suchetan Pal (2015), Research fellow at Memorial Sloan Kettering Cancer Center
- Wenyan Liu (2016), Researcher at the Missouri University of Science and Technology
- Sunita Srivastava (2014), Prof. of Physics, ITT, Mumbai, India
- Fang Lu (2013), Staff scientist, BNL, Brookhaven National Laboratory
- Dazhi P. Sun (2013), Prof. of Material Science, South University of Science and Technology of China
- Andrea Stadler, co-advised with D. van der Lelie (2011), Prof. of Chemistry, St. Josef College
- S. K. Li, co-advised with D. van der Lelie (2011), Staff Researcher at Samsung
- Huiming Xiong (2010), Prof. of Material Sciences, Shanghai, Jiao Tong University
- Mathew Maye (2009), Prof. of Chemistry, Syracuse University
- Dmytro Nykypanchuk (2008), Staff scientist, Brookhaven National Laboratory

Adviser to undergraduate students

Advised about 40 undergraduate students who worked at Columbia (since 2016) and BNL (2008-2015) through the DOE Science Undergraduate Laboratory Internship (SULI) program and international students. Students were from Columbia University, SUNY Stony Brook University, MIT, Amherst College, St. Joseph College, Northeastern University, CUNY, and France.

E. Publications

The publication list at [Google Scholar]

Current Publication List [1-197]

1 Kim, H. J., Carbone, M. R., Lu, F., Qu, X. H., Reyes, K., Zhang, H. H., Zhang, L. H., Gang, O. L. & Zhang, Y. G. Autonomous Nanoparticle Synthesis Guided by In Situ Multiscale Structural Characterization. *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY* **148**, 162-174 (2026). https://doi.org:10.1021/jacs.5c03875

2 Zhang, F. & Gang, O. Optical Applications of DNA Nanotechnology. *ACS APPLIED OPTICAL MATERIALS* **3**, 481-482 (2025). https://doi.org:10.1021/acsaom.5c00091

3 Teng, F. Y., Zhang, H. H., Nykypanchuk, D., Li, R. P., Yang, L., Tiwale, N., Xi, Z. Y., Liu, M. Z., He, M. X., Zhang, S. & Gang, O. L. Macroscale-area patterning of three-dimensional DNA-programmable frameworks. *NATURE COMMUNICATIONS* **16** (2025). https://doi.org:10.1038/s41467-025-58422-0

4 Teng, F., Zhang, H., Nykypanchuk, D., Li, R., Yang, L., Tiwale, N., Xi, Z., Liu, M., He, M., Zhang, S. & Gang, O. Macroscale-area patterning of three-dimensional DNA-programmable frameworks. *Nature Communications* **16**, 3238 (2025). https://doi.org:10.1038/s41467-025-58422-0

5 Shen, E. & Gang, O. Capturing the dance of nanoparticles in crystals. *Nature Materials* (2025). https://doi.org:10.1038/s41563-025-02342-3

6 Ren, G. G., Liu, J., Wang, S. T., Zhang, M., Hu, Z., Wu, H. & Gang, O. Effect of Local Heterogeneities on Single-Layer DNA-Directed Protein Lattices Through Non-Averaged Single-Molecule 3D Structure Determination. *Res Sq* (2025). https://doi.org:10.21203/rs.3.rs-6095207/v1

7 Michelson, A. N., Kahn, J. S., McKeen, D., Minevich, B., Redeker, D. C. & Gang, O. Revealing and Engineering Assembly Pathways of 3D DNA Origami Crystals. *ACS Nano* (2025). https://doi.org:10.1021/acsnano.5c09008

8 Michelson, A., Shani, L., Kahn, J. S., Redeker, D. C., Lee, W. I., Deolivares, K. R., Kisslinger, K., Tiwale, N., Yan, H. F., Pattammattel, A., Nam, C. Y., Pribiag, V. S. & Gang, O. L. Scalable fabrication of Chip-integrated 3D-nanostructured electronic devices via DNA-programmable assembly. *Science Advances* **11** (2025). https://doi.org:10.1126/sciadv.adt5620

9 Lu, F., Zhang, Y. G., Zhang, L. H., Su, D., Zhuang, Z. C., Liu, M. Z., Chen, J. G. G. & Gang, O. L. Continuous Encodable Reshaping of Gold Nanocrystals through Facet Modulation. *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY* **147**, 25871-25882 (2025). https://doi.org:10.1021/jacs.5c08014

10 Lu, F., Zhang, Y. G., Dwyer, T., Michelson, A., Moore, T. C., Yan, H. F., Kisslinger, K., Zhang, H. H., Chen, X. B., Glotzer, S. C. & Gang, O. L. Octo-diamond crystal of nanoscale tetrahedra with interchanging chiral motifs. *Nature Materials* **24** (2025). https://doi.org:10.1038/s41563-025-02185-y

11 Lu, F., Zhang, Y., Zhang, L., Su, D., Zhuang, Z., Liu, M., Chen, J. G. & Gang, O. Continuous Encodable Reshaping of Gold Nanocrystals through Facet Modulation. *Journal of the American Chemical Society* **147**, 25871-25882 (2025). https://doi.org:10.1021/jacs.5c08014

12 Lu, F., Zhang, Y., Dwyer, T., Michelson, A., Moore, T. C., Yan, H., Kisslinger, K., Zhang, H., Chen, X., Glotzer, S. C. & Gang, O. Octo-diamond crystal of nanoscale tetrahedra with interchanging chiral motifs. *Nature Materials* (2025). https://doi.org:10.1038/s41563-025-02185-y

13 Kim, H. J., Carbone, M. R., Lu, F., Qu, X., Reyes, K., Zhang, H., Zhang, L., Gang, O. & Zhang, Y. Autonomous Nanoparticle Synthesis Guided by In Situ Multiscale Structural Characterization. *J Am Chem Soc* (2025). https://doi.org:10.1021/jacs.5c03875

14 Kahn, J. S., Redeker, D. C., Michelson, A., Tkachenko, A., Hong, S., Minevich, B. & Gang, O. Arbitrary Design of DNA-Programmable 3D Crystals through Symmetry Mapping. *ACS NANO* **19**, 14795-14807 (2025). https://doi.org:10.1021/acsnano.4c17408

15 Kahn, J. S., Minevich, B., Michelson, A., Emamy, H., Wu, J., Ji, H., Yun, A., Kisslinger, K., Xiang, S., Yu, N., Kumar, S. K. & Gang, O. Encoding hierarchical 3D architecture through inverse design of programmable bonds. *Nature Materials* **24** (2025). https://doi.org:10.1038/s41563-025-02263-1

16 Chmielewska, J. M., Redeker, D. C., Szustakiewicz, P., Arnon, Z., Powala, F., Paterczyk, B., Michelson, A., Gang, O. & Majewski, P. W. Volumetric Shaping of Nanoparticle-DNA Crystals by Light-Induced Milling. *Nano Letters* **25**, 12884-12891 (2025). https://doi.org:10.1021/acs.nanolett.5c02830

17 Chiang, H. T., Kern, N., Wylie, Z. R., Moeez, A., Zhang, H. Q., McKeen, D., Herringer, N. S. M., Gang, O. L., Ferguson, A. L., Sherman, Z. & Pozzo, L. D. Assembly of small silica nanoparticles using lipid-tethered DNA 'bonds'. *SOFT MATTER* **21**, 9398-9411 (2025). https://doi.org:10.1039/d5sm00924c

18 Xiong, Y., Yancey, C., Lee, H. J., Lee, D. G., Helm, E., Kang, B., Grinthal, A., McKeen, D., Gang, O. L. & Schulman, R. Directing Nanoparticle Organization in Response to Diverse Chemical Inputs. *Journal of the American Chemical Society* **146**, 30802-30812 (2024). https://doi.org:10.1021/jacs.4c07259

19 Teng, F., Gang, O. & Freimuth, P. Overexpression of human ACE2 protein in mouse fibroblasts stably transfected with the intact ACE2 gene. *Virology* **592**, 109988 (2024). https://doi.org:https://doi.org/10.1016/j.virol.2024.109988

20 Michelson, A., Subramanian, A., Kisslinger, K., Tiwale, N., Xiang, S., Shen, E., Kahn, J. S., Nykypanchuk, D., Yan, H., Nam, C.-Y. & Gang, O. Three-dimensional nanoscale metal, metal oxide, and semiconductor frameworks through DNA-programmable assembly and templating. *Science Advances* **10**, eadl0604 (2024). https://doi.org:doi:10.1126/sciadv.adl0604

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25 Zhang, Y. & Gang, O. Pair distribution function analysis of nano-object assemblies. *Journal of Applied Crystallography* **56**, 545-557 (2023). https://doi.org:doi:10.1107/S1600576723001784

26 Morozova, S. M., López-Flores, L., Gevorkian, A., Zhang, H., Adibnia, V., Shi, W., Nykypanchuk, D., Statsenko, T. G., Walker, G. C., Gang, O., de la Cruz, M. O. & Kumacheva, E. Colloidal Clusters and Networks Formed by Oppositely Charged Nanoparticles with Varying Stiffnesses. *ACS Nano* **17**, 15012-15024 (2023). https://doi.org:10.1021/acsnano.3c04064

27 Michelson, A., Flanagan, T. J., Lee, S.-W. & Gang, O. High-strength, lightweight nano-architected silica. *Cell Reports Physical Science* **4**, 101475 (2023). https://doi.org:https://doi.org/10.1016/j.xcrp.2023.101475

28 Mao, R., Minevich, B., McKeen, D., Chen, Q., Lu, F., Gang, O. & Mittal, J. Regulating phase behavior of nanoparticle assemblies through engineering of DNA-mediated isotropic interactions. *Proceedings of the National Academy of Sciences* **120**, e2302037120 (2023). https://doi.org:doi:10.1073/pnas.2302037120

29 Logan, J. A., Michelson, A., Pattammattel, A., Yan, H., Gang, O. & Tkachenko, A. V. Symmetry-specific characterization of bond orientation order in DNA-assembled nanoparticle lattices. *The Journal of Chemical Physics* **159** (2023). https://doi.org:10.1063/5.0168604

30 Kahn, J. S., Minevich, B., Michelson, A., Emamy, H., Kisslinger, K., Xiang, S., Kumar, S. K. & Gang, O. Encoding Hierarchical 3D Architecture through Inverse

Design of Programmable Bonds. *ChemRxiv* (2023). https://doi.org:10.26434/chemrxiv-2022-xwbst

31 Chen, C., Wu, Y., Wang, S. T., Berisha, N., Gang, O. & Heller, D. Fragment-based drug nanoaggregation reveals drivers of self-assembly. *BIOPHYSICAL JOURNAL* **122**, 550A-550A (2023).

32 Barbour, A., Cai, Y. Q., Fluerasu, A., Freychet, G., Fukuto, M., Gang, O., Gann, E., Laasch, R., Li, R., Ocko, B. M., Tsai, E. H. R., Wąsik, P., Wiegart, L., Yager, K. G., Yang, L., Zhang, H. & Zhang, Y. X-Ray Scattering for Soft Matter Research at NSLS-II. *Synchrotron Radiation News* **36**, 24-30 (2023). https://doi.org:10.1080/08940886.2023.2207449

33 Adhikari, S., Minevich, B., Redeker, D., Michelson, A. N., Emamy, H., Shen, E., Gang, O. & Kumar, S. K. Controlling the Self-Assembly of DNA Origami Octahedra via Manipulation of Inter-Vertex Interactions. *Journal of the American Chemical Society* **145**, 19578-19587 (2023). https://doi.org:10.1021/jacs.3c03181

34 Xiong, Y., Tsitkov, S., Hess, H., Gang, O. & Zhang, Y. F. Microscale Colocalization of Cascade Enzymes Yields Enhancement. *Acs Nano* **16**, 10383-10391 (2022). https://doi.org:10.1021/acsnano.2c00475

35 Wang, S. T., Zhang, H., Xuan, S., Nykypanchuk, D., Zhang, Y., Freychet, G., Ocko, B. M., Zuckermann, R. N., Todorova, N. & Gang, O. Compact Peptoid Molecular Brushes for Nanoparticle Stabilization. *J Am Chem Soc* **144**, 8138-8152 (2022). https://doi.org:10.1021/jacs.2c00743

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40 Kahn, J. S. & Gang, O. Designer Nanomaterials through Programmable Assembly. *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION* **61** (2022). https://doi.org:10.1002/anie.202105678

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44 Wang, S. T., Minevich, B., Liu, J. F., Zhang, H. H., Nykypanchuk, D., Byrnes, J., Liu, W., Bershadsky, L., Liu, Q., Wang, T., Ren, G. & Gang, O. Designed and biologically active protein lattices. *NATURE COMMUNICATIONS* **12** (2021). https://doi.org:10.1038/s41467-021-23966-4

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55 Xiong, Y., Yang, S. Z., Tian, Y., Michelson, A., Xiang, S. T., Xin, H. L. & Gang, O. Three-Dimensional Patterning of Nanoparticles by Molecular Stamping. *ACS NANO* **14**, 6823-6833 (2020). https://doi.org:10.1021/acsnano.0c00607

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F. Grants and contracts awarded

Current

2026-2029	PI, “Controlling Lattice Organization, Assembly Pathways and Defects in Self-Assembled DNA-Based Nanomaterials”, Department of Energy, Office of Science, $1.45M, my portion $950K, SEAS
2025-2030	PI, “Evolving Materials”, Department of Defense, Vannevar Bush Faculty Fellowship (VBFF), $3M
2025-2028	co-PI, “Lymph node inspired hydrogels for immune cell reprogramming”, NIH
2024-2025	co-PI, Columbia RISE, $50K
2022-2025	PI, “Controlling Lattice Organization, Assembly Pathways and Defects in Self-Assembled DNA-Based Nanomaterials”, Department of Energy, Office of Science, $1.38M
2022-2026	co-PI, “Chemical Synthesis Across Scales”, Department of Energy, Office of Science, Energy Frontier Research Center at the University of Washington, $580M (for Gang group)

2022-2027 PI, “3D Nanomaterial Architectures with Programmable Reconfiguration States and Functions”, DOD MURI, $6.25M

2025-2028 PI, “Multiscale nanomaterial assembly through liquid robotics”, DOE, Brookhaven National Lab, $330K, single PI award, SEAS

2022-2026 co-PI, “Topological Quantum Architectures Through DNA Programmable Molecular Lithography”, Keck Foundation, $1.2M

Completed

1/2024-12/2024 PI, “Enabling novel photonic neuromorphic devices through bridging DNA-programmable assembly and nanofabrication ”, NSF Convergence Accelerator Track M, Phase I, $650K

2020-2022 PI, Technologist in Residence, DOE

2020-2021 PI, Columbia SIRS/STAR award

2020-2021 PI, Columbia, Blavatnik award, SIRS/STAR Award

2019-2022 PI, “Multiscale Light-written Assembly of Nanoscale Materials”, Department of Defense, Army Research Office (co-PI M. Lipson)

2020 – 2022 PI, 3D Organized Nanoscale Reactors, NSF

2019-2022 Co-PI “Controlling Lattice Organization, Assembly Pathways and Defects in Self-Assembled DNA-Based Nanomaterials”, Department of Energy, Office of Science, Biomaterials program (PI S. Kumar)

2016-2019 Co-PI “Towards Fully Designed Nanoparticle Lattices”, Department of Energy, Office of Science, Biomaterials program

2017-2021 PI “Engineered Protein Arrays for Structural and In-Operando Studies “, BNL LDRD, awarded (co-PI H. Xin, Q. Liu)

2017 PI, Columbia SEAS SIRS, “Light-written Assembly of Multiscale Architecture”, (co-PIs M. Lipman and S. Kumar)

2016-2018 PI “By-Design Assembly of Optically Active Nanomaterials”, research sponsored by Northrop Grumman Aerospace Systems

2015-2017 PI “Revealing the Structure and Dynamics of Discrete Meso-Architectures“, BNL LDRD, awarded (co-PI K. Yager)

2012-2016 Co-PI “Nanoscale Building Blocks Designed to Self-Assemble into Desired Nanostructures” Department of Energy, Office of Science (PIs S. Kumar, M. Collins, V.

Venkatasubramanian)

2011-2016 Co-PI "Complex Materials Scattering (CMS)" beamline at the newly built BNL synchrotron NSLS II, Department of Energy, Office of Science, (the list of PIs is available upon request)

2010-2017 Co-PI "Soft Matter Interfaces (SMI)" beamline at the newly built BNL synchrotron NSLS II, Department of Energy, Office of Science, (the list of PIs is available upon request)

2010-2013 Co-PI, 'CLASS': Complex Liquids At Structured Surfaces", Marie Curie Actions, European Commission - Research, (PI Z. Dietrich), travel and workshops organization funds

2005-2011 PI, "Bio-Inspired Programmable Assembling", Principal Investigator, Department of Energy, Office of Science, (co-PI D. van der Lelie)

2009 PI "Transmission Electron Microscopy for 2D and 3D imaging of soft and hybrid materials and clusters", Department of Energy

2009- 2011 Co-PI "Real-time detection of toxicity responses based on dissociation of dimer nano- sensors", (PI D. van der Lelie) Battelle Corporation

2006-2008 PI "Precision Assembly of Nano-Objects", PI, Laboratory Directed Research at Brookhaven National Lab, (Co-PI W. Sherman)

2004-2006 PI "Assembling of Biological and Hybrid Complexes on Surfaces", Principal Investigator, Laboratory Directed Research at BNL, (co-PI P. Freimuth)

2003-2005 Affiliated co-PI on Harvard-MIT-PennState-UMass NSF Nanotechnology and Interdisciplinary Research, "Wetting of Surfaces with Nano-Scale Structures" (PIs P. Pershan, T. Russell, G. McKinley)

1. Patents received and patent applications under review

1. O Gang, Y Tian, JS Kahn, Y Xiong, B Minevich, SK Kumar
   3D-organized nanomaterials through DNA-prescribed and valence-controlled material
   US Patent 12,548,243 (2025)
2. O. Gang, Z. Arnon, F. Teng, C. Lee, Amplifying Biomolecular Sensing Through Acoustically Enhanced Reactions, US Patent submitted
3. Mingzhao Liu , Justine E. Haupt, Connie - Rose Mai Deane, Oleg Gang, Dark-Field Microscopy Imaging Apparatus (US 2022/0365000 A1, 2022)
4. Y. Tian, T. J. Kahn, Vo, B. Minevich, Y. Xiong, S. Kumar, O. Gang. 3D-Organized Nanomaterials through DNA-prescribed and Valence-controlled Material Voxels. (US 2021/0264663, 2021)
5. S. T. Wang, R. Zuckermann, C. Bertozzi, O. Gang, Side-chain modified peptoids useful as structure-stabilizing coatings for DNA origami at different environments and for nanoformulation drug and gene delivery carriers (US 2021/0070886 A1, 2021)

6. O. Gang & S. Pal. Methods for isothermal molecular amplification with nanoparticle-based reactions (US Patent App. 15/983,804, 2018).
7. F. Lu, O. Gang, Y. Zhang, Z. Yu, W. Jia, "Truncated Ditetragonal Gold Prisms as Nano-Facet Activators of Catalytic Platinum", U.S. Patent Application Publication No. 2014/0106258, 2014
8. M. Maye, D. Nykypanchuk, D. van der Lelie, O.Gang "DNA-Guided nanoparticle assemblies," International patent WO 2008/127281 A3
9. O. Gang, M. Maye, D. Nykypanchuk, D. van der Lelie "Nanoscale clusters and methods of making same", US patent 2009/ 0258355 A1
10. S.-K. Lee, D. van der Lelie, O. Gang, "Controllable Assembly and Disassembly of Nanoparticle Systems via Protein and DNA Agents" [BNL 08-05] (2008)
11. O. Gang, M. Maye, D. Nykypanchuk, D. van der Lelie "Nanoscale clusters and methods of making same", US patent 2009/ 0258355 A1
12. W. Sherman, T. K. Mudalige, O. Gang "Zwitterion-DNA Coatings for Nano-Objects in Solutions of Multivalent Counterions" (provisional application, 2009)
13. O. Gang and D. van der Lelie "Arbitrary assembly of nano-objects into designed 1D and 2D arrays" (provisional application, 2010)
14. Y. Zhang, F. Lu, D. van der Lelie, O. Gang "A general strategy for bio-programmable crystallization of multi-component functional nanoparticle systems" (provisional application, 2011)
15. O. Gang, F. Lu, M. Tagawa, "Rational Assembly of Nanoparticle Superlattices with Designed Lattice Symmetries" (Patent application WO2013109880 A1)
16. F. Lu, O. Gang, Y. Tian "Giant Amplification of Circular Dichroism Signal of Chiral Molecules Using Nanoscale Cubes" (provisional application, 2013)

H. Honors, prizes and fellowships, including those received as a student

2025	Department of Defense, Vannevar Bush Faculty Fellow
2023	Plenary Speaker, IEEE Nanotechnology Conference, Jeju, South Korea, July, 2023
2019	Invited Visiting Professor, University of Bordeaux, Paul Pascal Research Center
2018	Plenary Lecture, International Conference on Organized Molecular Films, New York, NY, August, 2018
2016	Inventor of the Year, Battelle Award
2016	Work included in the top 10 Scientific Advances of 2016 at Brookhaven National Laboratory
2015	Opening Plenary Lecture at Macromolecular Nano-objects and Polymer Nano-composites Conference, Moscow, Russia
2015	Work included in the top 10 Scientific Advances of 2015 at Brookhaven National Laboratory
2014	Fellow, American Physical Society
2014	Plenary Lecture at the Liquids 2014 Conference, Lisbon, Portugal
2013	TechConnect National Innovation Award
2013	Visiting Professor, University of Rennes, France
2011	Science and Technology Award for Outstanding Achievements, Brookhaven National Laboratory
2011	Lange Lecturer in Materials, University of California at Santa Barbara
2010	Gordon Battelle Prize for Scientific Discovery
2010	Work included in the top 10 Scientific Advances of 2016 at Brookhaven National

	Laboratory
2009	US Department of Energy Outstanding Mentor Award
2008	Paper included in the *Nature* 2008 list of 'favorite' published manuscripts
2002	Goldhaber Distinguished Fellowship, Brookhaven National Laboratory
2000	Rothschild Foundation Distinguished Fellowship (the most prestigious Israeli postdoctorate fellowship, several are awarded per year)
2000	Ph.D. thesis with a highest distinction (Summa Cum Laude)
1998	University Presidential Award, Bar-Ilan University
1997	Wolf Foundation Scholarship for outstanding Ph.D. research
1994	University Distinction Award, Bar-Ilan University

I. Plenary and Invited talks at other university and research organizations and at the meetings of disciplinary associations

1. ACS Spring Meeting, Session "Hybrid Functional Materials of Polymers and Inorganic Nanoparticles", "Rational Assembly of 3D Functional Nanomaterials", Atlanta, March 24, 2026
2. ACS Spring Meeting, Session "Nanoparticle Materials", "Inverse Design of 3D DNA-Programmable Nanomaterials", Atlanta, March 22, 2026
3. FNANO Conference, "Architecting 3D Nanoscale Matter and Its Transformations", Munich, Germany, March 16-19, 2026
4. VBFF Spring Meeting, "Evolving Materials", Boston, March 10–12, 2026
5. DEMOCRitus Workshop, "Towards 3D Nanofabrication through Programmable Self-Assembly", Washington, DC, February 19-20, 2026
6. University of Toronto Seminar, "Teaching Matter to Organize, Learn, and Evolve", Toronto, January 12, 2026
7. Materials Science Colloquium, University of Texas at Austin, November 12, 2025
8. Nanomaterials Colloquium, Center for Nanomedicine, Yonsei University, Seoul, South Korea, September 18, 2025
9. Chemical Engineering Seminar, Postech, Pohang, South Korea, September 15, 2025
10. ICAM Frustrated Assemblies Workshop, "Programming nanoscale structure, topology, and frustration*",* University of Michigan, July 21-25, 2025
11. IEEE Nano 2025, SpS21 - Three-dimensional Nanoarchitectures and Nanocomplexes, "DNA-Directed 3D Nanomaterial Fabrication", Washington, DC, July 15, 2025
12. The Department of Energy 2025 EFRC-Hub-CMS-CCS Principal Investigators' Meeting "Controlling multiscale morphology of nanoscale self-assemblies with molecular clues and external fields", August 11-12, 2025, Bethesda, MD
13. Gordon Research Conference, Physical Organic Chemistry, "Programming Nanomaterials Assembly and Transformations with Addressable Bonds", Holderness School in Holderness, New Hampshire, United States, June 22-27, 2025
14. MOSAIC Workshop, Center for Chemical Innovation, University of Chicago, June 2-4. 2025
15. Colloid and Interface Symposium (COINS) 2025, June 10–13, 2025, Bordeaux, France
16. Workshop on Origin of Life and Self-Organized Complexity, Chicago, May 19–23, 2025, Chicago, IL, "Directing the Will of Matter"
17. Gordon Research Conference, Self-Assembly and Supramolecular Chemistry, May 11-16, 2025, Les Diablerets, Vaud, Switzerland, "Programming Nanomaterial Assembly and Transformations"
18. MRS Spring Meeting 2025, Seattle, WA, "Inverse Design of 3D DNA-Assembled Lattices and Their Transformations"

19. MRS Spring Meeting 2025, Seattle, WA, “Integrated 3D Nanomaterial Fabrication through DNA-directed Self-Assembly, Templating and Surface Growth”
20. APS Spring 2025, Session MAR-A61: Equilibrium Self-Assembly, “Programming Structure and Transformation of Nanoscale Materials”, Anaheim, CA
21. Draper Laboratory Seminar, November 18, 2024, “Programmable Nanomaterials”
22. MRS Fall Meeting 2024, Boston, Symposium NM06: Emerging Trends in Nano- and Micro-structured Bioinspired Materials, “Nanoscale Materials with Programmable and Reconfigurable States”
23. MRS Fall Meeting 2024, Boston, Symposium NM07: Building Advanced Materials via Aggregation and Self-assembly, “3D Functional Nanomaterials through DNA-Programmable Assembly”
24. Chemical & Biological Engineering Colloquium, Iowa State University, November 14, 2024, “Programming Structure and Transformation of Nanoscale Materials”
25. Yonsei University, IBS Center for Nanomedicine, Department of Nano Biomedical Engineering Colloquium, Seoul, South Korea, September 30, 2024, “Programming Assembly and Transformation of Nanoscale Materials”
26. Ewha Womans University, Chemistry Department Colloquium, Seoul, South Korea, October 4, 2024, “Programming Assembly and Transformation of Nanoscale Materials”
27. International Conference on Soft Matter, Raleigh, North Carolina, July 29 - August 2, 2024, “Programming Self-assembly and Transformations of Nanoscale Systems”
28. DOE Biomolecular Materials PIs Meeting, Washington, DC, July 30-Augus 1, 2024, “Controlling Lattice Organization, Assembly Pathways and Defects in Self-Assembled DNA-Based Nanomaterials”
29. DOD MURI Workshop, Washington, DC, July 9-11, 2024, “3D Nanomaterial Architectures with Programmable Reconfiguration States and Functions”
30. Workshop on "AI and automation in biomolecular science” at Advanced Science Research Center, CUNY, June 14, “DNA-programmable Nanomaterials Self-Assembly”
31. NSF Workshop on Assemblies of Nanomaterials, Chicago, June 10-11, 2024, “New Horizons & Challenges in Characterization of Nanoparticle Assemblies”
32. NSLSII-CFN User meeting, Brookhaven National Lab, May 17, 2024 “DNA-Programmable Assembly of Chiral and Achiral Nanomaterials”
33. University of Michigan at Ann Arbor, Department of Chemical Engineering, Jun 25, 2024 “DNA-Programmable Assembly of Nanoscale Materials”
34. University of Connecticut, Materials Science Colloquium, April 4, 2024 “DNA-Programmable Assembly of Nanoscale Materials”
35. Cornell University, Materials Science Colloquium, April 25, 2024 “DNA-Programmable Assembly of Nanoscale Materials”
36. ACS Spring Meeting 2024, Symposiums “Colloidal and Soft Metameterials” and “ACS Award in Polymer Chemistry in Honor of Eugenia Kumacheva”, New Orleans, March 17-19, 2024
37. University of Massachusetts at Amherst, Polymer Science Colloquium, March 29, 2024
38. 2024 Middle Atlantic Regional Meeting, “Advancing and Designing Polymer Materials through Chemistry and Engineering” symposium, June 6, 2024
39. MRS Fall Meeting 2023, Symposium: Colloidal Particle Assembly, Boston, November 29, 2023
40. University of Wisconsin-Madison, Chemical Engineering, Colloquium, October 31, 2023
41. University of Minnesota, Physics Colloquium, October 18, 2023
42. ACS Nanoscience sub-division’s “Table Talks”, a webinar at the Division of Inorganic Chemistry (ACS), September 20, 2023, virtual

43. ACS Fall Meeting, Symposium: Hybrid Functional Materials of Polymers for Inorganic Nanoparticles, San Francisco, Aug 13-18, 2023: Programmable Assembly of Organized Nanomaterials
44. First Experiments Workshop, Argonne National Lab, August 3, 2023: Designed 3D Nanomaterials through Programmable Self-Assembly
45. IEEE-NANO Conference, Jeju, South Korea, July 2-5, 2023: Designed Nanoscale Materials through DNA-Programmable Assembly
46. IBS Center for Nanomedicine, Yonsei University, Seoul, South Korea, July 7, 2023: Designed Nanoscale Materials through DNA-Programmable Assembly
47. Colloid and Interface Symposium, Philadelphia, June 27, 2023: Programming Nanoscale Assembly and Transformations
48. KITP workshop on Nanoparticle Assemblies, UC Santa Barbara, CA, May 17, 2023: Nanoscale Materials with Programmable Architectures and Transformation States, and Enabled Functions
49. 8th International Rendez-vous Summer event 20-22 June 2023, Nice, France: Designed Self-Assembled Nanomaterials
50. Northrop Grumman-BNL Workshop III, Los-Angeles, CA, May 8, 2023: 3D Nanoscale Self-Assembly and Characterization
51. MRS Spring Meeting 2023, San Francisco, April 10, 2023: Desirable Nanomaterials through Programmable Assembly and Prescribed Transformations
52. ACS Spring Meeting, March 26, 2023, Indianapolis, IN, Programming Assembly and Transformation of Nanoscale Materials
53. New York University Soft Matter Seminar, March 29, 2023: Programming Assembly and Transformation of Nanoscale Materials
54. Department of Chemical and Biomolecular Engineering Seminar, Johns Hopkins University, February 14, 2023: DNA-Programmable Materials
55. 18th Northeast Complex Fluids and Soft Matter Workshop (NCS18): *From Futuristic Materials to Biotechnology*, Columbia University, January 13, 2023: Encoding Assembly and Functions of Nanoscale Architectures
56. Chemistry Department, Rutgers University, January 27, 2023: Programming Assembly and Transformation of Nanoscale Materials
57. New York University, Nadrian Seeman Memorial Symposium, December 9, 2022: Encoding Assembly and Functions of Nanoscale Architectures
58. Institut für Physikalische Chemie, Universität Hamburg, December 5, 2022:

Programming Assembly and Transformation of Nanoscale Materials

59. MRS Fall Meeting, Boston, November 28, 2022: Encoding Assembly, Transformations and Functions of Nanoscale Architectures
60. 9th Biomaterials Days Meeting (Virtual), November 17, 2022, Boğaziçi University, Turkey: Programmable Assembly of Nanoscale Materials
61. DEVCOM Soldier Center, Natick, MA, November 10, 2022 (Virtual) seminar: Programming Assembly and Transformation of Nanoscale Materials
62. Material Initiative Seminar, Duke University, October 26, 2022: Programming Assembly and Transformation of Nanoscale Materials
63. University of Chicago, NSF Workshop on Instrumentation and Infrastructure for Soft Materials, Polymers and Biomaterials, October 16, 2022: Beyond Additive Manufacturing: Digitizing Nanomaterials Self-Assembly
64. ACS Northeast Regional Meeting, Session: Polymer, Supramolecular and Nanoscale Materials, Rochester, NY, October 3, 2022: Programmable Nanoscale Materials
65. Northrop Grumman-BNL Workshop II, Baltimore, MD, August 23, 2022: 3D Nanoscale Fabrication via Molecularly Programmable Self-Assembly

66. Gordon Research Conference: Polymer Physics, Mount Holyoke College, MA, July 24-29, 2022: Communicating With Nano-Systems: From Information-Instructed Assembly to Prescribed Transformations
67. MACRO 2022, Winnipeg, Canada, July18, 2022: DNA-Programmable Nanoscale Materials
68. Foresight's Designing Molecular Machines Workshop, San-Francisco, CA, July 10-11, 2022: Digitizing Nanoscale Assembly
69. Conference: From Water to Colloidal Water, June 6-8, 2022, Rome: Encoding Nanoscale Self-assembly
70. Workshop on Data-Driven Design of Heterogeneous Materials @ UChicago, May 5, 2022: Programming nanoscale architectures and transformations
71. Conference: Geometry, Topology, and Symmetry in Soft and Living Matter Workshop, May 9-13, 2022: Programming nanoscale architectures and transformations
72. Seminar at University of Washington, April 12, 2022: Programming nanoscale systems:

From designed architectures to prescribed processes

73. ACS Spring meeting, Symposium Experimental and Computational Methods for Predictive Self-Assembly, March 22, 2022, San Diego: Programming nanoscale systems: From designed architectures to prescribed processes
74. Conference NanoGe #ChemNano22, March 7, 2022 (virtual): Programmable Assembly of Nanoscale Architectures
75. Frontiers in Biologically Templated Nanopatterning Workshop, LBL, February 23-25, 2022 (virtual): Designed Nanomaterials through Bio-Assembly
76. Israel Vacuum Society meeting - IPSTA 2021, November 17, 2021: Programmable Assembly of Nanoscale Architectures
77. Trinity College Science Society (TCSS) Seminar, University of Cambridge, October 21, 2021 (virtual): Programming Nanoscale Systems: From Designed Architectures to Prescribed Processes
78. American Vacuum Society 67 Virtual Symposium on Nanofabrication and Nanoelectronic Devices , October 25-29, 2021: Programming Assembly of 3D Nanoscale Systems
79. The Advanced Materials Show, NJ, USA, October 13-14, 2021: Programming the Formation of Nanoscale Materials
80. E-MRS meeting, Symposium S: Organized nanostructures and nano-objects: fabrication, characterization and applications September 23, 2021: Programming Nanoscale Architectures and Processes
81. DOE BES Biomolecular Materials Meeting, August 2021 (virtual): Controlling Lattice Organization, Assembly Pathways and Defects in Self-Assembled DNA-Based Nanomaterials
82. Soft Matter Far From Equilibrium - CHESS 2030 Workshop, Cornell University, June 10-11, 2021 (virtual): Programming Nanoscale Architectures and Processes
83. Northrop Grumman-BNL Workshop I, May 5, 2021 (virtual): Towards Designed Nanoscale Fabrication via Molecularly Programmable Self-Assembly
84. MRSEC Seminar, UT Austin, March 25, 2021 (virtual): Programmable Assembly of 3D Nanomaterials
85. Molecular Foundry, Lowrance Berkeley Lab, Colloquium, February, 2021 (virtual): Programmable assembly of organized 3D nanosystems
86. NanoGe conference, March 12, 2021 (virtual): Programmable assembly of organized 3D nanosystems
87. Novel Patterning Technologies 2021, SPIE Advanced Lithography AL 21 (virtual): Programmable assembly of organized 3D nanosystems
88. MRS Fall, November 30, 2020; Symposium S.SM07: Bioinspired Synthesis and Manufacturing of Materials (virtual)

89. Pierce Seminar, MIT, November 4, 2020 (virtual)
90. Workshop on Data-Driven Design of Heterogeneous Materials (U Chicago), August 31-September 1, 2020, (virtual)
91. Biological Control Mechanisms: from Materials to Cells, CCDC Army Research Laboratory, Workshop, August 25-26, 2020, (virtual)
92. International Society of RNA Nanotechnology and Nanomedicine Webinar, July 29-30, 2020, (virtual)
93. Northeast Complex Fluids & Soft Matter Workshop, NY, June 19, 2020 (virtual)
94. DOE Workshop on Transformative Manufacturing, Rockville, MD, March 9-11, 2020
95. MIT, Henry L. Pierce Laboratory Seminar, April 29, 2020
96. MRS Spring Meeting, Phenix, AZ, April 13-17, 2020
97. Drexel University, Materials Science Colloquium, December 2019
98. University of Bordeaux, Paul Pascal Research Center Colloquium, Bordeaux, France, July 2019
99. DOE Workshop on Genome Engineering for Materials Synthesis Workshop, October 9–11, 2018 Rockville, MD
100. Manhattan College, Chemistry Seminar, November 2019
101. Lehigh University, Chemical Engineering Colloquium, October, 2019
102. Kavli Workshop on DNA Nanotechnology, Boston, December 2019
103. MRS Spring Meeting, Phenix, AZ, April 22-26, 2019
104. ASC Spring Meeting, Orlando, FL, April 1-4, 2019 (Division of Polymeric Materials Science and Engineering)
105. ACS Spring Meeting, Orlando, FL, April 1-4, 2019 (Division of Colloid and Surface Chemistry)
106. University of Connecticut, Materials Science Colloquium, April 12, 2019
107. 3D Bio-design Workshop, Bar-Ilan University, Israel, March 2019
108. Stony Brook University, Materials Science Colloquium, Stony Brook, NY, March 8, 2019
109. Gordon Research Conference “RNA Nanotechnology”, Ventura, CA, January13-19, 2019
110. NY Systems Chemistry Symposium, ASRC, CUNY, December 13, 2018
111. Northwestern University, Materials Science Colloquium, November 13, 2018
112. International Conference on Organized Molecular Films, NYC, July 23-27, 2018 (plenary)
113. Nano Korea, KINTEX, Ilsan, Korea, July 11-13, 2018
114. IBS Center for Nanomedicine, Yonsei University, Korea, July 13, 2018
115. DoD Planning and Strategy Meeting on "Materials for Quantum Applications”, August 14-15, 2018, Alexandria, VA
116. Gold 2018 Conference, July 16-18, 2018, Paris, France
117. The Grand Challenges in the Chemical Sciences Symposium, June 3-7, 2018, Jerusalem, Israel
118. Suzhou Institute of Nano-Tech and Nano-Bionics (SINANO), April 26, 2018, Suzhou, China
119. Materials Science Colloquium, Nanjing University, April 25, 2018, Nanjing, China
120. Materials Science and Engineering Colloquium, Nanjing University of Posts and Telecommunications, April 24, 2018, Nanjing, China
121. Shanghai Institute of Applied Physics (SINAP), Biological Physics Colloquium, April 23, 2018, Shanghai, China
122. New England Complex Fluid Workshop, Yale University, March 30, 2018
123. University of Chicago, Chemistry Colloquium, February 19, 2018
124. APS Meeting, Los-Angeles, March 2018
125. ACS Meeting, New Orleans, March 2018
126. Rutgers University, Nanomaterials Seminar, February 8, 2018
127. Macromolecular Symposium, University of Michigan, Ann Arbor, MI, October 17-19, 2017

128. IBM Thomas J Watson Research Center, Yorktown Heights, Physical Sciences Seminar, November 17, 2017
129. DOE NRC workshop on Soft Matter, Santa Fe, NM, September 24-27, 2017
130. DOE Workshop on Biomaterials, DC, August 14-16, 2017
131. Workshop on Active Matter, Oak Ridge National Lab, July 31-August 3, 2017
132. ACS Colloids, New York, July 2018
133. DNATEC 2017 Conference, Dresden, Germany, May 28-June 2, 2017
134. APS Physics Next Materials Design and Discovery Workshop, Riverhead, NY, May15-17, 2017
135. Columbia University, Biomedical Engineering Seminar, September 2017
136. University of Maryland Baltimore County, Colloquium at the Physics Department, April 28, Baltimore, MD, 2017
137. John Hopkins University, Colloquium at the Department of Chemical and Biochemical Engineering, Baltimore , MD, April 27, 2017
138. American Chemical Society, San Francisco, CA, April 3, 2017
139. University California at Berkeley, Nanoscience Seminar, February 24, 2017-01-31
140. US Army Research Laboratory, Bio-Enable Materials, Planning and Strategy Meeting, December 2-3, 2016, Aberdeen, MD
141. MRS Fall 2016, Symposium "Functional Plasmonics" Boston, MA, November 2016
142. Workshop "Opportunities for New X-Ray Sources to Shed Light on Mesoscale Functional Materials" Santa Fe, July 21-22, 2016
143. Workshop "Breakthrough Technologies for Energy: Atomic Precision for Energy Generation, Transmission, and Use Reduction", Foresight Institute, Palo Alto, California on May 20-22, 2016
144. Department of Energy, Basic Energy Sciences, Basic Energy Needs (BRN) workshop on "Synthesis science for energy relevant technology", May 2-4, 2016
145. 14th International Conference on Magnetic Fluids, Ekaterinburg, Russia, July 2016
146. Rutgers University, Seminar at the Institute for Advanced Materials, Devices and Nanotechnology and the Laboratory for Surface Modification, May, 2016
147. Faraday Discussions Conference on Nanoparticle Assembly, Mumbai, India, January 2016
148. Workshop on Synthesis, Characterization and Applications of Nanoparticle Assemblies, Pune, India, January 2016
149. Conference "DNA Nanotechnology meets Plasmonics", Bad Honnef, Germany, December 2015
150. Keynote talk 9th international conference on Nano/Molecular Medicine and Engineering, Hawai, November, 2015
151. Keynote talk at Workshop on Tailor-Made Multi-Scale Materials Systems, Hamburg, Germany, November 2015
152. NYU Tandon School of Engineering, Colloquium at the Department of Chemical Engineering, New York, October, 2015
153. Workshop on Advancing Nanoparticle Manufacturing, NIST, Washington, DC, October, 2015
154. Plenary Lecture at Macromolecular Nano-objects and Polymer Nano-composites Conference, Moscow, Russia, October 2015
155. Gordon Conference on Soft Matter, August, New London, NH, August 2015
156. META'15, the 6th International Conference on Metamaterials, Photonic Crystals and Plasmonics, New York, August 2015
157. Course of lectures at the International School of Physics "Enrico Fermi" on Soft Matter Self-Assembly, July 2015, Varenna, Italy

158. Soft Nano Workshop at CUNY Advanced Science Research Center Nanoscience Initiative, June 2015
159. European MRS, Symposium "Design, fabrication and self-assembly of anisotropic and patchy particles" Lille, France, May 2015
160. Workshop on "Complex Liquids at Structured Substrates" Berlin, February, 2015
161. MRS Fall 2014, Symposium "Reverse Engineering of Bio-inspired Nanomaterials" Boston, MA, December 2014
162. Colloquium in Chemistry Department of Brookhaven National Lab, Upton, NY, December 2014
163. Physics Seminar, Iowa State University and Ames Lab, Ames, IO, November 2014
164. Chemistry Seminar, Ecole Normale Superier, Paris, France, October 2014
165. Chemistry Colloquium, University of Georgia, Athens, GA, October 2015
166. Conference Liquids 2014, Lisbon, Portugal, July 2014 (Plenary talk)
167. Gordon Conference on Nanofabrication, University of New England, Biddeford, ME, July 2014
168. 88th Colloid and Surface Science Symposium, Philadelphia, PA, June 2014
169. Workshop on Grand Challenges in Soft Matter, Santa Barbara, CA, May 2014
170. NSLS-CFN Workshop "Complex Functional Materials: Probing the Meso-Scale Structural Organization and the System Dynamics with Soft X-ray"
171. International Workshop DNA-Based Nanotechnology: Digital Chemistry (DNATEC14), Dresden Max Planck Institute for Physics of Complex Systems, Germany, May, 2014
172. Colloquium, Waterloo Institute for Nanotechnology, Waterloo, Canada, April 2014
173. Department Colloquium, Chemistry, Brooklyn College, City University of New York, March 2014
174. International Conference on Nano Science and Technology, March 2014, Chandigarh, India
175. Conference on "DNA-driven Self-Assembly" December 2013, Vienna, Austria
176. Harvard University, Applied Sciences Colloquium, Cambridge, MA, November 2013
177. Massachusetts Institute of Technology, Materials Science Seminar, Cambridge, MA, November 2013
178. ACS 2013 Meeting, Indianapolis, IN, September 2013
179. Workshop on Mesoscale Challenges, LLNL, Livermore, CA, August 2013
180. CECAM Conference "Self-Assembly", Louisiana, Switzerland, March 2013
181. Workshop "Wetting and Capillary in Complex Systems" Dresden, Germany, February, 2013
182. MRS 2012, Symposia "Colloidal Soft-Matter Crystals, Assemblies, Jammings and Packings", Boston, November 2012
183. Workshop "Workshop on "Complex Liquids at Structured Surfaces" Lisbon, October 2012
184. Conference "Applications of Nanoparticles and Assemblies" Dresden, Germany, July 2012
185. CIMTECH Congress, Symposia "Smart Materials, Structures and Systems", Montecatini Terme, Italy, May 2012 (did not attend)
186. Hebrew University, Applied Sciences Colloquium, Jerusalem, Israel, May 2012
187. Cambridge University, Chemistry Department Colloquium, Cambridge, UK, May 2012
188. European MRS Meeting, Symposia "DNA Directed Programmable Self-assembly of NanoMaterials for energy and other applications" Strasbourg, May 2012
189. Spring MRS Meeting, sessions "Rationally Assembled Multifunctional Materials" and "Structures and Transformations of DNA-mediated Nanoparticle Assemblies" San-Francisco, April 2012
190. Gordon Conference "Colloidal, Macromolecular & Polyelectrolyte Solutions", Ventura, CA, February 2012
191. Indo-US Workshop on Nanoparticle Assembly, Delhi, India, December 2011
192. Chemistry Department Colloquium, University of Toronto, November 2011

193. Physics Department Colloquium, Ohio University at Athens, November 2011
194. MRS Workshop “Directed Self-Assembly of Materials”, TN, September 2011
195. Department Colloquium, University of Connecticut, September 2011
196. Seminar at the Center for Nanoscale Materials, Argonne National Laboratory, Chicago, August 2011
197. Workshop and Panel Discussion on application of Neutron Scattering for Soft Matter, Oak Ridge National Laboratory, TN, July 2011
198. Workshop on "Complex Liquids at Structured Surfaces: theory meets experiment", Brookhaven National Laboratory, NY, June 2011
199. US-Korea workshop on Nanostructured materials, Nanoelectronics and Nano-Biotechnology, South Korea, June 2011
200. The Fifth Black Forest Focus in Soft Matter, Saig, Germany, May, 2011
201. The 8th Annual Conference Foundation of Nanoscience (FNANO 11), Utah, April 2011 (Keynote lecture)
202. American Physical Society, session "Kinetic pathways to assembly of polymers, particles, and biomolecules", Dallas, TX, March 2011
203. Plenary lecture at the Annual User Meeting at the Brazilian Synchrotron Light Laboratory, Campinas, Brazil, February 2011
204. North Carolina at Chapel Hill, Chemistry Department Seminar, January 2011
205. Nanoscience Zing Conference 2011 on Nanobiophysics and Nanochemistry, Sharm el Sheikh, Egypt, February 2011 (declined)
206. Lange Lecturer in Materials, University of California at Santa Barbara, January 2011
207. University of Southern California, Physics Department Colloquium, October 2010
208. Berkeley University, Chemistry Department Colloquium, October 2010
209. Rutgers University, Material Science Colloquium, October 2010
210. Stony Brook University, Biomedical Engineering colloquium, September 2010
211. American Chemical Society Fall meeting, session” Nano-Scaled Phenomena in Polymeric Systems” Boston 2010 August 2010
212. Gordon Conference “Nanostructure Fabrication”, Tilton, NH July 2010
213. Conference "From Solid State to BioPhysics V: From Physics to Life Sciences", Dubrovnik, Croatia, June, 2010.
214. National Synchrotron Light Source and Center for Functional Nanomaterials Annual User Meeting 2010, Upton, NY, Workshop “Self-Assembly of Soft and Biomolecular Materials: Structure, Dynamics, and Interactions”, Multicomponent Assembly of Nanosystems via Programmable Interactions
215. Conference "Emerging Trends in Materials Simulations and Experiments", Los Angeles, March, 2010
216. Conference "Emerging Trends in Materials Simulations and Experiments", Los Angeles, March, 2010
217. Weitzman Institute, Israel, Materials and Interfaces seminar, September, 2009
218. Bar-Ilan University, Israel, Physics department colloquium, September, 2009
219. American Chemical Society fall meeting 2009, Washington DC, August 2009
220. Physics Department seminar at Sapienza University of Rome, Italy, June 2009
221. Conference on “Nanotechnology for the Study of Cellular and Molecular Interactions”, June 2009, Barga, Tuscany, Italy (Keynote lecture)
222. MRS 2009 Spring Meeting, Symposium “Material Systems and Processes for Three-Dimensional Micro- and Nanoscale Fabrication and Lithography”, San-Francisco, CA, April 2009
223. MRS 2008 Fall Meeting, Symposium “Design, Fabrication, and Self Assembly of “Patchy” and Anisometric Particles”, December, 2008, Boston, MA

224. Nanoscience Seminar at Columbia University, November, 2008, NY
225. Physics Colloquium at Wesleyan University, November, 2008, Middletown, CT
226. Nanoscience Seminar at University of Massachusetts at Amherst September, 2008, Amherst, MA
227. Battelle Meeting on Nano-toxicity and Bio-detection, Denver, CO, September 2008, Assembly of Nanoclusters and their application to Real-Time Bio-detection
228. Argonne National Lab, APS seminar, Chicago, IL, July 2008, Probing 3D and 2D
229. School on Molecular Photonics, Santander, Spain, June 2008
230. Nanotech 2008, Boston, MA, 2008
231. Symposium on "DNA-Based Nanodevices", Jena, Germany, May 2008
232. National Institute of Standards and Technology Workshop on "Fluidic Directed Assembly of Functional Materials and Devices", Gaithersburg, MD, March 19-20, 2008
233. DOE Biomaterials Program meeting, Warrenton, VA, November 2007
234. DOE U.S.-France Nanoscience Workshop, June 2007, ANL, Chicago, IL, "
235. Yeshiva University, Seminar at Department of Physics, April 2007, New York, NY
236. 3M Corporate Research Laboratory at "National Lab & 3M Symposium", July 2007, St. Paul, MN
237. NSLS-CFN User Meeting, workshop "Biologically Directed Self-Assembly of Nanomaterials: Synthesis and Characterization" Workshop, May 2007, Upton NY
238. City College of New York , Seminar at Department of Chemistry, October 2006,
239. Akron University, Seminar at Department of Polymer Engineering, October 2006
240. Symposium "Seeing matter with x-ray: from electronic clouds to liquid interfaces", Bar-Ilan University, Ramat Gan, Israel, September 2006
241. Weizmann Institute, Rehovot, Israel, Material Interfaces Seminar, September 2006
242. Pennsylvania State University, Condensed Matter Physics Seminar, College Park, PA, February 2006
243. National Institute of Standards and Technology, MD, Division of Physical Optics Seminar, Washington, D.C., January 2006
244. Lawrence Livermore National Laboratory, CA, Biosecurity and Nanoscience Laboratory Seminar, December 2005
245. Workshop "X-rays and Neutrons: Essential Tools for Nanoscience research", Washington, D.C., June, 2005
246. NIBIB/DOE Workshop on Biomedical Applications of Nanotechnology Bethesda, MD, March, 2005,
247. Workshop on Grazing Incidence Small Angle Scattering methods with applications to surface nanoscale phenomena, BNL, Upton, NY, May 2003
248. Yeshiva University, Physics Department colloquium, New York, NY, March 2004
249. DOE, NNSA, and USIC organized conference "Partnership for Prosperity" Panel participation and talk at Nanotechnology & Advanced Materials session Philadelphia, PA, November 2003
250. MIT Nanostructures Seminar, Cambridge, MA, March 2003
251. First International conference on Nanoprint and Nanoimprint Technology, San-Francisco, CA, December 2002
252. HP Research Lab, July 2003, Corvallis, OR
253. Israel Physical Society Meeting, Tel-Aviv, Israel, December 2001
254. Physics Department Colloquium, Bar-Ilan University, Israel, December 2001
255. Harvard Condensed Matter Colloquium, Cambridge, MA, December 1999

J. Conferences or workshops organized

2023 Co-Organizer of the workshop on “Digitizing nanomaterial fabrication through DNA”

2022 Co-Organizer of the conference on “Symmetry, Topology and Geometry in Soft and Biological Matter”, May 9-13, Simons Center, Stony Brook University

2020 Panelist for Department of Energy, Basic Energy Sciences Basic Energy Needs (BRN) workshop on "Transformative Manufacturing" March 9-11, 2020

2020 Co-Organizer of the workshop on “Opportunities in Biosensing using New Nanotechnology Approaches” (virtual), CFN-NSLS II Annual User Meeting, May 20, 2020

2018 Co-organizer of International Conference on Organized Molecular Films, New York, July 23-27, 2018

2018 Co-organizer of Workshop “Emerging Nanomaterials and Nanostructures for Plasmonics and Nanophotonics Applications”, BNL, Upton, May 22, 2018

2017 Co-organizer of the workshop “Nano-mechanics: From Material Fabrication to In-Operando Characterization”. Annual NSLS II-CFN user meeting, BNL, Upton, NY, May, 2017

2014 Co-organizer of the workshop “Complex Functional Materials: Probing the Meso-Scale Structural Organization and the System Dynamics with Soft X-ray”, Annual NSLS II-CFN user meeting, BNL, Upton, NY, May, 2014

2013 Co-organizer (with P. Chaikin and A. Tkachenko) and co-chair of the international conference “Programmable Self-Assembly of Matter”, June 2013, New York, NY

2012 Organizer and chair of invited session on “DNA-Programmable Particle Assembly” at American Physical Society meeting, March 2012, Boston, MA

2010 Co-organizer and chair of the “Biological-Synthetic Hybrid Materials” session at American Physical Society meeting, March 2010

2007 Co-Organizer of the workshop “Biologically Directed Self-Assembly of Nanomaterials: Synthesis and Characterization", CFN-NSLS User Meeting, May 2007, BNL, NY

2006 Co-Organizer of the symposium “Seeing matter with x-ray: from electronic clouds to liquid interfaces”, September 2006, Ramat-Gan, Israel

2006 Organizer of the workshop “Platforms for the Integration of Biological Systems into Nanomaterials and Interfaces”, CFN-NSLS User Meeting, 2006, Upton, NY

2005 Co-Organizer and Chair of the “Nanoscale Liquids” session, American Physical Society meeting, Los Angeles, March 2005

K. Services

1. Institutional services

2019-2023	Scientific Advisory Board for Energy Frontier Research Center on for the Science of Synthesis Across Scales at the University of Washington
2017-2025	Scientific Advisory Board for CUNY IDEAL program
2016-	Graduate Admission Committee, Department of Chemical Engineering, Columbia University
2017	Garden Memorial Lecture Committee, Department of Chemical Engineering, Columbia University
2009-2025	Developed the scope of scientific directions, technical infrastructure and project activities of the CFN's Soft-Bio Theme; Coordinated the development and operation of the CFN Soft-Bio laboratories, and the user programs
2006-2025	Served as chair or member at various BNL scientific staff searching committees, and faculty search for Department of Physics, SUNY at Stony Brook
2015	Served on strategic planning committee for Biological Sciences at Brookhaven National Laboratory
2015-2018	Served on Brookhaven Lecture Committee

2013-2016 Participating in the design/establishment of two new SAXS and GISAXS beamlines at the newly constructed world-leading synchrotron NSLS II. Developing complementary sample characterization and manipulation methods for the beamline endstation. Coordinating the establishment of a partnership between CFN and NSLS II for the development of novel scattering methods, data analysis and the user program.

2009-2012 Established Soft Matter and Bio-Nanomaterials Group (5 staff scientists) at the Center for Functional Nanomaterials of Brookhaven National Laboratory

2004 Served on strategic planning committee for the interaction between Physical and Life Sciences in Brookhaven National Laboratory

2003 Served on the BNL Condensed Matter Physics planning committee

2. Service to the discipline

- Panelist for DOE, DOD and NSF strategic workshops and sessions
- Reviewer for NSF, DOE, DOD, Petroleum foundations, various European Science foundations, Binational Science Foundation, and others
- Chaired sessions at APS and MRS meetings, Gordon conference and specialized conferences
- Co-organized conferences and workshops on topics of soft matter and nanotechnology, as listed below

- Chief Editor for the World Scientific Publisher multivolume book set “Soft Matter at Nanoscale”, to be published in 2020
- Organizer of the issues for 2020 MRS Bulletin, including topics selections, guest editors selections, and a composition of issues

2025 Co-organizer of the conference on “Origin of Life and Self-Organized Complexity”, Chicago, IL, May, 2025

2025 Panelist for Department of Defense, ARO Biological and Biotechnology Sciences Strategy Meeting, March 19, 2025

2022 Co-Organizer of the conference on “Symmetry, Topology and Geometry in Soft and Biological Matter”, Stony Brook, NY, May 2025

2022 Co-Organizer of the workshop on “Digitizing nanomaterial fabrication through DNA”

2020 Panelist for Department of Energy, Basic Energy Sciences Basic Energy Needs (BRN) workshop on "Transformative Manufacturing" March 9-11, 2020

2019 Served on Scientific Advisory Board, Binational Science Foundation

2019 On-site reviewer of Center for Integrated Nanotechnology (Los Alamos National Lab and Sandia National Lab)

2018 Co-Organizer of the international conference “International Conference on Organized Molecular Films 2018”

2017 Co-Organizer of the workshop “Nano-mechanics: from material fabrication to material analysis”

2017 Organizer of the workshop “From Material Fabrication to In-Operando Characterization ” for CFN-NSLS II user meeting, May 2017

2016 Panelist at the Planning and Strategy Meeting on Bio-Enable Materials for US Army Research Laboratory, Aberdeen, December 2-6, 2016

2016 Panelist at the workshop ”Opportunities for New X-Ray Sources to Shed Light on Mesoscale Functional Materials” Santa Fe, July 21-22, 2016

2016 On-site reviewer of Center for Nanoscale Materials (Argonne National Lab)

2016 Panelist for Department of Energy, Basic Energy Sciences Basic Energy Needs (BRN) workshop on "Synthesis science for energy relevant technology" May 2-4, 2016

2016 Reviewed for US and international foundations (8 proposals), including DOE, DOD, NSF and European foundations

2016 External Advisory Committee of the Center on Interface Design and Engineered Assembly of Low Dimensional Systems (CUNY City College)

2016 Panelist for the Workshop "Breakthrough Technologies for Energy: Atomic Precision for Energy Generation, Transmission, and Use Reduction" Foresight Institute's, Palo Alto, California on May 20-22, 2016.

2005-2015 Reviewer for NSF, DOE, DOD, Petroleum foundations, various European foundations, Binational Science foundations and others

2015 Lectured at International Summer School on Self-Assembly of Soft Matter, Varenna, Italy, July 2015

2015-2017 Editor of the multi-volume book set "Soft Matter at Nanoscale", Publisher is World Scientific

2014 Served on the conference organizing committee for 2014 International Conference on Nanoscience +Technology

2014 Served on a panel workshop on Grand Challenges in Soft Matter, Santa Barbara, CA, May, 2014

2013 Served on the DOE on-site review of the Molecular Foundry at Lawrence Berkley National Laboratory, Berkley CA, August 2013

2011 Served on a panel workshop "Challenges in Soft Matter", Nashville, TN, July 2011

2010 Discussion Leader, Gordon Conference "Nanostructure Fabrication", Tilton, NH July 2011

2006-2009 Participated in the design and establishment of new microbeam Small Angle X-ray Scattering beamline for soft matter and interfaces at the National Synchrotron Light Source (NSLS) at Brookhaven National Laboratory

2008 Lectured at International Summer School on Nanophotonics and Molecular Photonics, Santander, Spain, June 2008

2007-2008 Served on NSF MRSEC panel reviews

2000-present Referee for Physical Review Letters, Nature, Nature Materials, Nature Nanotechnology, Nature Communications, Nature Photonics, Physical Review E, Langmuir, Journal of Physical Chemistry, Macromolecules, Angewandte Chemie, Journal of American Chemical Society, ACS Nano, NanoLetters, PNAS, Soft Matter, Nanoscale, Advanced Functional Materials, Nature Chemistry and Chem. Phys. Chem., and others

2000- 2015 Member of APS, MRS, ACS

3. Public outreach involving the use scholarly expertise

- Interviews and articles on nanotechnology for various popular journals and internet media (2008-2026)
- Teaching physics for teenagers within enrichment program, School Nova at Stony Brook (2006-2010)
- Lectured at the summer science camp, Sigma Camp (2015)
- Delivered lectures and organized activities at the Summer Science Sundays at BNL, events where public visits BNL departments and facilities (2010-2014)
- Presented nanotechnology ideas and research programs to government officials, investors, management of high-tech companies (2010-2015)