

# CURRICULUM VITAE

NAME: Xiaohua Huang

DEPARTMENT: Chemistry

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## EDUCATION

DEGREES	DISCIPLINE	INSTITUTION	YEAR
Ph.D.	Chemistry	Georgia Institute of Technology	2006
M.S.	Chemistry	Peking University (China)	2001
B.S.	Chemistry	Jilin University (China)	1996

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## EXPERIENCE

RANK/POSITION	DEPARTMENT	INSTITUTION	PERIOD
Assistant Professor	Chemistry	The University of Memphis	2010-present
Postdoctoral Fellow	Biomedical Engineering	Emory University	2008-2010
Postdoctoral Fellow	Chemistry	Georgia Institute of Technology	2006-2008

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## HONORS/AWARDS

HONOR/AWARD	INSTITUTION	YEAR
College of Arts and Sciences Early Career and Research Award	The University of Memphis	2012
Oak Ridge Associated Universities' Ralph E Powe Junior Faculty Enhancement Award	The University of Memphis	2011
Distinguished Center of Cancer Nanotechnology Excellence postdoctoral fellow	Emory University	2008-2010
American Association for Cancer Research-Women in Cancer Research Brigid G. Leventhal Scholar	Georgia Institute of Technology	2007
National Analytical Technique Society Science and Technology Award, First Place	Peking University (China)	2000

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## TEACHING EXPERIENCE

SUBJECT (undergraduate (U), Graduate (G))	INSTITUTION
Biochemistry I (U)	The University of Memphis
Advanced Analytical Chemistry I (G)	The University of Memphis
Advanced Analytical Chemistry II (G)	The University of Memphis
Cancer Nanotechnology (G)	The University of Memphis

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## STUDENT ADVISING/MENTORING (Appendix B for additional information)

CURRENT DEGREE	NAME	YEAR OF GRADUATION
Undergraduate	Melody Williams	2015
	Christian Moriah Greenhill	2014
	Kristen Dollahite	2012
	Vata Sitimascharoen	2011
Doctoral	Allie E. Kwizera	2019
	Ryan O'Connor	2018
	Elise Chaffin	2016
	Saheel Bhana	2015

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## PUBLICATIONS

Refereed Journal Publications:

1. S. Bhana, Y. Wang, and **X. Huang**. Nanotechnology for enrichment and detection of circulating tumor cells. *Nanomedicine (London, U.K.)*, in press. **Invited review**. (Impact factor: 5.41)
2. S. Bhana, G. Liu, L. Wang, H. Starring, S.R. Mishra, G. Liu, and **X. Huang**. Near infrared-absorbing gold nanopopcorns with iron oxide cluster core for magnetically amplified photothermal and photodynamic cancer therapy. *ACS Appl. Mater. Interfaces* 2015, 7, 11637-11647. (Impact factor: 6.72)
3. B. Qiu, J. Guo, Y. Wang, X. Wei, Q. Wang, D. Sun, M.A. Khan, D.P. Young, R. O'Connor, **X. Huang**, X. Zhang, B.L. Weeks, S. Wei, and Z. Guo. Dielectric properties and magnetoresistance behavior of polyaniline coated carbon fabrics. *J. Mater. Chem. C*. 2015, 3, 3989-3998. (Impact factor: pending)
4. Y. Wang, Q. He, K. Ding, H. Wei, J. Guo, Q. Wang, R. O'Connor, **X. Huang**, Z. Luo, T.D. Shen, S. Wei, and Z. Guo. Multiwalled carbon nanotubes composited with palladium nanocatalysts for highly efficient ethanol oxidation. *J. Electrochem. Soc.* 2015, 162(7), F755-F763. (Impact factor: 2.86)
5. B. Qiu, Y. Wang, D. Sun, Q. Wang, X. Zhang, B.L. Weeks, R. O'Connor, **X. Huang**, S. Wei, and Z. Guo. Cr (VI) removal by magnetic carbon nanocomposites derived from cellulose at different carbonization temperatures. *J. Mater. Chem. A*. 2015, 3, 9817-9825. (Impact factor: pending)
6. Y. Wang, Q. He, J. Guo, H. Wei, S. Bhana, **X. Huang**, Z. Luo, T. Shen, K. Ding, S. Wei, and Z. Guo. Carboxyl multi-walled carbon nanotubes stabilized palladium nanocatalysts with improved methanol oxidation reaction. *ChemElectroChem*. 2015, 2(4), 559-570. (Impact factor: pending)
7. H. Wei, Y. Wang, J. Guo, X. Yan, R. O'Connor, X. Zhang, N.Z. Shen, B.L. Weeks, **X. Huang**, S. Wei, and Z. Guo. Electropolymerized polypyrrole nanocoatings on carbon paper for electrochemical energy storage. *ChemElectroChem*. 2015, 2(1), 119-126. (Impact factor: pending)
8. F.R. Madiyar, S. Bhana, L. Swisher, C. Culbertson, **X. Huang**, and J. Li. Integration of nanostructured dielectrophoretic device and surface enhanced Raman probe for highly sensitive rapid bacteria detection. *Nanoscale* 2015, 7, 3726-3736. (Impact factor: 6.74)
9. E. Chaffin, S. Bhana, R.T. O'Connor, **X. Huang**, and Y. Wang. Impact of core dielectric properties on the localized surface plasmonic spectra of gold-coated magnetic core-shell nanoparticles. *J. Phys. Chem. B*. 2014, 118(49), 14076-14084. (Impact factor: 3.30)
10. Y. Wang, Q. He, H. Qu, X. Zhang, J. Guo, J. Zhu, G. Zhao, H.A. Colorado, J. Yu, L. Sun, S. Bhana, M.A. Khan, **X. Huang**, D.P. Young, H. Wang, X. Wang, S. Wei, and Z. Guo. Magnetic graphene oxide nanocomposites: nanoparticles growth mechanism and property analysis. *J. Mater. Chem. C*. 2014, 2, 9478-9488. (Impact factor: pending)
11. C. Xu, B. Qiu, X. Yan, H. Wei, **X. Huang**, Y. Wang, D. Rutman, D. Cao, S. Bhana, S. Wei, and Z. Guo. Synergistic interactions between activated carbon fabric and toxic hexavalent chromium. *ECS J. Solid State Sci. Technol.* 2014, 3, M1-M9. (Impact factor: 0.92)
12. S. Bhana, S.R. Mishra, Y. Wang, and **X. Huang**. Capture and detection of cancer cells in whole blood with magnetic-optical nanoovals. *Nanomedicine (London, U.K.)* 2014, 9(5), 593-606. (Impact factor: 5.41. Reported by International Invention Research Media)
13. F. Ren, S. Bhana (co-first author), D. Norman, J. Johnson, L. Xu, D.L. Baker, A.L. Parrill, and **X. Huang**. Gold nanorods carrying paclitaxel for photothermal-chemotherapy of cancer. *Bioconjugate Chem.* 2013, 24, 376-386. (Impact factor: 4.51. Time cited: 20)
14. S. Bhana, B.K. Rai, S.R. Mishra, Y. Wang, and **X. Huang**. Synthesis and properties of near infrared-absorbing magnetic-optical nanopins. *Nanoscale* 2012, 4, 4939-4942. (Impact factor: 6.74. Times cited: 11. Highlighted by Chemistry World, The Royal Society of Chemistry)
15. E.C. Dreaden, A.M. Alkilany, **X. Huang**, C. Murphy, and M.A. El-Sayed. The golden age: gold nanoparticles for biomedicine. *Chem. Soc. Rev.* 2012, 41, 2740-2779. **Invited review**. (Impact factor: 30.43. Times cited: 539)
16. E.C. Dreaden, M.A. Mackey, **X. Huang**, B. Kang and M.A. El-Sayed. Beating cancer in multiple ways using nanogold. *Chem. Soc. Rev.* 2011, 40, 3391-3404. **Invited review**. (Impact factor: 30.43. Times cited: 181)
17. **X. Huang** and M.A. El-Sayed. Plasmonic photo-thermal therapy (PPTT). *Alexandria J. Med.* 2011, 47, 1-9. **Invited review**. (Impact factor: pending)
18. **X. Huang**, X. Peng, Y. Wang, Y. Wang, D.M. Shin, M.A. El-Sayed, and S. Nie. A reexamination of active and passive tumor targeting by using rod-shaped gold nanocrystals and covalently conjugated peptide ligands. *ACS Nano* 2010, 4(10), 5887-5896. (Impact factor: 12.88. Times cited: 162)

19. **X. Huang**, B. Kang, W. Qian, P.C. Chen, A.K. Oyelere, and M.A. El-Sayed. Comparative studies of photothermolysis of cancer cells with gold nanoparticles: in the cytoplasm or nucleus using pulsed or cw laser. *J. Biomed. Opt.* 2010, 15(5), 058002/1-7. (Impact factor: 2.86)
20. W. Qian, **X. Huang**, B. Kang, and M.A. El-Sayed. Dark-field light scattering imaging of living cancer cell component from birth through division using bioconjugated gold nanoprobe. *J. Biomed. Opt.* 2010, 15(4), 046025/1-9. (Impact factor: 2.86)
21. **X. Huang** and M.A. El-Sayed. Gold nanoparticles: optical properties and implementations in cancer diagnosis and photothermal therapy. *J. Adv. Res.* 2010, 1, 13-28. **Invited review.** (Impact factor: 1.35)
22. **X. Huang**, S. Neretina, and M.A. El-Sayed. Gold nanorods: from synthesis and properties to biological and biomedical applications. *Adv. Mater.* 2009, 21 (48), 4880-4910. **Invited review.** (Impact factor: 15.41. Times cited: 565)
23. A. Biesso, W. Qian, **X. Huang**, and M.A. El-Sayed. Gold nanoparticles surface plasmon field effects on the proton pump process of the bacteriorhodopsin photosynthesis. *J. Am. Chem. Soc.* 2009, 131(7), 2442-2443. (Impact factor: 12.11)
24. E.B. Dickerson, E.C. Dreaden, **X. Huang** (co-first author), H. Chu, S. Pushpanketh, J.F. McDonald, and M.A. El-Sayed. Gold nanorod assisted near-infrared plasmonic photothermal therapy (PPTT) of HSC-3 tumors in mice. *Cancer Lett.* 2008, 269, 57-66. (Impact factor: 5.62. Time cited: 379).
25. P.K. Jain, **X. Huang**, I.H. El-Sayed, and M.A. El-Sayed. Noble metals on the nanoscale: optical and photothermal properties and applications in imaging, sensing, biology, and medicine. *Acc. Chem. Rev.* 2008, 41(12), 1578-1586. **Invited review.** (Impact factor: 22.32. Times cited: 1,221)
26. **X. Huang**, P.K. Jain, I.H. El-Sayed, and M.A. El-Sayed. Plasmonic photothermal therapy using gold nanoparticles. *Laser Med. Sci.* 2008, 23(3), 217-228. **Invited review.** (Impact factor: 2.42. Times cited: 501)
27. I.H. El-Sayed, **X. Huang**, and M. A. El-Sayed. Multicolorimetric plasmonic gold nanoparticles for 8 optical detection of oral squamous carcinoma. *Oral Oncology* 2007, 2, 121-125. (Impact factor: 3.61)
28. **X. Huang**, W. Qian, I.H. El-Sayed, and M.A. El-Sayed. The potential use of the enhanced nonlinear properties of gold nanospheres in photothermal cancer therapy. *Laser Surg. Med.* 2007, 39, 747-753. (Impact factor: 2.61. Times cited: 113)
29. I.H. El-Sayed, **X. Huang**, F. Macheret, and R. Kramer. Effect of plasmonic gold nanoparticles on benign and malignant cellular autofluorescence: a novel probe for fluorescence based detection of cancer. *Technol. Cancer Res. Treat.* 2007, 6(5), 403-412. (Impact factor: 1.89)
30. **X. Huang**, P.K. Jain, I.H. El-Sayed, and M.A. El-Sayed. Gold nanoparticles: interesting optical properties and recent applications in cancer diagnostics and therapy. *Nanomedicine (London, U.K.)* 2007, 2(5), 681-693. **Invited review.** (Impact factor: 5.41. Times cited: 487)
31. A.K. Oyelere, P.C. Chen, **X. Huang**, I.H. El-Sayed, and M.A. El-Sayed. Peptide conjugated gold nanorods for nuclear targeting. *Bioconjugate Chem.* 2007, 18, 1490-1497. ((Impact factor: 4.93. Times cited: 201)
32. **X. Huang**, I.H. El-Sayed, W. Qian, and M.A. El-Sayed. Cancer cells assemble and align gold nanorods conjugated to antibodies to produce highly enhanced, sharp and polarized surface Raman spectra: a potential cancer diagnostic marker. *Nano Lett.* 2007, 7(6), 1591-1597. (Impact factor: 13.59. Times cited: 292).
33. P.K. Jain, **X. Huang**, I.H. El-Sayed, and M.A. El-Sayed. Review of some surface plasmon resonance-enhanced properties of noble metal nanoparticles and their applications to biosystems. *Plasmonics* 2007, 2, 107-118. **Invited review.** (Impact factor: 2.24. Times cited: 367)
34. **X. Huang**, I.H. El-Sayed, W. Qian, and M.A. El-Sayed. Cancer cell imaging and photothermal therapy in the near-infrared region by using gold nanorods. *J. Am. Chem. Soc.* 2006, 128 (6), 2115-2120. (Impact factor: 12.11. Times cited: 2,057. Reported by Georgia Tech News and Science Watch. ACS hot paper. Evaluated as a priority paper by Nanomedicine (London, U.K.))
35. **X. Huang**, P.K. Jain, I.H. El-Sayed, and M.A. El-Sayed. Determination of the minimum temperature required for selective photothermal destruction of cancer cells with the use of immunotargeted gold nanoparticles. *Photochem. Photobiol.* 2006, 82 (2), 412-417. (Impact factor: 2.68. Times cited: 156)
36. I.H. El-Sayed, **X. Huang**, and M.A. El-Sayed. Selective laser photo-thermal therapy of epithelial carcinoma using anti-EGFR antibody conjugated gold nanoparticles. *Cancer Lett.* 2006, 239 (1), 129-135. (Impact factor: 5.62. Times Cited: 496. Reported by Georgia Tech News )

37. I.H. El-Sayed, **X. Huang**, and M.A. El-Sayed. Surface plasmon resonance scattering and absorption of anti-EGFR antibody conjugated gold nanoparticles in cancer diagnostics: applications in oral cancer. *Nano Lett.* 2005, 5 (5), 829-834. (Impact factor: 13.59. Times cited: 892. Reported by Georgia Tech News. ACS hot paper)
38. **X. Huang**, I.H. El-Sayed, X. Yi, and M.A. El-Sayed. Gold nanoparticles: catalyst for the oxidation of NADH to NAD<sup>+</sup>. *J. Photochem. Photobiol. B* 2005, 81, 76-83. (Impact factor: 2.96)
39. Y. Huang, J. Fu, D.J. Hagan, **X. Huang**, M.A. El-Sayed, and S.T. Wu. Ultraviolet protection using intensity-dependent spectral shift in bacteriorhodopsin. *IEEE J. Sel. Top. Quantum Electron.* 2005, 11(4), 902-905. (Impact factor: 3.47)
40. **X. Huang**, H. Huang, D. Jiang, and B. Zhao. Investigation of the structures of gamma-Al<sub>2</sub>O<sub>3</sub>-supported MgO by surface extended energy loss fine structure. *J. Phys. Chem. A* 2002, 106, 2815-2820. (Impact factor: 2.69)
41. **X. Huang**, H. Huang, D. Jiang, and B. Zhao. Investigation of the dispersion of MgO onto gamma-Al<sub>2</sub>O<sub>3</sub> by SEELFS. *Modern Instrum.* 2001, 1, 39-41.
42. **X. Huang**, H. Huang, N. Wu, R. Hu, T. Zhu, and Z. Liu. Investigation of structure and chemical states of self-assembled gold nanoscale particles by angle-resolved x-ray photoelectron spectroscopy. *Surface Sci.* 2000, 459, 183-190. (Impact factor: 1.93)
43. **X. Huang**, H. Huang, D. Jiang, and B. Zhao. Investigation of the structures of Mg-Al mixed oxides by SEELFS. *Acta Chim. Sinica* 2000, 58, 909-911.
44. R. Hu, T. Zhu, Z. Liu, **X. Huang**, and H. Huang. Covalent attachment of gold nanoparticles onto the thiol-terminated surface through Gold-S Bonding. *Acta Phys.-Chim. Sinica* 1999, 15, 961-964.

### Refereed Conference Publication

1. **X. Huang**, I.H. El-Sayed, and M.A. El-Sayed. The use of surface enhanced absorption, scattering and catalytic properties of gold nanoparticles in some bio- and biomedicine applications. *Proc. SPIE- Int. Soc. Opt. Eng.* 2005, 5929, 94-103.

### Patent

1. S. Bhana and **X. Huang**. Iron oxide-gold core-shell nanoparticles and uses thereof. Publication No. US20150037818 A1, Application No. US 14/321,770. Publication date 2/5/2015.

### Book Chapters

1. **X. Huang**, I.H. El-Sayed, M.A. El-Sayed. Gold nanoparticles for plasmonic photothermal therapy. In *Handbook of Nanophysics: Nanomedicine and Nanorobotics*, edited by Klgolds D. Sattler, Taylor & Francis, USA, 2010.
2. **X. Huang**, I.H. El-Sayed, M.A. El-Sayed. Applications of gold nanorods for cancer imaging and photothermal therapy. In *Methods in Molecular Biology*, edited by Brij Moudgil, Humana Press, USA, 2010, 343-357.
3. **X. Huang**, I.H. El-Sayed, M.A. El-Sayed. Fluorescent quenching gold nanoparticles: potential biomedical applications. In *Metal-enhanced Fluorescence*, edited by Chris D. Geddes, John Wiley and Sons, Inc., 2010, 573-599.
4. **X. Huang**, H. Huang. The Application of Surface Analytical Technologies (XPS, UPS, AES) in Adsorption and Material Investigations. In *Surface Analysis and Its Application to Material Investigation* (in Chinese), edited by Huizhong Huang, Scientific and Technical Documents Publishing House, 2002, 795-833.

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## PRESENTATIONS

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### Invited Talks - Conference

1. Gold and magnetic hybrid nanoparticles: properties and applications in cancer medicine. Presented at the 14<sup>th</sup> Southern School on Computational Chemistry and Materials Science, Jackson State University, Jackson, MS, July 2014.
2. Gold nanoparticles for cancer diagnosis and photothermal therapy. Presented at the International Conference on Nanomedicine in Cancer. Alexandria University, Alexandria, Egypt, December 2010.

### Invited Talks - Universities/Industry

1. Gold nanoparticles and their magnetic hybrid for cancer detection and treatment. Seminar talk at the College of Chemistry, Chemical Engineering and Biotechnology, Donghua University, Shanghai, China, May 2015.
2. Synthesis, properties and applications of iron oxide-gold core-shell nanoparticles for circulating tumor cell detection. Presented at Laser Dynamics Lab, Georgia Institute of Technology, Atlanta, GA, March 2014.

3. Gold nanotechnology: material synthesis, properties and applications in cancer medicine. Seminar talk at the Department of Chemistry, *Tennessee Technology University*, Cookeville, TN, January 2014.
4. Gold Nanotechnology in Cancer Treatment. Seminar talk at *St. Jude. Children Research Hospital*. Memphis, TN, May 2012.
5. Gold nanorods: properties and applications in cancer diagnosis and photothermal therapy. Presented at *Nanomedicine Symposium*, University of Tennessee Health Science Center, Memphis, TN, March 2011.
6. Gold nanoparticles for cancer diagnosis and photothermal therapy. Seminar talk at the Department of Biomedical Engineering, *The University of Memphis*, Memphis, TN, March 2011.
7. Gold nanoparticles for cancer detection and treatment. Seminar talk at the Department of Physics, *The University of Memphis*, Memphis, TN, February 2011.

### **Contributed Oral Presentations - Conference**

1. Hybrid nanoparticles for capture, detection and analysis of rare cancer cells in blood. Presented at the *Gordon Research Conference – Cancer Nanotechnology*, West Dover, VT, June 2015. Selected oral presentation from poster presentations on the conference.
2. Hybrid nanoparticles for multiplexed isolation and detection of circulating tumor cells in whole blood. Presented at the *249th ACS National Meeting and Exposition*, Denver, CO, March 2015.
3. Iron oxide-gold hybrid nanoparticles for capture and detection of rare cancer cells in whole blood. Presented at the *Materials Research Society Meeting and Exhibit*, Boston, MA, November 2014.
4. Hybrid nanoparticles for capture and detection of rare cancer cells in blood. Presented at *The Southeastern Regional Meeting of the American Chemical Society*, Nashville, TN, October 2014.
5. Effects of particle shape on the optical properties of iron oxide-gold core-shell nanoparticles. Presented by Elise Chaffin at the *Southeastern Regional Meeting of the American Chemical Society*, Nashville, TN, October 2014.
6. Tuning the optical properties of iron oxide-gold core-shell nanoparticles for cancer detection and treatment. Presented by Elise Chaffin at the *Southeastern Regional Meeting of the American Chemical Society*, Atlanta, GA, November 2013.
7. Shape-controlled synthesis of magnetic-optical core-shell hybrid nanoparticles. Presented at the *Nanotech Conference and Expo 2013*, Washington, May 2013.
8. Gold nanorods for photothermal cancer therapy. Presented at *Biomaterials Day*, Memphis, TN, February 2011.
9. Colloidal gold nanoparticles: properties and current applications in cancer diagnosis and treatment. Oral presentation on behalf of Prof. Mostafa A. El-Sayed at the *Georgia Symposium on Nanotechnology in Infectious Disease*. Atlanta, GA, February 2009.
10. Cancer cell diagnostics and photothermal therapy by using gold nanospheres and nanorods. Presented at the *232nd ACS National Meeting and Exposition*, San Francisco, CA, September 2006.
11. Investigation of the structure of gamma-Al<sub>2</sub>O<sub>3</sub>-supported MgO by SEELFS. Presented at the *Asia - Pacific Surface and Interface Analysis Conference*, Beijing, China, October 2000.

### **Other Oral Presentations - University/Industry**

1. Gold nanoparticles: properties and applications in cancer diagnosis and photothermal therapy. Recruiting seminar talk at the Department of Chemistry, *Christian Brothers University*, Memphis, TN, October 2012.
2. Gold nanotechnology for cancer imaging and therapy. Recruiting seminar talk at the Department of Chemistry, *Millsaps College*, Jackson, MS, October 2012.
3. Gold nanoparticles: properties and applications in cancer diagnosis and photothermal therapy. Recruiting seminar talk at the Department of Chemistry, *Jackson State University*, Jackson, MS, February 2012.

### **Contributed Poster Presentations - Conference**

1. Saheel Bhana, Ryan O'Connor, and X. Huang. Hybrid nanoparticles for capture, detection and analysis of rare cancer cells in blood. *Gordon Research Conference – Cancer Nanotechnology*, West Dover, VT, June 2015.
2. S. Bhana and X. Huang. Magnetic-optical nanoparticles for capture and detection of rare cancer cells in whole blood. *Nanotech Conference and Expo 2014*, Washington, June 2015.
3. Elise Chaffin. X. Huang, and Y. Wang. Time resolved study of gold-coated iron oxide nanoparticle growth. *Pittcon*

*Conference & Expo 2015*, New Orleans, LA, March 2015.

4. X. Huang. Microchip-based isolation and detection of circulating tumor cells in a multiplexed fashion. *22nd Annual Molecular Medicine Tri-Conference*. San Francisco, CA, February 16-18, 2015.
5. S. Bhana, E. Chaffin, Ryan O'Connor and X. Huang. Iron oxide-gold nanostars carrying silicon 2.3-naphthalocyanine dihydroxide for photothermal-photodynamic magnetic field assisted therapy of cancer. *The Southeastern Regional Meeting of the American Chemical Society*, Nashville, TN, October 2014.
6. S. Bhana, R.T. O'Connor, E. Chaffin, Y. Wang, S.R. Mishra, and X. Huang. Magnetic separation and optical detection of rare cancer cells in whole blood using iron oxide-gold core-shell hybrid nanoparticles. *Gordon Research Conference – Rare Cells in Circulation*, South Hadley, MA, August 2014.
7. S. Bhana, R.T. O'Connor, E. Chaffin, Y. Wang, S.R. Mishra, and X. Huang. Synthesis and application of iron oxide-gold core-shell nanoparticles for capture and detection of cancer cells in whole blood. *Nanotech Conference and Expo 2014*, Washington, June 2014.
8. S. Bhana and X. Huang. Synthesis and application of iron oxide-gold core-shell nanoparticles for capture and detection of cancer cells in whole blood. *Nanotechnology for Health Care Conference*, Morrilton, AR, April 2014.
9. E. Chaffin, S. Bhana, X. Huang, and Y. Wang. Tuning the optical properties of iron oxide-gold core-shell nanoparticles for cancer detection and treatment. *Nanotechnology for Health Care Conference*, Morrilton, AR, April 2014.
10. S. Bhana, X. Huang. Magnetic-optical nanoparticles for capture and detection of circulating tumor cells in whole blood. *Southeastern Regional Meeting of the American Chemical Society*, Atlanta, GA, November 2013.
11. S. Saheel, E. Chaffin, Y. Wang, S.R. Mishra, and X. Huang. Capture and detection of cancer cells in whole blood with magnetic-optical nanoovals. *Gordon Research Conference - Cancer Nanotechnology*, West Dover, VT, July 2013.
12. S. Bhana and X. Huang. Gold nanorods carrying paclitaxel for photothermal-chemotherapy of cancer. *Nanotechnologies in Cancer Diagnosis, Therapy and Prevention*, Memorial Sloan-Kettering Cancer Center, New York, June, 2013. (Bhana won Student Travel Fellowship).
13. E. Chaffin, S. Bhana, X. Huang, and Y. Wang. Tuning the optical properties of gold-coated iron oxide plasmonic-optical nanoparticles for cancer detection and treatment. *Nanotechnologies in Cancer Diagnosis, Therapy and Prevention*, Memorial Sloan-Kettering Cancer Center, New York, June, 2013. (Chaffin won Student Travel Fellowship).
14. J. Jackson and X. Huang. Near infrared-absorbing iron oxide-gold core-shell nanoparticles with tunable optical properties. *Nanotechnologies in Cancer Diagnosis, Therapy and Prevention*, Memorial Sloan-Kettering Cancer Center, New York, June, 2013. (Jackson won Student Travel Fellowship).
15. E. Chaffin, X. Huang, and Y. Wang. Tuning the optical properties of gold-coated iron oxide plasmonic-optical nanoparticles. *Mississippi Regional Biophysical Consortium*, Mississippi State University, Starkville, MS, May, 2013.
16. X. Huang. Magnetic-optical nanoovals for capture and detection of circulating tumor cells. *Nanotech Conference and Expo 2013*, Washington, May 2013.
17. S. Bhana, S.R. Mishra, Y. Wang, and X. Huang. Synthesis and properties of near infrared-absorbing magnetic-optical nanopins. *Memphis Bioimaging Symposium*, St. Jude Children's Research Hospital, Memphis, TN, November, 2012.
18. X. Huang. Gold nanorods for cancer targeting, imaging and therapy. *Southeastern Regional Meeting of the American Chemical Society*, Richmond, VA, October 2011.
19. W. Qian, X. Huang, and M.A. El-Sayed. Light scattering imaging of living cancer cells using bioconjugated gold nanoprobe. *239th ACS National Meeting*, San Francisco, CA, March 2010.
20. X. Huang, I.H. El-Sayed, and M.A. El-Sayed. Applications of gold nanoparticles in cancer cell diagnostics and therapy. *234th ACS National Meeting*, Boston, MA, August 2007.
21. X. Huang, I.H. El-Sayed, M.A. El-Sayed, P.C. Chen, A.K. Oyelere. Molecular cancer targeting and diagnostics using plasmonic gold nanoparticles. *Second Annual AACR International Conference on "Molecular Diagnostics in Cancer Therapeutic Development: Maximizing Opportunities for Personalized Treatment"*, Atlanta, GA, September 2007.
22. X. Huang, I.H. El-Sayed, and M.A. El-Sayed. Cancer cell diagnostics and therapy using gold nanoparticles. *231st ACS National Meeting*, Atlanta, GA, March 2006.
23. X. Huang, W. Huang, L. Sanii, and M.A. El-Sayed. The absorption and fluorescence spectroscopy of bacteriorhodopsin in bicelle crystals. *Southeast Regional Meeting of the American Chemical Society*, Atlanta, GA, November 2003.

24. X. Huang, H. Huang, and N. Wu. Investigation of the coating of self-assembled gold nanoparticle. *The 9th National Conference of Surface Physics*, Hangzhou, China, November 1999.

## SUPPORT

### External:

ACTIVITIES	AGENCY/SOURCE	AMOUNT	PERIOD
Hybrid nanoparticles for capture and detection of circulating tumor cells (PI, 40% effort)	National Institutes of Health / National Cancer Institute R15	\$405,435	5/13/2015 - 4/30/2018
Surface enhanced Raman detection of circulating tumor cells	Spectroscopy Society of Pittsburgh / Starter grant	\$40,000	9/1/2011 - 8/31/2012
Bioconjugation of small gold nanorods	Subcontract from Georgia Institute of Technology / National Institutes of Health	\$19,375	8/1/2011 - 7/31/2012
Optical detection of circulating tumor cells by using Raman active iron oxide-gold core-shell nanoparticles	Oak Ridge Associated Universities / Ralph E Powe Junior Faculty Enhancement Award	\$5,000	6/1/2011 - 5/31/2012
Acquisition of 400MHz NMR Spectrometer (Senior Personnel, 5% effort)	National Science Foundation / CHEM-Major Research Instrumentation	\$485,121	3/1/2016 - 2/29/2019
Acquisition of field emission scanning electron microscope for research and education (Senior Personnel, 5% effort)	National Science Foundation / CBET-Major Research Instrumentation	\$693,617	9/9/2013 - 12/31/2014

### Internal:

ACTIVITIES	AGENCY/SOURCE	AMOUNT	PERIOD
Capture and detection of circulating tumor cells in whole blood using hybrid nanoparticles and microfluidic devices (PI, 30% effort)	The University of Memphis Foundation/ FedEx Institute of Technology Innovation Fund	\$122,919	2/1/2014 - 6/30/2015
Gold nanorods carrying photosensitizers for cancer treatment	The University of Memphis / Faculty Research Grant	\$6,500	1/1/2011 - 12/31/2011

## OUTREACH

PROJECT	PARTICIPANTS	PERIOD	SPONSORSHIP
Workshop leader, 6 <sup>th</sup> Annual West Tennessee Expanding Your Horizon Conference	17 middle school girls	Fall 2013	The University of Memphis
Project SEED advisor	1 high school student	Summer 2013	America Chemical Society
Project SEED advisor	1 high school student	Summer 2012	America Chemical Society
Advisor for College Research Experiences for Students in High School	1 high school student	Summer 2012	The University of Memphis

## SERVICE

UNIVERSITY	COMMITTEE/ACTIVITY	PERIOD
The University of Memphis, Department of Chemistry	Graduate Recruit Committee	2015 - present
The University of Memphis	Chemical Hygiene Committee	2014 - present
The University of Memphis	Faculty Advisory Committee for Research	2012 - present
The University of Memphis, Department of Chemistry	Facility committee/Liaison librarian	2011 - present
The University of Memphis, Department of Chemistry	Facility committee	2010 - present
The University of Memphis, Department of Chemistry	Annual Undergraduate Research	2011 - 2014

The University of Memphis, Department of Chemistry	Conference/Session chairs Seminar coordinator	2013
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<b>OTHER SOCIETY/ORGANIZATION/JOURNAL</b>	<b>COMMITTEE/EDITORIAL BOARD</b>	<b>PERIOD</b>
Various journals (see the list below)	Reviewer	2010 - present
European Science Foundation	Reviewer	06/2015
National Science Foundation	Reviewer	07/2014
Singapore Agency for Science, Technology and Research	Reviewer	09/2011
Mississippi EPSCoR	Reviewer	07/2011

List of the journals that I served as a reviewer since 2010 (total: 26):

ACS Applied Materials and Interfaces, ACS Nano, Advanced Materials Interfaces, Advances in Colloid and Interface Science, Analytical Chemistry, Biosensors, Colloids and surface B, Drug delivery, Drug Discover Today, IEEE Transactions on Nanotechnology, Journal of the American Chemical Society, Journal of Nanoparticle Research, Journal of The Royal Society Interface, Laser in surgery and medicine, Nanomedicine (London, U.K.), Nanomedicine: nanotechnology, Biology, and Medicine, Nanoscale, Nanotechnology, New Journal of Chemistry, Nano Research, Proceedings of the National Academy of Sciences of the united States of America, Physical Chemistry Chemical Physics, Scientific Report, Small, The Journal of Physical Chemistry, and Theranostics.