

*Curriculum Vitae***Hao Yan**

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**EDUCATION**

New York University	New York, NY	Ph.D in Chemistry	1996-2001
Dissertation: Multiple Crossover Molecules in DNA Nanotechnology			
Dissertation Advisor: Prof. Nadrian C. Seeman			
Shandong University	Jinan, P.R. China	B.S. in Chemistry	1989-1993

**EMPLOYMENT**

<b>Full Professor (with tenure)</b>	8/08-present
Department of Chemistry and Biochemistry	
<b>Assistant Professor</b>	8/04-present
Department of Chemistry and Biochemistry	
<b>Member</b> , Center for Single Molecule Biophysics, The Biodesign Institute Arizona State University, Tempe, AZ	
<b>Assistant Research Professor</b>	09/01-07/04
Department of Computer Science Duke University, Durham, NC	
<b>Research Assistant</b>	01/98-08/01
Department of Chemistry New York University, New York, NY	
<b>Teaching Assistant</b>	08/96-01/98
Department of Chemistry New York University, New York, NY	

**AWARDS AND HONORS**

Selected by President Michael Crow as a Promotion and Tenure Faculty Exemplar	2008
Alfred P. Sloan Research Fellowship	2008-2010
National Science Foundation CAREER Award	2006-2011
Air Force Office of Scientific Research Young Investigator Award	2007-2010
Arizona Technology Enterprise Innovator of Tomorrow Award	2006
NYU GSAS Dean's Dissertation Fellowship	2000

**PUBLICATIONS (\* corresponding author)****Journal Articles: († indicates peer reviewed)****A. From Arizona State University**

62<sup>†</sup>. J. Sharma, R. Chhabra, A. Cheng, J. Brownell, Y. Liu\*, H. Yan\*, Control of Self-Assembly of DNA Tubules Through Integration of Gold Nanoparticles, *Science*, 323, 112-116 (2009).

Highlight by National Science Foundation

([http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=112939&org=OLPA&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=112939&org=OLPA&from=news))

61<sup>†</sup>. C. Lin, Y. Ke, Z. Li, J. Wang, Y. Liu\*, H. Yan\*, Mirror Image DNA Nanostructures for Chiral Supramolecular Assemblies, *Nano Letters*. 9, 433-436 (2009).

60<sup>†</sup>. C. Lin, S. Rinker, X. Wang, Y. Liu, N. C. Seeman\*, H. Yan\*, In-vivo Cloning of DNA Nanostructures, *Proc. Natl. Acad. Sci.* 105, 17626-17635 (2008).

See commentary from Nature news

(<http://www.nature.com/news/2008/081007/full/news.2008.1157.html>) and PNAS

(<http://www.pnas.org/content/105/46/17593>)

59<sup>†</sup>. Z. Li, Y. Ke, C. Lin, **H. Yan\***, Y. Liu\*, Subtractive Assembly of DNA Nanoarchitectures Driven by Fuel Strand Displacement, *Chem. Comm* 4318-4320 (2008).

58<sup>†</sup>. C. Lin, J. Nangreave, Z. Li, **H. Yan\***, Y. Liu\*, Signal Amplification on a DNA Tile based Biosensor with Enhanced Sensitivity, *Nanomedicine* 3, 521-528 (2008).

57<sup>†</sup>. Y. Xu, Q. Wang, P. He, Q. Dong, F. Liu, Y. Liu, L. Lin, H. Yan\*, X. Zhao\*, Cell Nucleus Penetration by Quantum Dots Induced by Nuclear Staining Organic Fluorophore and UV-Irradiation, *Advanced Materials* 20, 3468-3473 (2008).

56<sup>†</sup>. J. Sharma, R. Chhabra, C. S. Anderson, K. V. Gothelf, **H. Yan\***, Y. Liu\*, Toward Reliable Gold Nanoparticle Patterning on Self-assembled DNA Nanoscaffold, *J. Am. Chem. Soc* 130, 7820-2821 (2008).

55<sup>†</sup>. C. S. Anderson, **H. Yan**, K. V. Gothelf\*, Bridging One Helical Turn in dsDNA by Templated Dimerization of Molecular Rods, *Angew Chem Int Ed* 47, 5569-5572 (2008).

54<sup>†</sup>. J. Sharma, Y. Ke, C. Lin, R. Chhabra, Q. Wang, J. Nangreave, Y. Liu\*, **H. Yan\***, DNA Tile Directed Self-assembly of Quantum Dots into Two-dimensional Nanopatterns, *Angew Chem Int Ed* 47, 5157-5159 (2008).

53<sup>†</sup>. S. Rinker, Y. Ke, Y. Liu\*, **H. Yan\***, Self-assembled DNA Nanostructures for distance dependent multivalent ligand-protein binding, *Nature Nanotechnology* 3, 418-422 (2008).

52<sup>†</sup>. Y. Ke, S. Lindsay, Y. Chang, Y. Liu, **H. Yan\***, Self-assembled Water-soluble Nucleic Acid Probe Tiles for Label Free RNA Detection, *Science* 319, 180-183 (2008).

- This paper has been highlighted by Reuters and many other news agencies and was commented by high profile journals such as Nature Biotechnology (<http://www.nature.com/nbt/journal/v26/n3/full/nbt0308-299.html>), Nature Methods (<http://www.nature.com/nmeth/journal/v5/n3/full/nmeth0308-222.html>).

- 51<sup>†</sup>. J. sharma, R. Chhabra, **H. Yan**, Y. Liu\*, A Facile In situ Generation of Dithiocarbamate Ligands for Stable Gold Nanoparticle-Oligonucleotide Conjugates *Chemical Communication* 18, 2140-2142 (2008).
- 50<sup>†</sup>. Q. Wang, Y. Liu, Y. Ke, **H. Yan\***, Quantum Dots Bioconjugation During Core-Shell Synthesis, *Angew Chem Int Ed.* 47, 316-319 (2008).
- 49<sup>†</sup>. C. Lin, X. Wang, Y. Liu, N. C. Seeman, **H. Yan\***, Rolling Circle Enzymatic Replication of a Complex Multi-crossover DNA Nanostructure, *J. Am. Chem. Soc.* 129, 14475-14481 (2007).
- 48<sup>†</sup>. R. Chhabra, J. Sharma, Y. Ke, Y. Liu, S. Rinker, S. Lindsay, **H. Yan\***, Spatially Addressable Multi-protein Nanoarrays Templated by Aptamer Tagged DNA Nanoarchitectures, *J. Am. Chem. Soc.* 129, 10304-10305 (2007).
- This paper was highlighted by the editor of *Nature Nanotechnology* as “Research Highlight”: <http://www.nature.com/nnano/reshigh/2007/0807/full/nnano.2007.287.html>
- 47<sup>†</sup>. Q. Wang, Y. Liu, **H. Yan\***, Lay-by-layer Growth of Superparamagnetic and fluorescently barcoded Nanospheres, *Nanotechnology* 18, 40, 405026 (2007).
- 46<sup>†</sup>. C. Lin, Y. Liu, M. Mertig, J. Gu, **H. Yan\***, Functional DNA Nanotube Arrays: Bottom-up Meets Top-down, *Angew. Chem. Int. Ed.* 46, 6089-6092 (2007).
- This paper was chosen by the editors as “Hot Paper”:  
[http://www3.interscience.wiley.com/cgi-bin/jabout/26737/2002\\_hotpaper.html](http://www3.interscience.wiley.com/cgi-bin/jabout/26737/2002_hotpaper.html)
- 45<sup>†</sup>. Q. Wang, Y. Liu, **H. Yan\***, Mechanism of a Self-templating Synthesis of Monodispersed Hollow Silica Nanospheres with Tunable Size and Shell Thickness, *Chemical Communication* 2339-2341 (2007)
- 44<sup>†</sup>. Q. Wang, Y. Xu, X. Zhao, Y. Chang, Y. Liu, L. Jiang, J. Sharma, D.-K. Seo\*, **H. Yan\***, A Facile One-step In situ Functionalization of Quantum Dots with Preserved Photoluminescence for Bioconjugation, *J. Am. Chem. Soc.* 129, 6380-6381, (2007).
- 43<sup>†</sup>. B. Williams, K. Lund, Y. Liu, **H. Yan\***, J. Chaput\*, Self-assembled Peptide Nanoarrays: An Approach to Studying Protein-protein Interactions, *Angew. Chem. Int. Ed.* 46, 3051-3054 (2007).
- 42<sup>†</sup>. C. Lin, Y. Liu, **H. Yan\***, Self-assembled Combinatorial Encoding Nanoarrays for Multiplexed Biosensing, *Nano Lett.* 7, 507-512 (2007).
- 41<sup>†</sup>. J. Sharma, R. Chhabra, **H. Yan**, Y. Liu\*, pH-driven Conformational Switch of “i-motif” DNA for Reversible Assembly of Gold Nanoparticles. *Chemical Communication* 477-479 (2007)
- 40<sup>†</sup>. C. Lin, M. Xie, J. Chen, Y. Liu, **H. Yan\***, Rolling Circle Amplification of a DNA Nanojunction. *Angew. Chem. Int. Ed.* 45, 7537-7539 (2006).
- This paper was chosen by the editors as “Hot Paper”:  
[http://www3.interscience.wiley.com/cgi-bin/jabout/26737/2002\\_hotpaper.html](http://www3.interscience.wiley.com/cgi-bin/jabout/26737/2002_hotpaper.html)
- 39<sup>†</sup>. C. Lin, E. Katilius, Y. Liu, **H. Yan\***, Self-assembled Signaling Aptamer Nanoarrays for Protein Detection, *Angew. Chem. Int. Ed.* 45, 5296-5301 (2006).

- 38<sup>†</sup>. C. Lin, Y. Liu, S. Rinker, **H. Yan\***, DNA Tile Based Self-assembly: Building Complex Nano-architectures, *ChemPhysChem* 7, 1641-1647 (2006).
- 37<sup>†</sup>. K. Lund, Y. Liu, **H. Yan\***, Combinatorial Self-assembly of DNA Nanostructures, *Organic and Biomolecular Chemistry* 4, 3402-3403 (2006)  
• Chosen by the editors as Inside Cover image.
- 36<sup>†</sup>. S. Rinker, Y. Liu, **H. Yan\***, Two Dimensional LNA/DNA arrays: Estimating the Helicity of LNA/DNA Hybrid Duplex, *Chemical Communication* 2675-2677 (2006).
- 35<sup>†</sup>. R. Chhabra, J. Sharma, Y. Liu, **H. Yan\***, Addressable Molecular Tweezers for DNA Templated Coupling Reactions, *Nano Lett.* 6, 978-983 (2006).
- 34<sup>†</sup>. L. Lin, H. Wang, Y. Liu, **H. Yan**, and S. Lindsay\*, Recognition Imaging with a DNA Aptamer, *Biophysical J.* 90, 4236-4238 (2006).
- 33<sup>†</sup>. K. Lund, B. Williams, Y. Ke, Y. Liu, **H. Yan\***, DNA Nanotechnology: a rapidly evolving field, *Current Nanoscience* 2, 113-122 (2006).
- 32<sup>†</sup>. Y. Ke, Y. Liu, J. Zhang, **H. Yan\***, A Study of DNA Tube Formation Mechanisms Using 4-, 8- and 12-Helix DNA Nanostructures, *J. Am. Chem. Soc.* 128, 4414-4421 (2006).
- 31<sup>†</sup>. J. Zhang, Y. Liu, Y. Ke, **H. Yan\***, Periodic Square-like Gold Nanoparticle Arrays Templated by a DNA Nanogrids on a Surface, *Nano Lett.* 6, 248-251 (2006).  
• Featured in *physorg.com*: (<http://www.physorg.com/news11996.html>)
30. **H. Yan\***, B. Xu, Towards Rapid DNA Sequencing: Detecting Single-Stranded DNA with a Solid-State Nanopore, *Small* 2, 310-312 (2006).
- 29<sup>†</sup>. J. Sharma, R. Chhabra, Y. Liu, Y. Ke, **H. Yan\***, DNA Templated Self-assembly of Two-Dimensional and Periodical Gold Nanoparticle Arrays, *Angew. Chem. Int. Ed.* 45, 730-735 (2006).
- 28<sup>†</sup>. K. Lund, Y. Liu, S. Lindsay, **H. Yan\***, Self-assembling Molecular Pegboard, *J. Am. Chem. Soc.* 127, 17606-17607 (2005).
- 27<sup>†</sup>. Y. Liu, Y. Ke, **H. Yan\***, Self-assembly of Symmetric Finite Size DNA Nanoarrays, *J. Am. Chem. Soc.* 127, 17140-17141 (2005).
- 26<sup>†</sup>. Y. Liu, C. Lin, H. Li, **H. Yan\*** Aptamer Directed Self-assembly of Proteins on a DNA Nanostructure, *Angew. Chem. Int. Ed.* 44, 4333 (2005).  
• Featured in *physorg.com*: (<http://www.physorg.com/printnews.php?newsid=4616>)
- 25<sup>†</sup>. S. H. Park, P. Yin, Y. Liu, J. Reif, T. H. LaBean, **H. Yan\*** Programmable DNA Self-assemblies for Nanoscale Organization of Ligands and Proteins. *Nano Lett.* 5, 729 (2005).
- 24<sup>†</sup>. S. H. Park, R. Barish, H. Li, J. H. Reif, G. Finkelstein, **H. Yan\***, and T. H. LaBean\*, Three Helix Bundle DNA Tiles Self-assemble into 2D Lattice or 1D Templates for Silver Nanowires. *Nano Lett.* 5, 693 (2005).
- 23<sup>†</sup>. Y. Liu, & **H. Yan\***, Modular Self-assembly of DNA Lattice with Tunable Periodicity, *Small* 1,327-330 (2005).
22. **H. Yan\***, Nucleic Acid Nanotechnology, *Science*, 306, 2048-2049 (2004).

**B. From Duke University**

21. J. H. Reif\*, T. H. LaBean, S. Sahu, H. Yan and P. Yin, Design, Simulation, and Experimental Demonstration of Self-assembled DNA Nanostructures and Motors. In: UPP2004, LNCS 3566, ed. by J.P. Banatre, Springer-Verlag Berlin Heidelberg, pp. 173-187, (2005).
- 20<sup>†</sup>. S.H. Park, **H. Yan**, J.H. Reif, T. H. LaBean, G. Finkelstein\*, Electronic Nanostructures Templated on Self-assembled DNA Scaffolds, *Nanotechnology* 15, S525-S527 (2004).
19. **H. Yan**\*, P. Yin, S. H. Park, H. Li, L. Feng, X. Guan, D. Liu, J. H. Reif, T. H. LaBean Self-Assembled DNA Structures for Nanoconstruction. *AIP Proceedings* 725 (DNA-Based Molecular Electronics), 43-52. (2004).
- 18<sup>†</sup>. P. Yin, **H. Yan**\*, X.J. Guan, A.J. Turberfield\*, J. H. Reif\*, An Autonomous Unidirectional DNA Walker. *Angew. Chem. Int. Ed.* 43, 4906-4911 (2004).
  - Featured in Technology Research News, TRNMag.com:  
([http://www.trnmag.com/Stories/2004/110304/DNA\\_machines\\_take\\_a\\_walk\\_110304.htm](http://www.trnmag.com/Stories/2004/110304/DNA_machines_take_a_walk_110304.htm))
- 17<sup>†</sup>. H. Li, S. H. Park, J. H. Reif, T. H. LaBean, **H. Yan**\* DNA Templated Self-Assembly Of Protein And Nanoparticle Linear Arrays. *J. Am. Chem. Soc.* 126, 418 (2004).
- 16<sup>†</sup>. **H. Yan**\*, L. Feng, T. H. LaBean, J. H. Reif\* Parallel Molecular Computation of Pair-wise Exclusive-Or (XOR) Using DNA “String Tile” Self-Assembly. *J. Am. Chem. Soc.* 125, 14246 (2003).
- 15<sup>†</sup>. **H. Yan**\*, S. H. Park, G. Finkelstein, J. H. Reif & T. H. LaBean\*, DNA Templated Self-assembly of Protein Arrays and Highly Conductive Nanowires. *Science*, 301, 1882 (2003).
  - Featured in Technology Research News, TRNMag.com: DNA forms nano waffles  
([http://www.trnmag.com/Stories/2003/102203/DNA\\_forms\\_nano\\_waffles\\_102203.html](http://www.trnmag.com/Stories/2003/102203/DNA_forms_nano_waffles_102203.html))
- 14<sup>†</sup>. L. Feng, S. H. Park, J. H. Reif, & **H. Yan**\*. A Two-State DNA Lattice Switched By DNA Nanoactuator. *Angew. Chem. Int. Ed.* 42, 4342 (2003).
  - Featured by an interview with BBC radio program Discovery today (Oct. 29, 2003).
  - Editor’s choice of Science magazine, MATERIALS SCIENCE: DNA Makes a Move  
(<http://www.sciencemag.org/content/vol302/issue5642/twil.shtml>).
- 13<sup>†</sup>. **H. Yan**, T. H. LaBean, L. Feng, J. H. Reif\*. Directed Nucleation Assembly of DNA tile Complexes for Barcode Patterned Lattices. *Proc. Natl. Acad. Sci. U.S.A.* 100, 8103 (2003).
  - Featured in Technology Research News, TRNMag.com: DNA makes nano barcode  
([http://www.trnmag.com/Stories/2003/070203/DNA\\_makes\\_nano\\_barcode\\_070203.html](http://www.trnmag.com/Stories/2003/070203/DNA_makes_nano_barcode_070203.html))

**C. From New York University**

- 12<sup>†</sup>. N.C. Seeman\*, B. Ding, S. Liao, T. Wang, W.B. Sherman, P.E. Constantinou, J. Kopatsch, C. Mao, R. Sha, F. Liu, **H. Yan** & P.S. Lukeman, Experiments in Structural DNA Nanotechnology: Arrays and Devices, Proc. SPIE; Nanofabrication: Technologies, Devices and Applications 5592, 71-81 (2005).
- 11<sup>†</sup>. Sha, R., Zhang, X., Liao, S., Constantinou, P.E., Ding, B., Wang, T., Garibotti, A.V., Zhong, H., Israel, L.B., Wang, X., Wu, G., Chakraborty, B., Chen, J., Zhang, Y., Mao, C.,

- Yan, H., Kopatsch, J., Zheng, J., Lukeman, P.S., Sherman, W.B. and Seeman, N.C.\*, Motifs and Methods in Structural DNA Nanotechnology, Proc. Intl. Conf. Nanomaterials, NANO 2005, July 13-15, 2005, Mepco Schlenk Engineering College, Srivakasi, India, V. Rajendran, ed., pp. 3-10 (2005).
- 10<sup>†</sup>. R. Sha, X. Zhang, S. Liao, P. Constantinou, B. Ding, T. Wang, A. V. Garibotti, H. Zhong, L. B. Israel, X. Wang, G. Wu, B. Chakraborty, J. Chen, Y. Zhang, H. Yan, Z. Shen, W. Shen, P. Sa-Ardyen, J. Kopatsch, J. Zheng, P. Lukeman, W.B. Sherman, C. Mao, N. Jonoska, N. C. Seeman\*. Structural DNA Nanotechnology: Molecular Construction and Composition. In: UC2005, LNCS 3699, ed. by C.S. Calude et al. Springer-Verlag Berlin Heidelberg, pp. 20-31 (2005).
- 9<sup>†</sup>. Z. Shen, **H. Yan**, T. Wang, N. C. Seeman\* Paranemic Crossover DNA: A Generalized Holliday Structure with Applications in Nanotechnology. *J. Am. Chem. Soc.* 126, 1666 (2004).
- 8<sup>†</sup>. **H. Yan** and N. C. Seeman\*. Edge-Sharing DNA Triangles And One-Dimensional Self-Assembly. *J. Supramol. Chem.*, 1, 229-237 (2003).
- 7<sup>†</sup>. X. Zhang, **H. Yan**, Z. Shen and N. C. Seeman\*. Paranemic Cohesion of Topologically-Closed DNA Molecules. *J. Am. Chem. Soc.* 124, 12940-12941 (2002).
- 6<sup>†</sup>. **H. Yan**, X. Yang, Z. Shen and N. C. Seeman\*. A Robust Sequence-dependent Rotary DNA Device, *Nature*, 415, 62-65 (2002).
- 5<sup>†</sup>. T. H. LaBean, **H. Yan**, J. Kopatsch, F. Liu, E. Winfree, J. H. Reif and N. C. Seeman\*. The Construction, Analysis, Ligation and Self-assembly of DNA Triple Crossover Molecules, *J. Am. Chem. Soc.* 122, 1848-1860 (2000).
- 4<sup>†</sup>. N.C. Seeman, H. Wang, X. Yang, F. Liu, C. Mao, W. Sun, L. Wenzler, Z. Shen, R. Sha, **H. Yan**, M.H. Wong, P. Sa-Ardyen, B. Liu, H. Qiu, X. Li, J. Qi, S.M. Du, Y. Zhang, J.E. Mueller, T.-J. Fu, Y. Wang, and J. Chen. "New Motifs in DNA Nanotechnology", *Nanotechnology* 9, 257-273 (1998).

#### **D. From Shandong University**

- 3<sup>†</sup>. Y. Ma, Q. Wang\*, **H. Yan**, X. Ji and Q. Qiu. Zeolite-Catalyzed Esterification. 1. Synthesis Of Acetates, Benzoates And Phthalates. *Appl. Catal.* 139, 51-57 (1996).
- 2<sup>†</sup>. Q. Wang\*, Y. Ma, X. Ji, **H. Yan**, Q. Qiu. Zeolite-Catalyzed Friedel-Crafts Acylation Of Aromatics. 1. Synthesis Of 4-Acyl Anisole With A HY Catalyst. *Chin. Chem. Lett.* 7, 99-102 (1996).
- 1<sup>†</sup>. Q. Wang\*, Y. Ma, X. Ji, **H. Yan** and Q. Qiu. Regioselective Acylation Of Anisole With Carboxylic-Acid Over HZSM-5 Catalyst. *J. Chem. Soc. Chem. Comm.* 22, 2307-2308 (1995).

#### **Chapters in books:**

6. B. Ding, Y. Liu, S. Rinker, **H. Yan**\*, "DNA-Templated Self-assembly of Protein Arrays and Highly Conductive Nanowires". In: Encyclopedia of Complexity and System Science, ed. by D. Bonchev, Springer, to appear in 2008.

5. R. Chhabra, J. Sharma, Y. Liu, **H. Yan\***, “Patterning Metallic Nanoparticles by DNA Scaffolds”. In: *Bio-Applications of Nanoparticles*, ed. by W. Chan, Landes Bioscience, 2007. Pp. 107-115 (chapter 8).
4. **H. Yan\***, Y. Liu, “DNA Nanotechnology: An Evolving Field”. In: *Nanotechnology: Science and Computation*, ed. by J. Chen, N. Janoska, G. Rozenberg, Springer, 2005, ISBN: 3-540-30295-6.
3. M. Stojacovic\*, T. LaBean, **H. Yan**, “Computing with Nucleic Acids”. In: *Bioelectronics, From Theory to Applications*, ed. by I. Willner, Wiley VCH, 2005. ISBN: 3-527-30690-0
2. N.C. Seeman\*, C. Mao, F. Liu, R. Sha, X. Yang, L. Wenzler, X. Li, Z. Shen, **H. Yan**, P. Sa-Ardyen, X. Zhang, W. Shen, J. Birac, P. Lukeman, Y. Pinto, J. Qi, B. Liu, H. Qiu, S.M. Du, H. Wang, W. Sun, Y. Wang, T.-J. Fu, Y. Zhang, J.E. Mueller and J. Chen. “Nicks, Nodes, and New Motifs for DNA Nanotechnology”. In: *Frontiers of Nano-Optoelectronic Systems*, ed. by L. Pavesi & E. Buzanova, Kluwer, Dordrecht, 177-198 (2000).
1. N.C. Seeman\*, J. Chen, Y. Zhang, B. Liu, H. Qiu, T.-J. Fu, Y. Wang, X. Li, X. Yang, J. Qi, F. Liu, L.A. Wenzler, S. Du, J.E. Mueller, H. Wang, C. Mao, W. Sun, Z. Shen, M.H. Wong, **H. Yan** and R. Sha. “A Bottom-Up Approach to Nanotechnology Using DNA”, In: *Biological Molecules in Nanotechnology*, ed. by S.C. Lee, IBC Libraries, Southborough, MA, Chapter 8 (1998).

## INVITED PRESENTATIONS

60. “Designer DNA Nanostructures for Nanobiotechnology”, Materials Science and Engineering Department, Iowa State University, Ames, IA, April. 9, 2009.
59. “Designer DNA Nanostructures for Nanobiotechnology”, Mini-symposium of Center for DNA Nanotechnology, Duke University, Durham, NC, March. 20, 2009.
58. “Designer DNA Nanostructures for Nanobiotechnology”, Department of Chemistry, Florida State University, Tallahassee, FL, Feb. 27, 2009.
57. “Designer DNA Nanostructures for Nanobiotechnology”, Joint MIT and Harvard Inorganic Chemistry Seminar Series, Department of Chemistry, MIT, Cambridge, MA, Jan. 21, 2009.
56. “Designer DNA Nanostructures for Nanobiotechnology”, Departments of Material Science and Mechanical Engineering, UC Santa Barbara, Santa Barbara, CA Oct. 31, 2008.
55. “Designer DNA Nanostructures for Nanobiotechnology”. the Joint Symposium of 18th International Roundtable on Nucleosides, Nucleotides and Nucleic Acids (IRTXVIII) and 35th International Symposium on Nucleic Acids Chemistry (SNAC), Kyoto, Japan, September 8th – 12th, 2008.
54. “Designer DNA Nanostructures for Nanobiotechnology”. SPIE Optics and Photonics Meeting (Biosensing Symposium), San Diego, CA, August 10-14, 2008.
53. “Structural DNA Nanotechnology: Information Guided Self-assembly”, Gordon Research Conference, Session on Bioorganic Chemistry (Organizer: W. A. Van Der Donk & P. L. Richardson), Andover, NH, June. 15-20, 2008.
52. “Designer DNA Nanostructures for Nanobiotechnology”. Conference of International

- Materials and Technologies (CIMTEC08: Symposium E), Sicily, Italy, June 8-13, 2008.
51. “Designer DNA Nanostructures for Nanobiotechnology”. International Symposium for DNA based nanodevices, Jena, German, May 29-30, 2008.
  50. “Designer DNA Nanostructures for Nanobiotechnology”. Foundations of Nanoscience: Self-assembled Architectures and Devices (FNANO08), Snowbird, Utah, April 22-25, 2008.
  49. “DNA based Nanscale Scaffolds, Assembly and Molecular Robotics”. Office of Naval Research Workshop on DNA based Nanofabrication, Washington DC, April 11, 2008.
  48. “Designer DNA Nanostructures for Nanobiotechnology”. 3<sup>rd</sup> Annual Arizona Nanotechnology Cluster Symposium, Scottsdale, AZ, April 10, 2008.
  47. “Designer DNA Nanostructures for Nanobiotechnology”. Department of Chemistry, Texas A &M University, College Station, TX, April 4, 2008.
  46. “Structural DNA Nanotechnology: Information Guided Self-assembly”, Department of Chemistry and Biochemistry, Brigham Young University, Provo, Utah, March. 27, 2008.
  45. “Designer DNA Nanostructures for Nanobiotechnology”, 2008 William H. Nichols Symposium, New York Section of the American Chemical Society, White Plains, NY, March. 14, 2008.
  44. “Structural DNA Nanotechnology: Information Guided Self-assembly”, Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, CA, March. 12, 2008.
  43. “Structural DNA Nanotechnology: Information Guided Self-assembly”, Department of Chemistry, U. of Central Florida, Orlando, FL, Oct. 12, 2007.
  42. “DNA based self-assembly of nanostructures”, symposium MM: Biomolecular and Biologically-Inspired Interfaces and Assemblies, Fall 2007 Materials Research Society National Meeting, Boston, MA, Nov 27-Dec. 1, 2007.
  41. “DNA based self-assembly of nanostructures”, symposium on Advances in Bio-based Nanostructures and Nanomaterials, 234<sup>th</sup> ACS National Meeting, Boston, MA, Aug. 19-23, 2007.
  40. “DNA based self-assembly of nanostructures”, Mini-symposium on DNA based Nanotechnology University of Aarhus, Aarhus, Denmark, Aug. 17, 2007.
  39. “DNA based self-assembly of nanostructures”, The Second Advanced Materials Workshop, Dalian, China, June 23-24, 2007.
  38. “DNA based self-assembly of nanostructures”, Albany 2007: The 15<sup>th</sup> Conversation, Albany, New York, June 21, 2007.
  37. “DNA based self-assembly of nanostructures”, NSF Center for Hierarchical Manufacturing, U. of Massachusetts, Amherst, MA, May 17, 2007.
  36. “DNA based self-assembly of nanostructures”, Nanoscience and Nanotechnology Session 2006 SACNAS, Tampa, Fl, Oct. 27, 2006.
  35. “DNA based self-assembly of nanostructures”, Bionanotechnology Symposium organized

- by canadian institute for advanced research, Toronto, Canada, Oct. 14-15, 2006.
34. “DNA based self-assembly of nanostructures”, Department of Chemistry, Hunter College, CUNY, New York, NY, Sept. 29 2006.
  33. “DNA based self-assembly of nanostructures”, National Center for Nanoscience and Technology, Beijing, China, June 19, 2006.
  32. “DNA based self-assembly of nanostructures”, Department of Chemistry, Tsinghua University, Beijing, China, June 19, 2006.
  31. “DNA based self-assembly of nanostructures”, Interdisciplinary Nanoscience Center (iNANO), University of Aarhus, Aarhus, Denmark, May 24, 2006.
  30. “DNA based self-assembly of nanostructures”, Department of Physics, Leiden University, Leiden, Netherland, May 22, 2006.
  29. “DNA based self-assembly of nanostructures”, International Symposium on DNA-Based Nanoscale Integration, Jena, Germany, May 18-20, 2006.
  28. “DNA based self-assembly of nanostructures”, Symposium on Frontier of Nanoscience, Auburn University, Auburn, AL, May. 2, 2006.
  27. “DNA based self-assembly of nanostructures”, NSF workshop: The Synthesis of Complex Chemical Systems, Oxfordshire, UK, March 19-21, 2006.
  26. “DNA based self-assembly of nanostructures”, Department of Physics, University of Oxford, Oxford, UK, Mar. 17 2006.
  25. “DNA based self-assembly of nanostructures”, VIII Annual Linz Winter Workshop on Single Molecule Research, Linz, Austria, Feb. 3-7 2006.
  24. “DNA based self-assembly of hierarchical nanostructures”, Arizona Nanocluster Symposium, Organized by Quanttera Co., Tempe, AZ, Jan. 26 2006.
  23. “DNA based self-assembly of hierarchical nanostructures”, Mini-Symposium on DNA Self Assembly and Robotics, Columbia University, New York, NY, Dec. 16 2005.
  22. “DNA based self-assembly for hierarchical nanostructures”, NSF Workshop: Emerging Opportunities of Nanoscience to Energy Conversion and Storage, Arlington, VA, Nov 21-22 2005.
  21. “DNA based Nanobiotechnology”, Department of Biomedical Engineerig, Cornell University, Ithaca, NY, Oct. 6, 2005.
  20. “DNA based Nanobiotechnology”, Department of Chemical Engineering, Hong Kong University of Science and Technology, Hong Kong, Aug. 2, 2005.
  19. “DNA based Nanobiotechnology”, 2005 Scanning Probe Microscopy, Sensors and Nanostructures Meeting, Cancun, Mexico, June 6, 2005.
  18. “DNA based Nanobiotechnology”, Session on Developing Nano-Bio Interfaces, 2005 MRS Spring Meeting, San Francisco, CA. March 28-April 1, 2005.
  17. “DNA based Nanobiotechnology”, 2005 Arizona Imaging and Microanalysis Society

- Annual Meeting, Tempe, AZ, March 22, 2005.
16. "DNA based nanotechnology: pattern and motion", Engineering a DNA World, Workshop sponsored by California Institute of Technology, Center for Biological Circuit Design Rock Auditorium, Broad Center for Biological Sciences, Pasadena, CA, Jan. 7, 2005.
  15. "DNA based Nanobiotechnology", Structure of Nanocrystals Workshop Sponsored by Michigan State University, Tempe, AZ, Dec. 5-8, 2004.
  14. "DNA based Nanotechnology: Pattern and Motion". ACS Rocky mountain analytical section, Denver, CO, Aug. 2, 2004.
  13. "DNA Self-assembly, Nanoactuators and Autonomous Unidirectional DNA Motor". Max Bergmann Zentrum fur Biomaterialien, Technische Universitat Dresden, Germany, May 18, 2004.
  12. "New Structures for DNA based Nanotechnology". DNA-Based Molecular Electronics, International Symposium, Jena, Germany, May 15, 2004.
  11. "DNA Nanoactuator in Self-assembly". Foundations of Nanoscience: Self-assembled Architectures and Devices, Snowbird, Utah, April 21-23, 2004.
  10. "DNA Self-assembly, Nanoactuators and Autonomous Unidirectional DNA Motor". 320th WE-Heraeus-Seminar "Nano-Physics of DNA" Physikzentrum Bad Honnef, Germany, Mar. 23, 2004.
  9. "DNA Nanoactuators in Self-assembly". DARPA IPTO Workshop for Molecular Architectures from Self-Assembled Nanostructures, Adelphi, MD, Feb. 3-5, 2004.
  8. "DNA self-assembly for nanoconstruction and molecular robotics". Dept. of Chemistry and Chemical Biology, Harvard University, Cambridge, MA, Jan. 18, 2003.
  7. "Overview of New Structures for DNA-based Nanofabrication and Computation". 6<sup>th</sup> International Conference on Computational Intelligence and Natural Computing, Cary, NC, Sept. 26-30, 2003.
  6. "Self-assembly of DNA for Computing and Molecular Robotics". Department of Chemistry, Duke University, Durham, NC, Sept. 12, 2003.
  5. "Self-assembly of DNA for Nanofabrication, Computing and Molecular Robotics". Department of Quantum Molecular Devices. Osaka University, Osaka, Japan, Aug. 11, 2003.
  4. "Self-assembly of DNA for Nanofabrication and Molecular Robotics". Graduate School of Arts and Sciences, College of Arts and Science, University of Tokyo, Tokyo, Japan, Aug. 9, 2003.
  3. "Self-assembly of DNA for Nanofabrication, Computing and Molecular Robotics". Graduate School of Engineering, Hokkaido University, Sapporo, Japan, Aug. 5, 2003.
  2. "Tutorial: Self-assembly of Nanostructures". 9<sup>th</sup> International Meeting on DNA Based Computers, Madison, WI, June 1, 2003.

1. “Molecular Robotics for DNA Nanostructures”. DARPA IPTO/NSF Bio-Computation/QIS Joint PI Meeting, Fort Lauderdale, FL, May 16, 2003.

## **SERVICE**

### **University and Departmental Service**

Chair: Departmental Seminar Committee (2008 - present)  
 Member: Departmental Seminar Committee (2006-2008)  
 Member: Departmental Seminar Committee (2004-2005)  
 Member: Departmental Septannual Review Committee (2005)  
 Member: Faculty Search Committee for biophysical theory position (2005)

### **Professional Service outside of ASU**

#### **A. Conference Program Committees Services:**

Co-Organizer, International Workshop on DNA-based nanotechnology: construction, mechanics, and electronics, Dresden, Germany, May 11-15 (2009).

International Advisory Board Member: 3<sup>rd</sup> International Conference on “Smart Materials, Structures and Systems”--Symposium E: “Mining Smartness from Nature”, Sicily, Italy (2008)

Program track co-Chair, Track on Self-assembled DNA nanostructures, Fifth Conference on Foundations OF Nanoscience: Self-assembled Architectures and Devices (FNANO08), Snowbird, Utah, (2008).

Program Committee co-Chair: the 13<sup>th</sup> International meeting for DNA computing, Memphis, (2007).

Program Committee Member: the 12<sup>th</sup> International meeting for DNA computing, Seoul, Korea, (2006).

Program Committee Member: the 11<sup>th</sup> International meeting for DNA computing, London, Ontario, Canada (2005).

Program Committee Member: the 10<sup>th</sup> international meeting on DNA-based Computers, Milano, Italy (2004).

Program Committee Member: DNA-Based Semantic Information Processing, KES'04- 8th Int'l Conference on Knowledge-Based Intelligent Information & Engineering Systems, Wellington, New Zealand (2004).

Session Chair: The Seventh International Meeting on Scanning Probe Microscopy, Cancun, Mexico (2005).

#### **B. Editorial Service:**

Guest Co-editor: Natural Computing: Special Issue: DNA computing conference 2007. Springer. Guest editor: *Proc. Natl. Acad. Sci.*

#### **C. Grant Review Panel Service:**

Panelist: National Science Foundation (2003, 2004, 2005, 2006, 2007, 2008, 2009).

Panelist: National Institute of Health (2004).

Ad Hoc Reviewer: ACS petroleum fund (2005).

Ad Hoc Reviewer: Research Cooperation (2007)

Invited member of proposal review panel for the biological nanostructures facility at the Molecular Foundry in Lawrence Berkeley Laboratory.

#### **D. Manuscript Review Service:**

Review of manuscripts for: *Science, Nature, Nature Materials, Nature Nanotechnology, Nature Protocols, Nature Chemistry, Proc. Natl. Acad. Sci., J. Am. Chem Soc., Angew Chem. Int. Ed., Nano Letter, Small, ACS Nano, Advanced Material, Nanotechnology, Chemistry of Materials, Chem. Comm, Biomacromolecules, Langmuir, ChemBioChem, Nanomedicine, Nucleic Acid Research*

#### **E. Professional Affiliations:**

Member of American Chemical Society, Material Research Society, American Association for the Advancement of Science

### **SPONSORED RESEARCH GRANTS**

National Science Foundation “Molecular Robotics for DNA Nanostructures” Award amount: \$349,950 Role: PI	8/02-08/06  Yan’s Share: 100%
National Science Foundation “NANO: Combinatorial Self-assembly of Nanocircuit on Addressable DNA Nanoscaffolds” Award amount: \$300,000 Role: PI	8/04-07/07  Yan’s Share: 100%
AZTE Innovation Catalyst Fund “A Protein Detection Technology based on Aptamer Binding” Award amount: \$40,000 Role: PI	8/05-07/06  Yan’s Share: 100%
National Science Foundation “Career: DNA Directed-Self-assembly of Multicomponent Nanoarchitectures” Award amount: \$400,000 Role: PI	8/06-07/11  Yan’s Share: 100%
National Institute of Health “R21: Water-soluble Arrays for Personalized Medicine” Award amount: \$560,255 Role: co-PI                      PI: S. Lindsay, co-PI: H. Yan, P. Zhang	9/06-08/09  Yan’s Share: 33%
National Science Foundation “NIRT: Self-assembly at Photonic and Electronic Scale” Award amount: \$1100,000 Role: co-PI                      PI: S. Lindsay, co-PI: H. Yan, D. Gust, R. Diaz	9/06-08/10  Yan’s Share: 25%

Office of Navel Research “Nanodisplay: A Self-assembly Approach to Inorganic Nanoarrays” Award amount: \$450,000 Role: PI                      co-PI: J. Chaput	12/06-11/09  Yan’s Share: 50%
Air Force Office of Scientific Research AFOSR-YIP “Self-assembled Combinatorial Encoding Nanoarrays for Multiplexed Biosensing” Award amount: \$355,533 Role: PI	1/07-11/09  Yan’s Share: 100%
National Science Foundation “Material World Network: Self-assembled DNA Nanotubes: Biomimetic Design, Controlled Surface Alignment and Templated Nanowire Formation” Award amount: \$276,000 Role: PI	08/07-07/10  Yan’s Share: 100%
National Science Foundation “Emerging Model Technology: Self-assembled Inductors: A New Paradigm for Nanoelectronic Designs” Award amount: \$650,001 Role: co-PI    PI: Hongbin Yu, co-PI: H. Yan, Y. Cao, B. Bakkaloglu	09/07-08/10  Yan’s Share: 35%
Alfred P. Sloan Foundation Research Fellowship Award amount: \$50,000 Role: PI	04/08-03/10  Yan’s Share: 100%
Army Research Office “Self-assembling DNA architectures for Bio-inspired Engineering of Discrete and Multifunctional Nanostructures” Award amount: \$300,000 Role: PI              co-PI: Yan Liu	08/08-07/11  Yan’s Share: 50%
National Institute of Health “1R01 DA026296-01: Feasibility Demonstration of an Artificial Electrocyte for Neuronal Observation and Stimulation” Award amount: \$1,200,000 Role: co-PI    PI: R. Diaz, co-PI: T. Moore	07/08-07/12  Yan’s Share: 30%
National Science Foundation “EMT-MISC: Behavior Based Molecular Robotics” Award amount: \$2,200,000 Role: co-PI    PI: M. Stojanovic and 5 other co-PIs	07/08-07/12  Yan’s Share: 20%
Office of Navel Research “Guided DNA Fabrication of Nanometer Scale Electron Devices and Sensors” Award amount: \$960,000 Role: co-PI              PI: N. C. Seeman, co-PIs: S. Chou, C. Mao	12/08-11/10  Yan’s Share: 25%