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DOB: February 10, 1981

Education

- 2002–2007 Ph.D. in Chemistry
University of California, Berkeley
Research Adviser: Peidong Yang
- 1998–2002 A.B. in Chemistry and Physics, with honors in field
Harvard University
Academic Adviser: Dudley R. Herschbach
Research Adviser: George M. Whitesides

Research Experience

- 2007–present *University of California, Santa Barbara – Santa Barbara, CA. **University of California President’s Postdoctoral Fellow.*** Mentor: Daniel E. Morse, Institute for Collaborative Biotechnologies.
- Synthesis of hierarchical BaTiO₃ structures for nanoscale device applications
 - High-throughput building block assembly
 - Adaptive photonic devices mimicking squid skin
- 2002–2007 *University of California, Berkeley – Berkeley, CA. **National Science Foundation Graduate Research Fellow.*** Advisor: Peidong Yang, Dept. of Chemistry, Materials Science Division at Lawrence Berkeley National Laboratory.
- Large-scale assembly of nanowires
 - Shape-controlled silver nanocrystals
 - Monodisperse colloidal synthesis
 - Darkfield optical scattering of individual and ensemble particles
 - Tunable assembly of plasmonic crystals
 - Nanoparticle and nanowire arrays for surface-enhanced Raman sensing
- 2001–2002 *Harvard University – Cambridge, MA. **Materials Research and Science Engineering Center REU***
Mentor: George M. Whitesides, Chemistry and Chemical Biology, Applied Engineering Sciences.
Mesoscale self-assembly of flexible light-emitting diode arrays for display devices.
- 2000 *Center for Integrated Systems, Stanford University – Palo Alto, CA. **NSF, National Nanofabrication Users Network REU.*** Mentor: James S. Harris, Electrical Engineering. Fabrication of buried refractive AlGaAs microlens arrays for vertical-cavity surface-emitting lasers.
- 1999 *Biosite Diagnostics, Inc. – San Diego, CA. **NSF Research Training Program in Solid-State Chemistry REU.*** Chemistry researcher, R&D. Surface chemistry of latex microparticles used in fluorescence energy transfer technology for the Cardiac Triage, a blood-based diagnostic device detecting myocardial infarction.
- 1995–1998 *University of California, San Diego – La Jolla, CA. **Southern California Academy of Sciences Research Training Program** and the **Junior Science & Humanities Symposium Research Program.*** Mentor: Michael J. Sailor, Dept. of Chemistry & Biochemistry.
- Optical properties of electrochemically etched porous silicon and the effects of oxidation and surface derivatization.
 - Distinguished by the **American Chemical Society, Society of Materials Engineers, American Vacuum Society, Fred H. Rohr Memorial.**

- Presented at the 1998 AAAS Annual Meeting & Science Innovation Exposition and the 1997 Museum of Science Conference.

Selected Honors and Awards

2007	University of California President's Postdoctoral Fellowship
2006	Tomas A. Hirschfeld Award, Federation of Analytical Chemistry and Spectroscopy Societies
2006	Materials Research Society Graduate Student Award, Silver
2006	Xerox Technical Minority Scholarship
2002-2005	National Science Foundation Graduate Research Fellow (UC Berkeley)
1999-2002	Dean's list (Harvard)
1999-2002	Harvard College Scholarship for academic distinction
2000-2002	Editor-in-Chief, Journal of Undergraduate Sciences
2001	Diversity in Science and Technology Forum panelist, Harvard JFK School of Government
2001	International Society for Optical Engineering Scholarship
1998	Westinghouse Science & Talent Search Semi-finalist

Publications

1. A.R. Tao, P. Sinsersuksakul, and P. Yang. "Tunable plasmonic superlattices of silver nanocrystals." *Nature Nanotechnology*, 2, 435 (2007). Cover image at right.
2. J. Huang, A.R. Tao, P. Yang. "Nanocrystal and Nanowire Langmuir-Blodgetty." *Accounts of Chemical Research*, in preparation, 2007.
3. D.J. Sirbulu, A.R. Tao, M. Law, R. Fan, and P. Yang. "Multi-functional nanowire evanescent wave optical sensors." *Advanced Materials*, 19, 61 (2007). Highlights: *Nature Photonics*, "Nanoscale optical sensors: Brightness helps," online, 14 December (2006).
4. A.R. Tao, P. Sinsersuksakul, and P. Yang. "Polyhedral silver nanocrystals with distinct scattering signatures." *Angewandte Chemie International Edition*, 45, 4597 (2006). Highlights: "Very Important Paper," as chosen by journal referees.
5. J. Huang, A. Tao, S. Connor, P. Yang. "A general method for assembling single nanoparticle lines." *Nano Letters*, 6, 524 (2006).
6. A. Tao*, J. Huang*, F. Kim*, S. Conner, P. Yang, "Dewetting induced formation of ordered nanoparticle stripe patterns." *Nature Materials*, 4, 896 (2005).
7. A.R. Tao, P. Yang. "Polarized surface-enhanced Raman spectroscopy on coupled metallic nanowires." *Journal of Physical Chemistry B*, 109, 33 (2005).
8. A. Tao*, F. Kim*, C. Hess*, P. Yang et al. "Langmuir-Blodgett silver nanowire monolayers for molecular sensing using surface-enhanced Raman spectroscopy." *Nano Letters*, 3, 1229 (2003). Highlights: *Nature*, News and Views, "Nanotechnology: Wires on Water," 425, 243 (2003).
9. H.O. Jacobs, A.R. Tao, A. Schwartz, D.H. Gracias, and G.M. Whitesides. "Fabrication of a cylindrical display by patterned assembly." *Science*, 296, 323 (2002). Highlights: *Chemical & Engineering News*, News of the Week, "Self-Assembly Required," 80, 15 (2002).



*indicates multiple first authors

Selected Presentations

1. "Bottom-up assembly of tunable plasmonic lattices." Materials Research Society Fall Meeting, Boston, MA, November 2006.
2. Invited speaker. "One-dimensional nanostructures as spectroscopic sensing platforms." 33rd Federation of Analytical Chemistry and Spectroscopy Societies National Conference. Orlando, FL, September 2006.
3. Poster. "Silver nanocrystals as plasmonic building blocks." Gordon Research Conference in Plasmonics, Keane State, NH, August 2006.
4. Graduate Research Award Symposium. "Exploring the optical properties of silver polyhedral nanocrystals." Materials Research Society Spring Meeting, San Francisco, CA, April 2006.
5. Poster. "Polyhedral silver nanocrystal building blocks." Berkeley Nanotechnology Forum, Berkeley, CA, April 2006.
6. Invited speaker. "Synthesis and assembly of platonic nanocrystals." Workshop on designing non-traditional materials based on geometric principles. Clausthal University of Technology. Hanover, Germany, June 2005.
7. Invited speaker. "Silver nanowires for SERS sensing." 31st Federation of Analytical Chemistry and Spectroscopy Societies National Conference. Portland, OR, October 2004.
8. "Langmuir-Blodgett silver nanowire monolayers for molecular sensing with high sensitivity and specificity." 227th American Chemical Society National Meeting. Anaheim, CA, March 2004.
9. Poster. "Langmuir-Blodgett Assembly of Silver Nanowires." UC Berkeley Surface Science Symposium, April, 2003.

Teaching Experience

- 2006-2007 *University of California, Berkeley.* **Cal American Chemical Society Mentor.** Academic mentor for undergraduates in science and engineering departments (geared toward underrepresented groups).
- 2003-2007 *University of California, Berkeley.* **Mentored three undergraduate researchers** under principal investigator Peidong Yang. Includes daily involvement with their individual research projects concerning nanoparticle synthesis and electron microscopy.
- 2005 *University of California, Berkeley.* Teaching assistant for the Chemistry 253 series (Instructors: P. Yang and G. Somorjai), **Materials Chemistry, a graduate-level chemistry course** offered across disciplines. Wrote biweekly problem sets, two final exams, and guest-lectured for discussion of group theory and band gap construction.
- 2004 *University of California, Berkeley.* Teaching assistant for Chemistry 104a (Instructor: P. Yang), **Inorganic Chemistry.** Led class-wide discussion sections and problem-based review sessions for over 100 students.
- 2003 *University of California, Berkeley.* Teaching assistant for Chemistry 1b, **General Chemistry for non-chemistry majors.** Led a weekly discussion and laboratory section for a class of 40. In addition to regular office hours, led a one-hour help session open to all students enrolled in the 300+ class.