JENNIFER N. CHA

Norviel Associate Professor, Department of Chemical and Biological Engineering, University of Colorado, Boulder
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(I) EDUCATION

B.A.	1996	Developmental Cell Biology, University of California, Berkeley
M.S.	1998	Chemistry, University of California, Santa Barbara
Ph.D.	2001	Chemistry, University of California, Santa Barbara

(II) APPOINTMENTS

- July 2012–present: Norviel Associate Professor, Department of Chemical and Biological Engineering, University of Colorado, Boulder
- Nov 2012–present: Fellow, Materials Science and Engineering Program, University of Colorado, Boulder
- July, 2012–July 2013: Associate Professor, Adjunct, Department of Nanoengineering and Materials Science, University of CA, San Diego
- September, 2008–June, 2012: Assistant Professor, Department of Nanoengineering and Materials Science, University of CA, San Diego
- January, 2004–August, 2008: Research Staff Member, IBM Almaden Research Center, San Jose, CA
- July, 2002–December, 2003: Postdoctoral Research Associate, University of CA, Berkeley
- January, 2001–June, 2002: Postdoctoral Research Associate, University of CA, Santa Barbara

(III) AWARDS/HONORS

- Provost's Faculty Achievement Award, Univ of Colorado, Boulder, 2015
- Invited Participant, Thirteenth Japanese-American Kavli Frontiers of Science Symposium, National Academy of Sciences, November 2012
- Norviel Faculty Fellow, University of Colorado, Boulder, 2012-2016
- Alfred P. Sloan Research Fellow, 2011
- DOE Early Career Award, 2011
- NSF CAREER Award, 2011
- DARPA Young Faculty Award, 2009
- Hellman Faculty Fellow Award, 2009
- National Academy of Engineering Frontiers of Engineering Symposium Attendee, Armonk, NY 2010
- IBM Innovation Research Award, 2005-2007
- IBM Research Division Award, 2004

(IV) PEER-REVIEWED PUBLICATIONS LIST
Google Scholar Link: https://scholar.google.com/citations?user=BTKQ2PIAAAAJ&hl=en
Post-Tenure

72. G.R. Hafenstine, K. Ma, A.R. Harris, E. Park, O. Yehezkeli, D.W. Domaille, **J.N. Cha***, A.P. Goodwin*, "Photocatalytic and Organocatalytic Production and Separation of C8 Hydrocarbons from C4 Cell Metabolites", *submitted*, 2016

71. K.D. Okochi, L. Monfregola, S. Dickerson, R. McCaffrey, D. Domaille, C. Yu, G. Hafenstine, Y. Jin, **J.N. Cha**, R. Kutcha, M. Caruthers, W. Zhang, "Synthesis of Small Molecule/DNA Hybrids through On-Bead Amide Coupling Approach", *submitted,* 2016

70. S. Ganguly, S. Paul, O. Yehezkeli, **J.N. Cha**, M.H. Caruthers, "Boranephosphonate DNA Mediated Metallization of Single Walled Carbon Nanotubes", *submitted*, 2016

69. M. Brasino, **J.N. Cha***, "Real-Time Femtomolar Detection of Cancer Biomarkers from Photoconjugated Antibody-Phage Constructs", *Analyst, in revision, 2016* (IF = 4.107)

68. O. Yehezkeli, N.M. Bedford, E. Park, K. Ma, **J.N. Cha***, "Semiconductor based Solar Driven Photochemical Cells for Fuel Generation from CO_2 in Aqueous Solutions", *ChemSusChem, in press,* (2016), DOI: 10.1002/cssc.201601105 (IF = 7.116)

67. K. Ma, O. Yehezkeli, E. Park, **J.N. Cha*,** "Enzyme Mediated Increase in Methanol Production from Photoelectrochemical Cells and CO_2" *ACS Catalysis, in press,* (2016), DOI: 10.1021/acscatal.6b02524 (IF = 9.312)

66. L. He, J. Dragvon, S. Cho, C. Mao, A. Yildirim, K. Ma, R. Chattraj, A.P. Goodwin, W. Park, **J.N. Cha*,** "Self-assembled gold nanostar-$NaYF_4$:Yb/Er clusters for multimodal imaging, photothermal and photodynamic therapy" *J. Mater. Chem. B*, 4, 4455-4461 (2016) (IF = 4.872)

65. D.W. Domaille, G.R. Hafenstine, M.A Greer, A.P. Goodwin, **J.N. Cha*,** "Catalytic Upgrading in Bacteria-Compatible Conditions via a Biocompatible Aldol Condensation", *ACS Sust. Chem. & Eng.*, 4, 671-675 (2016) (IF = 5.267)

64. L. He, C. Mao, S. Cho, K. Ma, W. Xi, C.N. Bowman, W. Park, **J.N. Cha***, "Experimental and theoretical photoluminescence studies in nucleic acid assembled gold-upconverting nanoparticles clusters", *Nanoscale,* **7**, 17254 - 17260 (2015) (IF = 7.394)

63. K. Ma, O. Yehezkeli, D.W. Domaille, H.H. Funke, **J.N. Cha***, "Enhanced Hydrogen Production from DNA-Assembled Z-Scheme TiO_2-CdS Photocatalyst Systems", *Angew. Chem. Int. Ed.*, **54,** 11490-11494 (2015) (IF = 11.709)

62. O. Yehezkeli, A. Harguindey, D.W. Domaille, L. He, **J.N. Cha***, "Synthesis and phase transfer of well-defined $BiVO_4$ nanocrystals for photocatalytic water splitting", *RSC Adv.*, **5,** 58755-58759 (2015) (IF = 3.289)

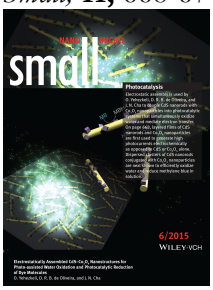
61. S.M. Goodman, H. Noh, V. Singh, J.N. Cha, P. Nagpal, "Charge transport through exciton shelves in cadmium chalcogenide quantum dot-DNA nano-bioelectronic thin films", *Appl. Phys. Lett.*, **106,** 083109 (2015) (IF = 3.142)

60. M. Brasino, **J.N. Cha***, "Isothermal rolling circle amplification of virus genomes for rapid antigen detection and typing", *Analyst*, **140**, 5138-5144 (2015) (IF = 4.107)

59. G.R. Hafenstine, D.W. Domaille, **J.N. Cha***, A.P Goodwin*, "Self-Assembly and Reassembly of Fiber-forming Dipeptides for pH- Triggered DNA Delivery", *J. Polym. Sci. A*, **53,** 183-187 (2015) (IF = 3.113)

58. M. Brasino, J.-H. Lee, **J.N. Cha***, "Creating Highly Amplified ELISA Signals from Genetically Engineered Bacteriophage", *Analytical Biochemistry,* **470,** 7-13 (2015) (IF = 2.219)

57. O. Yehezkeli, D. R.D. Barcellos, **J.N. Cha***, Electrostatically Assembled CdS-Co_3O_4 Nanostructures for Photo-assisted Water Oxidation and Photocatalytic Reduction of Dye Molecules", *Small,* **11,** 668-674 (2015) *inside cover article* (IF = 8.315)



56. D.D. McKinnon, D.W. Domaille, T.E. Brown, K.A. Kyburz, E. Kiyotake, **J.N. Cha**, K.S. Anseth*, "Measuring Cellular Forces Using Bis-Aliphatic Hydrazone Crosslinked Stress-Relaxing Hydrogels", *Soft Matter,* **10,** 9230-9236 (2014) *Cover article* (IF = 3.798); highlighted as 2014 Soft Matter 'Hot Paper'

55. J.H. Lee, D.W. Domaille, H. Noh, T. Oh, C. Choi, S. Jin, **J.N. Cha***, "High-Yielding and Photolabile Approaches for Covalent Attachment of Biomolecules to Surfaces via Hydrazone Chemistry", *Langmuir,* **30**, 8452–8460 (2014) (IF = 3.993)

54. S. Kwon, Z.C.Y. Chen, H. Noh, J.-H. Lee, H. Liu, **J.N. Cha**, Jie Xiang*, "Selective Functionalization and Loading of Biomolecules in Crystalline Silicon Nanotube Field-Effective-Transistors", *Nanoscale,* **6,** 7847-7852 (2014) (IF = 7.394)

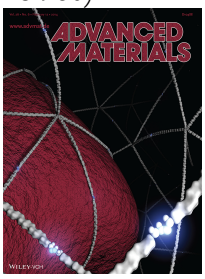
53. D.D. McKinnon, D.W. Domaille, **J.N. Cha***, K.S. Anseth* "Bis-Aliphatic Hydrazone-Linked Hydrogels From Most Rapidly at Physiological pH: Identifying the Origin of Hydrogel Properties with Small Molecule Kinetic Studies", *Chemistry of Materials,* **26,** 2382-2387 (2014) (IF = 9.407)

52. D.W. Domaille, **J.N. Cha*,** "DNA-Templated Organocatalytic Hydrazone Formation with Aniline-Terminated DNA", *Chem. Comm.,* **50***,* 3831-3833 (2014) (IF = 6.567)

51. J.H. Lee, P.F. Xu, D.W. Domaille, C. Choi, S. Jin, **J.N. Cha*,** "Quantitative Surface Enhanced Raman Scattering Based Protein Detection and Identification via DNA-Conjugated M13 Bacteriophage and SERS active DNA core shell nanoparticles", *Advanced Functional Materials,* **24,** 2079-2084 (2014) (IF =11.382)

50. H. Noh, S.M. Goodman, P. Mohan, A.P. Goodwin, P. Nagpal, **J.N. Cha***, "Scalable Assembly of 3D Excitonic Nanocrystal Assemblies by using DNA Interactions and DNA Mediated Charge Transport", *RSC Advances,* **4,** 8064-8071 (2014) (IF =3.289)

49. D.D. McKinnon, D.W. Domaille, **J. N. Cha**, K.S. Anseth*, "Covalently adaptable networks as biophysical-ECM mimics for cell culture", *Advanced Materials,* **26,** 865-872 (2014) *cover article* (IF = 18.960)



48. M. A. Naktasuka, C.V. Barback, K.R. Fitch, A.R. Farwell, S.C. Esener, R.F. Mattrey, **J.N. Cha*,** A.P. Goodwin*, "In Vivo Ultrasound Visualization of Non-Occlusive Blood Clots by Site-Specific Activatable Contrast Agents", *Biomaterials,* **34,** 9559-9565 (2013) (IF = 8.387)

47. L.M. Forbes, S. Sattayasamitsathit, P.F. Xu, A. O'Mahony, I.A. Samek, K. Kaufmann, J. Wang, **J.N. Cha*,** Improved Oxygen Reduction Reaction Activities with Amino Acid R Group Functionalized PEG at Platinum Surfaces, *J. Mater. Chem.* **1,** 10267 – 10273 (2013) (IF = 8.262)

46. P.F. Xu, J.H. Lee, C. Choi, S. Jin, J. Wang, **J.N. Cha***, "Enhanced Raman Signals from Switchable Nanoparticle Probes", *Chem. Comm.,* **49**, 8994-8996 (2013) (IF = 6.567)

45. P.F. Xu, H. Noh, J.H. Lee, D.W. Domaille, M. Nakatsuka, A.P. Goodwin*, **J.N. Cha*,** "The Role and Potential of DNA for Next-Generation Materials", *Materials Today,* 1**6,** 290-296 (2013) (IF = 17.793)

44. D.W. Domaille, J.H. Lee, **J.N. Cha*,** "Conformationally Independent, Reversible DNA Conjugation to M13 Bacteriophage For Colorimetric and Fluorescence-Based Protein Biosensors", *Chemical Communications,* **49,** 1759 - 1761 (2013) (IF = 6.567)

43. S. Sattayasamitsathit, Y. Gu, K. Kaufmann, W. Jia, X. Xiao, M. Rodriguez, S. Minteer, **J. Cha**, D.B. Burckel, C. Wang, R. Polsky, J. Wang, "Highly-Ordered Multilayer 3D Graphene Decorated with Metal Nanoparticles", *Journal of Materials Chemistry A,* **1**, 1639-1645 (2013) (IF = 8.262)

42. P.F. Xu, A.M. Hung H. Noh, **J.N. Cha*** "Switchable Nanodumbbell Probes for Analyte Detection", *Small* **9,** 228–232 (2013) (IF = 8.315)

41. M. A. Nakatsuka, R. F. Mattrey, S. C. Esener, **J.N. Cha,*** and A. P. Goodwin.* "Aptamer-Crosslinked Microbubbles: Smart Contrast Agents for Thrombin-Activated Ultrasound Imaging." *Advanced Materials,* **24,** 6010-6 (2012) (IF = 18.960)

40. J.-H. Lee, D. Domaille, **J.N. Cha*,** "Amplified Protein Detection and Identification through DNA-Conjugated M13 Bacteriophage", *ACS Nano*, **6,** 5621-5626 (2012) (IF = 13.334)

39. S. Sattayasamitsathit, A.M. O'Mahony, X. Xiao, S.M. Brozik, C.M. Washburn, D.R. Wheeler, W. Gao, S. Minteer, **J. Cha**, D.B. Burckel, R. Polsky, J. Wang, "Highly Ordered Tailored Three-Dimensional Hierarchical Porous Gold Architectures", J. Mater. Chem. 22, 11950-11956 (2012) (IF = 8.262)

38. A.M. Hung, T. Oh, **J.N.Cha***, "Thermal Self-Assembly and Rapid Deposition of Vertically Aligned Semiconductor Nanorods Over Centimeter-Scale Areas", *Nanoscale* **4**, 1016-1020 (2012) (IF = 7.394)

Pre-Tenure

37. M.A. Nakatsuka, M.J. Hsu, S.C. Esener, **J.N. Cha*,** A.P. Goodwin, "DNA-Coated Microbubbles as Ultrasound Contrast Agents with Reversible Activity", *Advanced Materials,* **23**, 4908-4912 (2011) (IF =18.960)

36. L.M. Forbes, A.M. O'Mahony, S. Sattayasamitsathit, J. Wang, **J.N. Cha***, "Polymer End-Group Mediated Synthesis of Well-Defined Catalytically Active Platinum Nanoparticles", *J. Mater. Chem.* **21,** 15788 – 15792 (2011) (IF = 8.262)

35. A.M. Hung, N. Konopliv, **J.N. Cha***, "Solvent-Based Assembly of CdSe Nanorods in Solution", *Langmuir*, **27,** 12322-12328 (2011) (IF = 3.993)

34. H. Noh, A.M. Hung, **J.N. Cha***, "Surface Drive DNA Assembly of Binary Cubic Three-Dimensional Nanocrystal Superlattices", *Small*, **7,** 3021-3025 (2011) (IF = 8.315)

33. S. Sattayasamitsathit, A.M. O'Mahony, X. Xiao, S.M. Brozik, C.M. Washburn, D.R. Wheeler, **J. Cha**, D.B. Burckel, R. Polsky, J. Wang. "Highly dispersed Pt nanoparticle-modified 3D porous carbon: A metalized carbon electrode material", *Electrochem. Comm.* **13,** 856-860 (2011) (IF = 4.569)

32. J.-H. Lee, **J.N. Cha***, "Bacteriophage Platforms for Amplified Protein Detection through Visible Plasmon Shifts in Gold Nanocrystal Solutions", *Analytical Chemistry,* **83,** 3516-3519 (2011) (IF= 5.636(

31. P.F. Xu, H. Noh, J.-H. Lee, **J.N. Cha*,** "DNA mediated assembly of single walled carbon nanotubes: role of linkers and annealing", *Physical Chemistry Chemical Physics,* **13,** 10004-10008 (2011) (IF = 4.449)

30. M. A. Nakatsuka, J.-H. Lee, M. J. Hsu, E. Nakayama, A. Hung, R. F. Mattrey, S. C. Esener*, **J.N. Cha***, and A.P. Goodwin*, "Facile One-Pot Synthesis of Polymer-Phospholipid Composite Microbubbles with Enhanced Drug Loading Capacity for Ultrasound-Triggered Therapy", *Soft Matter*, **7,** 1656-1659 (2011) (IF = 3.798)

29. L.M. Forbes, A.P. Goodwin, **J.N. Cha*,** "Controlled Nucleation of Platinum Nanocrystals from Peptides", *Chemistry of Materials*, **22,** 6524-6528 (2010) (IF = 9.407)

28. A.M. Hung, H. Noh, **J.N. Cha*,** "Recent Advances in DNA-Based Directed Assembly on Surfaces", (*invited)*, *Nanoscale*, **2,** 2530-2537 (2010) (IF = 7.394)

27. H. Noh, C. Choi A.M. Hung, S. Jin, **J.N. Cha*,** "Site Specific Patterning of Highly Ordered Nanocrystal Superlattices through Biomolecular Surface Confinement", *ACS Nano,* **4,** 5076-5080 (2010) (IF = 13.334)

26. J.N. Cha*, A.M. Hung, H. Noh, "Biomolecular Architectures and Systems for Nanoscience Engineering" (*invited)*, *Proc. of SPIE* Vol. 7637 763710-1 (2010) (IF =0.984)

25. A. Hung, C.M. Micheel, L.D. Bozano, *L.W. Osterbur*, G.M. Wallraff, **J.N. Cha*,** "Spatially-Directed Assembly of Gold Nanoparticles on Lithographically Patterned DNA Origami", *Nature Nanotechnology* **5**, 121 - 126 (2010) (IF = 35.267)

24. H. Noh, H. Noh, A.M. Hung, C. Choi, J.H. Lee, J.-Y. Kim, S. Jin, **J.N. Cha*** "50nm DNA Nanoarrays Generated from Uniform Oligonucleotide Films", *ACS Nano*, 3, 2376–2382 (2009) (IF = 13.334)

23. R. Kershner, L. Bozano, C.M. Micheel, A. Hung, A. Fornoff, **J.N. Cha**, C. Rettner, M. Bersani, J. Frommer, P.W.K. Rothemund, G. Wallraff, "Placement and orientation of DNA nanostructures on lithographically patterned surfaces", *Nature Nanotechnology*, 4, 557 - 561 (2009) (IF = 35.267)

22. B. Atmaja, **J.N. Cha**, C.W. Frank, "Adsorbed a -Helical Diblock Copolypeptides: Molecular Organization, Structural Properties, and Interactions", *Langmuir* 25, 865-872, (2009) (IF = 3.993)

21. B. Atmaja, **J.N. Cha**, A. Marshall, C.W. Frank, "Supramolecular Assembly of Block Copolypeptides with Semiconductor Nanocrystals" *Langmuir*, 25, 707-715, (2009) (IF = 3.993)

20. J.W. Galusha, L.R. Richey, J.S. Gardner, **J.N. Cha**, M.H. Bartl, "Discovery of a diamond-based photonic crystal structure in beetle scales" *Phys. Rev. E,* 77(5-1), (2008) (IF = 2.288)

19. C. Buie, A. Fornoff, C.M. Micheel, **J.N. Cha***, "Directed assembly of gold nanoparticles on modified DNA origami", *Polymer Preprints* ACS, 49(1), 1117-1118, (2008)

18. Y. Zhang, H.-S. P. Wong, S. Raoux, **J.N. Cha**, C.T. Rettner, L.E. Krupp, T. Topuria, D.J. Milliron, P.M. Rice, J.L. Jordan-Sweet, "Phase change nanodot arrays fabricated using a self-assembly diblock copolymer approach" Appl. Phys. Lett., 91, 131041-131043, (2007) (IF = 3.142)

17. J.N. Cha*, Y. Zhang, H.-S. P. Wong, S. Raoux, C. Rettner, L. Krupp, V. Deline, "Biomimetic Approaches for Fabricating High-Density Nanopatterned Arrays", *Chem. Mater.*, 19, 839-843 (2007) (IF = 9.407)

16. D.A. LaVan and **J.N. Cha***, "Approaches for biological and biomimetic energy conversion", *Proc. Natl. Acad. Sci.*, 103, 5251-5255 (2006) (IF = 9.423)

15. B. Parrish, **J. N. Cha***, "Peptide end-functionalized block copolymers prepared by reversible addition-fragmentation chain transfer polymerization". *PMSE Preprints*, ACS, 47, 588 (2006)

14. B. Gigliotti, B. Sakizzie, D.S. Bethune, R.M. Shelby, **J.N. Cha***, "Sequence-Independent Helical Wrapping of Single-Walled Carbon Nanotubes by Long Genomic DNA", *Nanoletters*, 6, 159-164 (2006) (IF = 13.779)

13. E. M. Freer, **J.N. Cha**, J.L. Hedrick, R.D. Miller, H.-C. Kim, "Nanostructured organosilicates from self-assembled block copolymer / silsesquioxane mixtures", *PMSE Preprints*, 92, 69-70. (2005)

12. E. M. Freer, L. E. Krupp, W.D. Hinsberg, P. M. Rice ; J.L. Hedrick, **J.N. Cha**, R.D. Miller, H.-C. Kim, "Oriented Mesoporous Organosilicate Thin Films", *Nanoletters*, 5, 2014-2018 (2005) (IF = 13.779)

11. T. Magbitang, V.Y. Lee, **J.N. Cha**, H.-L. Wang, R.W. Chung, R.D. Miller, G. Dubois, W. Volksen, H.-C. Kim, J.L Hedrick, "Oriented nanoporous lamellar organosilicates templated from topologically unsymmetrical dendritic-linear block copolymers", *Angew. Chem. Int. Ed.*, 44, 7574-7580 (2005) (IF = 11.709)

10. A. Fu, C.M. Micheel, **J. N. Cha**, H. Chang, H. Yang, A.P. Alivisatos, "Discrete Nanostructures of Quantum Dots/Au with DNA", *J. Am. Chem. Soc.*, 126, 10832-10833 (2004) (IF = 13.038)

9. V.S. Murthy, **J.N. Cha**, G.D. Stucky, M.S. Wong, "Charge-Driven Flocculation of Poly(L-lysine)-Gold Nanoparticle Assemblies Leading to Microspheres", *J. Am. Chem. Soc.*, 126, 5292-5299 (2004) (IF = 13.038)

8. J.N. Cha, H. Birkedal, L.E. Euliss, M. H. Bartl, M.S. Wong, T.J. Deming, G.D. Stucky, "Spontaneous Formation of Nanoparticle Vesicles from Homopolymer Polylectrolytes", *J. Am. Chem. Soc.*, 125, 8285-8289 (2003) (IF = 13.038)

7. J. N. Cha, M.H. Bartl, M.S. Wong, A. Popitsch, T.J. Deming, G. D. Stucky, "Microcavity Lasing from Block Peptide Hierarchically Assembled Quantum Dot Spherical Resonators", *Nanoletters*, 3, 907-911 (2003) (IF = 13.779)

6. J.N. Cha, M.S. Wong, K.S. Choi, T. J. Deming, G. D. Stucky, "Assembly of Nanoparticles into Hollow Spheres Using Block Copolypeptides", *Nanoletters*, 2, 583-587 (2002) (IF = 13.779)

5. J.N. Cha, G.D. Stucky, D.E. Morse, T. J. Deming, "Block Copolypeptide Mediated Biomimetic Synthesis of Ordered Silica Structures", *Nature*, 403, 289-292 (2000) (IF = 38.138)

4. J.N. Cha, K. Shimizu, Y. Zhou, T.J. Deming, G.D. Stucky, D.E. Morse, "Learning from Nature: Novel Routes to Biomimetic Synthesis of Silica Structures", *MRS Symposium* (Mineralization in Natural and Synthetic Biomaterials, Boston, November 1999)

3. Y. Zhou, K. Shimizu, **J.N. Cha**, G.D. Stucky, D.E. Morse, "Efficient catalysis of polysiloxane synthesis by silicatein a requires specific hydroxyl and imidazole functionalities", *Angew. Chem. Int. Ed.*, 38, 780-782 (1999) (IF =11.709)

2. J.N. Cha, K. Shimizu, Y. Zhou, S.C. Christiansen, B.F. Chmelka, G.D. Stucky, D.E. Morse, "Silicatein filaments and subunits from a marine sponge direct the polymerization of silica and silicones in vitro", *Proc. Nat. Acad. Sci.*, 96, 361-365 (1999) (IF = 9.423)

1. K. Shimizu, **J.N. Cha**, G.D. Stucky, D.E. Morse, "Silicatein a: Cathepsin L-like protein in sponge biosilica", *Proc. Nat. Acad. Sci.*, 95, 6234-6238 (1998) (IF = 9.423)

(V) BOOK CHAPTERS

1. A.M. Hung, **J.N. Cha*** "Templated Assembly of DNA Origami Gold Nanoparticle Arrays on Lithographically Patterned Surfaces", DNA Nanotechnology: Methods and Protocols, Eds. G. Zuccheri and B. Samori, Methods in Molecular Biology, **749**, pp 181-197, Springer Protocols, Humana Press (2011)

(VI) PATENTS

9. U.S. Patent Publication Number US 8,986,82 "Structure including a material having a predefined morphology", **J.N. Cha**, J.L. Hedrick, H. Kim, R.D. Miller, W. Volksen
8. U.S. Patent Publication Number: US 7,759,063 B2 "DNA-based functionalization of single walled carbon nanotubes for directed assembly", **J.N. Cha**, C.M. Micheel
7. U.S. Patent Number: US 7,625,702 B2 "Helical Wrapping of Single-Walled Carbon Nanotubes by Genomic DNA", **J.N. Cha**
6. International Patent Publication Number: WO 07/057263 "Water castable-water strippable topcoat for immersion lithography", P.J. Brock, **J. Cha**, D. Gil, C.E. Larson, L.K. Sundberg, G. Wallraff, IBM
5. U.S. Patent Publication Number: US 2006/240240 "Nanoporous organosilicate media with lamellar structures", **J.N. Cha**, G. J.-M. Dubois, J.L. Hedrick, H.-C. Kim, V. Y.-W. Lee, T.P. Magbitang, R.D. Miller, W. Volksen, IBM
4. U.S. Patent Publication Number: US 2006/241194 "Nanoporous media templated from unsymmetrical amphiphilic porogens", **J.N. Cha**, G. J-M. Dubois, J.L Hedrick, H.-C. Kim, V. Y.-W. Lee, T.P. Magbitang, R.D. Miller, W. Volksen, IBM
3. US Patent Publication Number: US 2003/082237 "Nanoparticle Assembled Hollow Spheres of Block Polypeptides**", J.N. Cha**, T.J. Deming, G.D. Stucky, M.S. Wong, H. Birkedal, M.H. Bartl, J.L. Sumerel, University of CA, Santa Barbara
2. International Patent Publication Number: WO 02/84271 "Methods and Sensors for Luminescent and Optoelectronic Detection and Analysis of Polynucleotides", **J.N. Cha**, G.D. Stucky, D.E. Morse, University of CA, Santa Barbara

1. International Patent Publication Number: WO 00/35993 "Methods, Compositions, and Biomimetic Catalysts for in vitro Synthesis of Silica, Polysilsequioxane, polysiloxane, and polymetallo-oxanes", Morse, D.E., Stucky, G.D., Deming, T.J., **Cha, J.N**., Shimizu, K., Zhou, Y., University of CA Santa Barbara

(VII) INVITED TALKS

Post-Tenure

79. Materials Science and Engineering Program, UC Riverside, October 2016
78. 3rd International Conference on Bionspired and Biobased Chemistry & Materials, Nice, France, October 2016
77. Bionanodesign Symposia, XXV International Materials Research Congress (MRS), Cancun, Mexico, August 2016
76. Gordon Research Conference, Bioinspired Materials, Les Diablerets, Switzerland, June, 2016
75. Frontier of the interface of materials and biology: Protein Based Nanomaterials, ACS National Meeting, San Diego, March 2016
74. AIChE Annual Meeting, Biosensore Devices, Platforms and Techniques, Utah, Nov, 2015
73. Department of Energy Biomolecular Workshop, Bethesda, Maryland, August 2015
72. Phage and Yeast Display of Antibodies (PEGS) Meeting, Boston, MA, May, 2015
71. ACS National Meeting, Denver, March 2015
70. Reverse Engineering of Bio-Inspired Nanomaterials, MRS Fall Meeting, Nov 2014
69. Front Range Symposium on Photonic Applications of Gold Nanomaterials, UC Denver, Nov, 2014
68. Department of Chemical and Petroleum Engineering, University of Kansas, Oct, 2014
67. Gordon Research Conference, Bioinspired Materials, Sunday River Resort, Maine, June 2014
66. Bimolecular Materials Workshop, Office of Naval Research, Arlington, VA, June 2014
65. Materials Today Webinar, Biomaterials, November 2013
64. Bimolecular Materials Meeting, Department of Energy, Washington DC, Aug 2013
63. Biomolecular Materials Workshop, Office of Naval Research, Washington DC, August 2013
62. Department of Chemical and Biological Engineering, Korea University, August, 2013
61. Keynote, 9th World Congress of Chemical Engineering, August 2013, Seoul, Korea
60. 2013 US-China Workshop on Solar Energy and Environment, May 2013, National Academy of Sciences, Washington, DC
59. Bioscience Seminar Series, Sandia National Lab, January 2013
58. Department of Chemical Engineering and Materials Science, University of Minnesota, October 2012
57. International Conference of Young Researchers Meeting (ICYRAM), Singapore July 2012
56. Speaker and Chair, American Chemical Society Symposium "New Frontiers in Stimuli-Responsive Supramolecular Assemblies", PMSE Division, San Diego, CA, March 25-29, 2012
55. Speaker 14th Annual Perspectives on Science (POS) Lecture/Dinner Series at Point Loma Nazarene University, April 2012
54 Speaker, US-Korea Workshop On Nano-Biotechnology, Dallas, May 2012
53. Speaker, Materials Research Society Meeting San Francisco, DNA Nanotechnology, April 2012
52. Speaker, Jacobs School of Engineering Research Expo, University of CA, San Diego, April 2012
51. Keynote Speaker, Foundations of Nanoscience, Snowbird , Utah, April 2012
50. Speaker, Department of Chemical Engineering, University of Michigan, Ann Arbor, March 2012
49. Speaker, Department of Chemical and Biological Engineering, University of Colorado, Boulder, January 2012

Pre-Tenure

48. Speaker, Yonsei University, Korea, Dec 2011
47. Speaker, 7th International Conference on Advanced Materials and Devices (ICAMD 2011) Jeju Island, Korea, Dec 2011
46. Speaker, Berkeley Nanoscience and Nanoengineering Institute, UC Berkeley, Dec 2011
45. Speaker, Department of Chemical and Biomolecular Engineering, Johns Hopkins University, November 2011
44. Speaker, Department of Chemical Engineering and Materials Science, UC Irvine Oct 2011
43. Speaker, Composite Materials, Lake Louise, Canada, Nov 2011
42. Speaker, Industry Board Meeting, Nanoengineering Dept., UCSD, April 2011
41. Speaker, Professor Dan Morse Symposium, UC Santa Barbara, April 15, 2011
40. Speaker, American Chemical Society National Meeting, Anaheim, CA March 2011
39. Speaker, NSF-DFG Conference, New York, March 2011
38. Speaker, "Workshop on Exploring Biological Interfaces", Caribe Hilton, San Juan, Puerto Rico, April 2011
37. Speaker, CMOSET, Whistler, 2011
36. Participant- NAE Frontiers in Engineering, 2010
35. Speaker, International NanoBio 2010 Conference, 24 – 27 August 2010, ETH Zurich.
34. Speaker, ACS-Poly**,** Boston MA, August, 2010
33. Speaker, EIPBN, June 2010, Anchorage, Alaska, 2010
32. Speaker, Materials Research Society Spring Meeting, 2010
31. Speaker, SPIE Lithography, San Jose, CA, February 2010
30. Speaker, Columbia University, November 2009
29. Keynote Speaker, NanoThailand Symposium 2008, Bangkok, Thailand, November 2008
28. Presentation, BNNI, UC Berkeley, October 31, 2008
27. Presentation, "Nanostructure Fabrication", Gordon Research Conference, July 2008
26. Presentation, International Workshop on Nanobiotechnology, Ispra, Italy, June 3-4, 2008
25. Presentation, NSTI Nanotech 2008, Nanostructured Surfaces and Interfaces, Boston, MA, June 1-5, 2008
24. Attendee, "IBM Global Technical Leadership Exchange", Orlando, FL, April 6-9, 2008
23. Presentation, "Opportunities for Nanostructured Polymeric Materials for Device Fabrication", Lake Tahoe, NV, Nov 4-8, 2007
22. Presentation, "3rd NASA-NIST Workshop on Nanotube Measurements", September 26-28, 2007, Gaithersburg, MD
21. Presentation, "Polymers-East", Gordon Research Conference, June 2007
20. Presentation, "Applications of Nanotubes and Nanowires", Materials Research Society Meeting, SF, CA, April 2007
19. Presentation, "Materials Research Outreach Symposium", University of CA, Santa Barbara, January 2007
18. Presentation, "30th Annual Symposium, Macromolecular Science and Engineering", University of Michigan, Oct 2006
17. Presentation, "Carbon Nanotube Separation, FACSS 2006", Orlando, Fl, Sept 2006
16. Presentation, "CPIMA Forum" Stanford University, August 10 2006
15. Presentation, "US-Japan Nano-Hybrid Conference", Monterey, CA, May 2006
14. Presentation, "The Future of Global Manufacturing, Nanotechnology", Santa Clara Convention Center, May 2006

13. Seminar, Berkeley Nanoscience and Nanoengineering Institute (BNNI) & Bioengineering Dept, University of CA, Berkeley, April 11, 2005
12. Poster, Presenter, Workshop Participant, National Academices Keck Future Initiative, "Designing Nanostructures Conference", November 18-21, 2004
11. participant, National Academies Keck Future Initiative, "Designing Nanostructure Pre-Conference", Sept. 18-19, 2004
10. Poster, Frontiers of Chemistry, Kloster Seeon, Germany, July 16, 2004
9. Chair of *Tissue Engineering and Biomineralization* session, Frontiers of Chemistry, Kloster Seeon, Germany, July 16, 2004
8. Talk, July 7, 2004, NASA/AMES Workshop, July 7, 2004,
7. Talk, March 10, 2002: "Soft Solution Processing", Schloss Ringberg, Germany
6. Talk, March 6, 2002: "Biomimetic Engineering", Destin, FL
5. Talk, May 8, 2001: "Bio-inspired Materials", University of Minnesota, Twin Cities, Minneapolis, MN
4. Talk, January 18, 2001: Pacific Northwest National Laboratories, Batelle, Richland, WA
3. Talk, December 16, 2000: "American Chemical Society, 2000", Honolulu, HI
2. Talk, August 15, 2000: "Gordon Research Conference, Biomineralization", New Hampshire
1. Talk, June 5, 2000: Conference, "Society for Experimental Mechanics, Inc.", Orlando, FL

(VIII) CONFERENCE PROCEEDINGS: Talk unless indicated otherwise
35. K. Ma, O. Yehezkeli, D.W. Domaille, H.H. Funke, **J.N. Cha**, "Increased Hydrogen Production from DNA Assembled TiO_2-CdS Photoacatalytic Materials", ACS National Meeting, San Diego, CA, March 2016
34. L. He, C. Mao, S.K. Cho, A. Yildirim, K. Ma, A.P. Goodwin, W. Park, **J.N. Cha**, "Plasmonic Modulation of Fluorescence in Gold Nanostart-$NaYF_4$:Yb/Er for Multimodal Imaging, Photothermal and Photodynamic Therapy, ACS National Meeting, San Diego, CA, March 2016
33. O. Yehezkeli, **J.N. Cha**, ACS National Meeting, Denver, CO, March 2015
32. D.W. Domaille, D. McKinninon, K.S. Anseth, **J.N. Cha,** Dynamic hydrazone-crosslinked hydrogels provide an adaptable matrix for 3D cell culture. D. Domaille, D. McKinnon, K.S. Anseth, J. Cha
ACS National Meeting, Denver, CO, March 2015
31. S. Goodman, V. Singh, H. Noh, J. Casamada, A. Chatterrjee, **J. Cha**, P. Nagpal, "Exciton shelves for charge and energy transport in third-generation quantum-dot devices" APS, March 2014
30. M. Brasino, **J.N. Cha**, "Filamentous Bacteriophage as Scaffolds for Enhanced Enzyme Linked Immunosorbent Assays (ELISA)", MRS Fall Meeting, Nov 2014, Boston, MA
29.O. Yehezkeli, D.R.D. Barcellos, **J.N. Cha**, "Electrostatically Assembled CdS-Co_3O_4 Nanostructures for Photo-Assisted Water Oxidation and Photocatalytic Reduction of Dye Molecules, MRS Fall Meeting, Nov, 2014, Boston MA
28. H. Noh, **J.N. Cha**, "Charge Transport Studies in CdSe Nanoparticle Thin Films Mediated by DNA Hybridization", MRS Meeting, San Francisco, CA, April 2013
27. J.H. Lee, **J.N. Cha**, "SERS Based Protein Detection from Bacteriophage Systems", MRS Meeting, San Francisco, CA, April 2013
26. P.F. Xu, J.H. Lee, C. Choi, S. Jin, J. Wang, **J.N. Cha**, "SERS Detection of Analytes Using Switchable Nanodumbbell Probes", MRS Meeting, April 2013
25. D. McKinnon, D.W. Domaille, **J.N. Cha** K.S. Anseth, "Covalently Adaptable Networks as Biophysical-ECM Mimics for Cell Culture", AIChE Annual Meeting, November, 2013
24. M.A. Nakatsuka, R.F. Mattrey, S.C. Esener, **J.N. Cha**, A.P. Goodwin, "Aptamer Crosslinked Microbubbles for Biochemically Specific Detection of Acute Thrombosis by Contrast Enhanced

Ultrasonography", 2012 Student Annual Research Symposium (StARS), University of Colorado ,Boulder, October 2012, *2nd Place Awardee Overall*

23. L.M. Forbes, A. O'Mahony, S. Sattayasamitsathit, J. Wang, **J.N. Cha**, "Ligand Effects on Platinum Nanoparticle Synthesis and Catalytic Activity", Jacobs School of Engineering EXPO 2012, UC San Diego, April 2012, *poster*

22. P.F. Xu, A.M. Hung, H. Noh, **J.N. Cha**, "Switchable Nanodumbbell Probes for Analyte Detection" Jacobs School of Engineering EXPO 2012, UC San Diego, April 2012, *Honorable Mention Poster Awardee, poster*

21. D.W. Domaille, J.H. Lee, **J.N. Cha**, "Synthesis, Characterization, and Protein Sensing Applications of M13 Bacteriophage-DNAzyme Bioconjugates", American Chemical Society Spring Meeting, San Diego, CA, March, 2012

20. L.M. Forbes, A. O'Mahony, S. Sattayasamitsathit, J. Wang, **J.N. Cha**, "Effects of various functional groups on the growth of platinum nanoparticles and catalytic activity toward ORR", American Chemical Society Spring Meeting, San Diego, CA, March, 2012

19. J.H. Lee, **J.N. Cha,** "Colorimetric Protein Detection: Plasmonic Shift Via DNA-Au Nanoparticle Flocculation based on Chmically Engineered DNA-M13 Bacteriophage Platform" Spring 2012 Materials Research Society National Meeting, San Francisco, CA, April 2012

18. M. A. Nakatsuka, M.J. Hsu, S.C. Esener, **J.N. Cha,** A.P. Goodwin, "DNA-Coated Microbubbles with Tunable Ultrasound Contrast Activity for Thrombin Sensing" Spring 2012 Materials Research Society National Meeting, San Francisco, CA, April 2012

17. A.P. Goodwin, M.A. Nakatsuka, M.J. Hsu, R.F. Mattrey, S.C. Esener, **J.N. Cha**, "Stimulus-Responsive Microbubbles as "Smart" Contrast-Enhanced Ultrasound Imaging Agents", Materials Research Society Meeting, SF, CA, April 2012

16. P. Xu, H. Noh, **J.N. Cha**, "Directed Assembly of Carbon Nanotubes through Specific DNA Hybridization". Spring 2011 Materials Research Society National Meeting, San Francisco, CA April 2011

15. M.A. Nakatsuka, M.J. Hsu, S.C. Esener, **J.N. Cha**, A.P. Goodwin, "Tuning of Microbubble Response to Ultrasound through DNA Crosslinking of the Encapsulating Shell", Spring 2010 Materials Research Society National Meeting, San Francisco, CA, April 2011.

14. J.H. Lee, **J.N. Cha,** "Chemically Modified M-13 Bacteriophages for Amplifiable Colorimetric Antigen Detection", Spring 2010 Materials Research Society National Meeting, San Francisco, CA, April 2011

13. L.M. Forbes, **J.N. Cha**, "Bioinspired routes for synthesizing efficient nanoscale platinum electrocatalysts", Abstracts of Papers, 241st ACS National Meeting, Anaheim, CA, March 27-31 (2011)

12. A.P Goodwin, M.A. Nakatsuka, E. Nakayama, M.J. Hsu, R.F. Mattrey, S.C. Esener, **J.N. Cha**, "DNA-polymer-lipid shelled microbubbles with tunable ultrasound contrast properties", PMSE Preprints, ACS National Meeting, Anaheim, CA (2011)

11. A.P. Goodwin, M.A. Nakatsuka, M.J. Hsu, R.F. Mattrey, S.C. Esener, **J.N. Cha**, "Stimulus-responsive ultrasound contrast agents from microbubbles stabilized by polymer-phospholipid assemblies", PMSE Preprints, ACS National Meeting, Boston MA (2010)

10. H. Noh, A.M. Hung, C. Choi, S. Jin, **J.N. Cha**, "Low-cost, High-throughput nanoscale patterning of DNA for nanomaterial assembly", Spring 2010 Materials Research Society National Meeting, San Francisco, CA, April 2010

9. A.M. Hung, **J.N. Cha**, "Interfacing micro with nano: the role and potential of biomolecular architectures", Polymer Preprints, **51,** 114-115 (2010)

8. C. Buie, A. Fornoff, C.M. Micheel, **J.N. Cha**, "Directed assembly of gold nanoparticles on modified DNA origami", Polymer Preprints, **49,** 1117-1118 (2008)

7. C.M. Micheel, **J.N. Cha**, "Selective placement and orientation of DNA-wrapped single-walled

carbon nanotubes on metal and semiconductor surfaces", Abstracts of Papers, 232nd ACS National Meeting, San Francisco, CA, Sept 10-14, 2006
6. B. Parrish, **J. Cha**, "Peptide end-functionalized block copolymers prepared by reversible addition-fragmentation chain transfer polymerization", Polymer Preprints, **47,** 588 (2006).
5. E.M. Freer, **J.N. Cha**, J.L. Hedrick, R.D. Miller, Kim, H.-C. "Nanostructured organosilicates from self-assembled block copolymer/silsequioxane mixtures" PMSE Preprints, **92,** 69-70 (2005)
4. V. Murthy, **J.N. Cha**, G.D. Stucky, M.S. Wong, "Assisted self-assembly of nanoparticles into hollow microspheres", Abstracts of Papers, 226th ACS National Meeting, New York, NY, Sept 7-11, 2003.
3. H. Birkedal, M.H. Bartl, **J.N. Cha**, G.D. Stucky, "Large photoactivated increase in photoluminescence intensity and ligand decomposition in citrate stabilized CdSe nanoparticles", Abstracts of Papers, 226th ACS National Meeting, New York, NY, Sept 7-11, 2003
2. L.E. Euliss, **J.N. Cha**, D.E. Morse, T.J. Deming, G.D. Stucky, "Organization of Calcium Carbonate on a Multi-Dimensional Length Scale", Abstracts of Papers, 223rd ACS National Meeting, Orlando, FL, April 7-11, 2002
1. J.N. Cha, T.J. Deming, D.E. Morse, G.D. Stucky, "Lessons from nature: Novel design strategies for biomimetic silica synthesis", Book of Abstracts, 219th ACS National Meeting, SF, CA, March 26-30, 2000, INOR-436

(IX) ADVISEES:

Graduate Students Advised

Graduated Ph.D. Students
1. Ju Hun Lee, MSE, UCSD, Ph.D., 2013
2. Hyunwoo Noh, MSE, UCSD, Ph.D., 2013
3. Lauren Forbes, Chemistry, UCSD, Ph.D., 2013
4. Phyllis Xu, MSE, UCSD, Ph.D., 2013
5. Matt Nakatsuka, MSE, UCSD, Ph.D., 2013
6. Michael Brasino, MSE, CU, Ph.D., 2016

Current Graduate Ph.D. Students
7. Ke Ma, ChBE Ph.D. Candidate (will graduate summer 2017)
8. Glenn Hafenstine, ChBE, jointly advised with Prof. Goodwin
9. Albert Harguindey, ChBE
10. Alexander Harris, ChBE, jointly advised with Prof. Goodwin

Graduated MS Students
11. Yue Shi, MS, Chemistry, UCSD, 2008-2011
12. Claudia Schuldberg, MS, ChE, UCSD, 2011-2012
13. Sarah Chowdhury, MS, ChE, UCSD, 2011-2012
14. Taeseok Oh, current grad student in MSE, UCSD
15. Philip Lehman, MS, ChBE, CU, 2014-2016

***Undergraduate Students Advised*:**
1. Joo Hye Lee (Pharm Chem)
2. Emi Nakayama (ChemE)
3. Alan Toledo (ChemE)
4. Yu-Fan Shih (ChemE)

5. Nathan Konopliv (ChemE)
6. Otto Ho (ChemE)
7. Xiaolong Qiu (ChemE)
8. Elliot Blanford (ChemE)
9. Christopher Chu (Regents Scholar)
10. Katherine Liu (Regents Scholar)
11. Mattias Greer, CU, ChBE
12. Harrison Fairbanks, CU, ChBE
12. Jace Blackburn, CU, ChBE
13. Alexander Farwell, CU, ChBE
14. Irene Won, CU, ChBE
15. Jeffrey Brewer, CU, ChBE
16. Mollie Maples, REU Student

Postdoctoral Fellows Advised

Current Postdoctoral Researchers
1. Dr. Omer Yehezkeli, CU, 2013-present
2. Dr. Liangcan He, CU, 2013-present
3. Dr. Michael Brasino, CU, 2016-present

Current Research Assistant Professor
1. Prof. Dylan Domaille, CU, 2015-present

Past Postdoctoral Researchers
1. Dr. Dylan W. Domaille, currently Research Asst Prof, CU, 2012-2015
2. Dr. Albert Hung, 2009-2012

Former Students Advised (while at IBM): Ms. Brittany Gigliotti (B.S., 2006), Ms. Brenda Sakizzie (B.S., 2006), Ms. Vivan Ng (M.S., 2006), Mr. Caesar Buie (B.S., 2008), Mr. Lucas Obsterbur (B.S. 2009), Dr. Bryan Parrish (Ph.D. UMass, now at Clorox), Dr. Christine Micheel (Ph.D. UC Berkeley, now at National Academy of Science)

(X) CENTER DIRECTORSHIP

Soft Materials Research Center, NSF MRSEC, University of Colorado, Boulder

Co-Principle Investigator (PI: Noel Clark, co-PIs: David Walba, Christopher Bowman, 19 other Senior Investigators), 2014- present

Co-Leader of IRG 2, Click Nucleic Acids (CNA**)**

(XI) PROFESSIONAL ACTIVITIES:

- Editorial Advisory Board, *Scientific Reports* (2015-present)
- Panelist for NSF Proposal Reviews (CMMI-Nanomanufacturing, CBET-Nanobiosensing, DMR-Biomaterials)
- Panelist for NIH Proposal Reviews (SBIR, R21, R03, K99)
- Panelist for NSF Center Grants (MRSEC Reverse Site (2 times), MRSEC preproposals)
- Panelist for DOE EFRC Reviews (DOE-BES- 1 time)
- DOE Mail Review (BES, Early career)

- AFOSR Mail Review
- National meeting session chair or co-chair:
  - "Stimuli Responsive Materials", ACS National Meeting, March 2012, San Diego, CA
  - "Stimuli Responsive Materials", ACS National Meeting, March 2015, Denver, CO

Reviewer: *J. Am. Chem. Soc., Langmuir, Nanoletters, Advanced Materials, Small, Nature Nanotechnology, ACS Nano, Analytical Chemistry, J. of Nanoparticle Research, Nature Materials, Nature, Advanced Functional Materials, Angewandte Chemie, Analyst, ACS Catalysis*

Workshop participant:

- Invited Participant, National Academy of Engineering Frontiers of Engineering Symposium Attendee, Armonk, NY 2010
- Invited Participant, Thirteenth Japanese-American Kavli Frontiers of Science Symposium, National Academy of Sciences, November 2012
- 2013 US-China Workshop on Solar Energy and Environment, May 2013, National Academy of Sciences, Washington, DC

(XII) INTERNAL SERVICE ACTIVITIES

At University of Colorado, Boulder (2012-present)

Departmental

1. Faculty Member, Faculty Committee, 2012-2015
2. Faculty Search Committee, ChBE, 2013-2015
3. Faculty Search Committee, MSE, 2013
4. Leadership Committee, ChBE, Spring 2016-present
5. Associate Chair, Lead Graduate Committee, July 2016-present

-responsible for graduate affairs including graduate recruitment, grad admissions, graduate class requirements, graduate affairs, prelim exams)

College

1. Faculty Fellow, Materials Science and Engineering Program, 2012-present

University

1. Soft Materials Research Center, NSF MRSEC, Co-PI, Co-Leader IRG 2, 2014-present

At University of California, San Diego (2008-2012)

Departmental

1. UCSD Jacobs School of Engineering (JSOE) scholar day faculty host (2009)
2. Faculty presenter at the San Diego Science Festival, 2009
3. Founding member of the Nanotechnology Research Foundation (NRF)
4. Design and implementation of new graduate and undergraduate level courses for Nanoengineering (Nanofabrication (W '09), Intermolecular Forces (F'09, '10, '11), Biochemical Principles of Nanoengineering (Spring, '12))
5. Nanoengineering Graduate committee faculty member
6. Diversity Representative for Nanoengineering for Jacobs School of Engineering

-Faculty advisory member of JSOE IDEA (Inclusion, Diversity, Excellence and Advancement) Center

7. Academic Senate Faculty Representative for Nanoengineering

College

1. Jacobs School Diversity Council, Faculty Representative from Nanoengineering
2. IDEA Center Faculty Member (Engineering Advisory Council)
3. Faculty member of the Moores UCSD ET-CURE undergraduate program
4. Faculty advisor and host for Regents Scholar Research Initiative (RSRI) mentor program

(XIII) TEACHING

1. Winter 2009: CENG 208 Advanced Nanofabrication (Grad) @UCSD
2. Fall 2009, 2010, 2011: Intermolecular and Colloidal Forces (Grad) @UCSD
3. Winter 2010, 2011, 2012: Chemical Engineering Thermodynamics (Undergrad) @UCSD
4. Spring 2012: Biochemical Principles of Nanoengineering (Undergrad) @UCSD
5. Spring 2013, 2014: Biology for Engineers @CU Boulder
6. Fall 2013, 2014, 2016: Engineering at the Nanoscale @CU Boulder
7. Spring 2015, 2016: Physical Chemistry for Engineers @CU Boulder

(XIV) FUNDING

Funding (2012-present)

1. Title: Photocatalytic Systems for CO_2 Reduction, ACS Petroleum Research Funds, Time Period: 9/1/16-8/31/18, Investigators: **Jennifer Cha** (PI), Charles Musgrave (co-PI), $110,000
2. Title: Biomolecule Directed Assembly for Enhancing Near IR Energy Transfer Processes in Theranostics, National Institute of Health, Time Period: 7/15/15-7/14/17, Investigators: **Jennifer Cha** (PI), Andrew Goodwin (co-PI), Won Park (co-PI), $383, 255
3. Title: MRSEC: Soft Materials Research Center, National Science Foundation, Time Period: 11/14-10/20, Investigators: Noel Clark (PI), **Jennifer Cha** (co-PI), Chris Bowman (co-PI), David Walba (co-PI), $ 12,000,000, ~$400,000 to co-PI Cha
4. Title: DURIP: Nanoscale Optical Imaging and Spectroscopy from Visible to Mid-infrared
Army Research Office, Investigators: Won Park (PI), **Jennifer Cha** (co-PI), $289,834
5. Title: Bio-enabled Assembly of Well-Defined Metal Upconversion Nanoparticle Clusters for Energy Applications, University of Colorado, Boulder, Time Period: 9/13-12/14, Investigators: **Jennifer Cha** (PI), Won Park (co-PI), $25,000
6. Title: Rigid Biopolymer Nanocrystal Systems for Controlling Multicomponent Nanoparticle Assembly and Orientation in Thin Film Solar Cells, Department of Energy Early Career Award, 7/01/11-8/01/16, Investigators: **Jennifer Cha** (PI), $750,000
7. Title: CAREER: Engineering Bacteriophage as Amplifiable Platforms for Analyte Sensing and Identification, NSF, 04/01/11-04/31/16, Investigators: **Jennifer Cha** (PI), $497,657
8. Title: Hierarchical Organization of Multicomponent Nanocrystals for Photodetectors through Tunable Biomolecular Interactions, Office of Naval Research, Time Period: 06/01/11-06/01/15, Investigators: **Jennifer Cha** (PI), $510,000
9. Title: Alfred P. Sloan Research Fellow, Time Period: 02/12-02/14, Investigator: **Jennifer Cha** (PI), $50,000
10. Title: Stimulus Reponsive Microbubbles for Site-Specific Imaging of Deep Venous Thrombosis
NIH NIIB, Time Period: 7/11-6/13, Investigators: Sadik Esener (PI), Robert Mattrey (co-PI), **Jennifer Cha** (co-PI), $400, 269
11. Title: Bio-Inspired Routes for Synthesizing Efficient Nanoscale Platinum Eletrocatalysts, Department of Energy, Time Period: 09/01/10 - 08/31/13, Investigator: **Jennifer Cha** (PI), Joseph Wang (Co-PI), $690, 000

Completed Funding Prior to 2012

1. Title: Approaches for Wafer-Level Generation of Nanoscale Device Arrays, National Science Foundation, Time Period: 7/09-6/12, Investigators: **Jennifer Cha** (PI), Sungho Jin (co-PI) $455, 999
2. Title: Manufacturable Approaches for Nanometer Resolution Patterning, DARPA, Time Period: 9/09-9/11, Investigators: **Jennifer Cha** (PI) $300,000
3. Title: Lithographically Directed Biomolecular Assembly of Electronically Functional Nanostructures for Sub-10nm Electronic Device, ONR, Time Period: 12/08-6/11, Investigators: **Jennifer Cha** (PI-subcontract from Columbia Univ) $247,654
4. Title: Engineering Multiplexed Protein Sensing Diagnostics through Specific Plasmonic Signatures, Samsung, Time Period: 2/10-1/11, Investigators: **Jennifer Cha** (PI), $100,000
5. Title: Bio-inspired Routes for Synthesizing Efficient Nanoscale Platinum Electrocatalysts, UCSD Hellman Faculty Award, Time Period: 4/1/09-3/31/10, Investigators: **Jennifer Cha**, $24,000
6. Title: Engineering pH-Responsive siRNA Delivery Systems, UCSD Academic Senate, Time Period: 1/09-12/09, Investigators: **Jennifer Cha**, $10,000