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Charles B. Nettles II

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EDUCATION

Doctor of Philosophy in Chemistry

August 2011-December 2016

Emphasis in Analytical Chemistry

Expected Graduation: August 2016

Dissertation Title: Material Characterization using Fluorophotometers

Dissertation Director: Dongmao Zhang, Ph.D.

Mississippi State University, MS.

Bachelor of Science in Chemistry

August 2008-May 2011

Mississippi University for Women, MS

PUBLICATIONS

1. Perera, G. S.; Yang, G.; **Nettles, C. B.**; Perez, F.; Hollis, T. K.; Zhang, D., Counter-ion Effects on Electrolyte Interactions with Gold Nanoparticles. *The Journal of Physical Chemistry C* **2016**, 120 (41), 23604-23612.
2. Siriwardana, K.; **Nettles, C. B.**; Vithanage, B. C. N.; Zhou, Y., Zou, S.; Zhang, D., On-Resonance Fluorescence, Resonance Rayleigh Scattering, and Ratiometric Resonance Synchronous Spectroscopy of Molecular- and Quantum Dot-Fluorophores. *Analytical Chemistry* **2016**, 88 (18), 9199-9206.
3. **Nettles, C. B.**; Zhou, Y.; Zou, S.; Zhang, D., UV-Vis Ratiometric Resonance Synchronous Spectroscopy for Determination of Nanoparticle and Molecular Optical Cross Sections. *Analytical Chemistry* **2016**, 88 (5), 2891-2898.
4. Zhang, D.; **Nettles, C. B.**, A Generalized Model on the Effects of Nanoparticles on Fluorophore Fluorescence in Solution. *The Journal of Physical Chemistry C* **2015**, 119 (14), 7941-7948.
5. **Nettles, C. B.**; Hu, J.; Zhang, D., Using Water Raman Intensities To Determine the Effective Excitation and Emission Path Lengths of Fluorophotometers for Correcting Fluorescence Inner Filter Effect. *Analytical Chemistry* **2015**, 87 (9), 4917-4924.
6. Perera, G. S.; **Nettles, C. B.**; Zhou, Y.; Zou, S.; Hollis, T. K.; Zhang, D., Direct Observation of Ion Pairing at the Liquid/Solid Interfaces by Surface Enhanced Raman Spectroscopy. *Langmuir* **2015**, 31 (33), 8998-9005.

PRESENTATIONS

- **Nettles II, Charles B.**; Zhang, Dongmao. "Using Water Raman Intensities to Determine the Effective Excitation and Emission Pathlengths of Fluorophotometers for Correcting Fluorescence Inner Filter Effect" Talk at 71st Southwest Regional Meeting/67th Southeastern Regional Meeting of the American Chemical Society. Memphis, TN, November 4-7, 2015.

Lecturer

- *Mississippi State University, Mississippi State, Mississippi*
CH 1213 Chemistry I August 2018-present
CH 4513 Organic Chemistry I June 2018-present

End Preparation Assurance Analytical Chemist

- *PharMEDium, LLC*
SME in UPLC/HPLC and UV-vis ID/Potency May 2017-May 2018

Lecturer

- *Mississippi State University, Mississippi State, Mississippi*
CH 1213/1223 Chemistry I/II August 2016-May 2017
CH 1141 Professional Chemistry Paths August 2016-December 2016

Teaching Assistant and Laboratory Instructor:

- *Mississippi State University, Mississippi State, Mississippi*
CH 1211 Chemistry I Laboratory August 2011-December 2011
CH 4511/4521 Organic Chem. Laboratory January 2012-December 2012
CH 4411/4421 Physical Chem. Laboratory August 2014-May 2016
- *Mississippi University for Women*
General Chemistry Lab Assistant August 2010-May 2011

Teaching labs included: Presented a 15-20 minute lecture over background, procedure and safety, attend weekly meetings to prepare the next experiment, met with the lab coordinator to adjust the procedure as needed, supervised 10-22 students during the experiment to ensure safety procedures were followed, graded lab reports, quizzes, homework and posted grades, and proctored the final exam for the laboratory course and graded final exams.

Physical Chemistry laboratory duties also include development of laboratory experiments designed for student exposure into cutting-edge chemical research. These experiments were based on two of the recently accepted research publications listed above: UV-Vis Ratiometric Resonance Synchronous Spectroscopy for Determination of Nanoparticle and Molecular Optical Cross Sections and Using Water Raman Intensities to Determine the Effective Excitation and Emission Path Lengths of Fluorophotometers for Correcting Fluorescence Inner Filter Effect.

Lab assistantship included: Preparation of all necessary chemicals prior to lab. Assisted students during lab to maintain a safe learning environment. Also assisted students to aid in understanding of chemical principles evaluated in lab experimentation.

- *Mississippi State University Chemistry Summer Camp for High School Students*
June 16-27, 2014
June 1-12, 2015
June 13-24, 2016

Summer camp synopsis: Two week summer camp designed to introduce high school students interested in STEM related careers to undergraduate chemistry courses and introductory research. The primary

research focus was nanoparticle characterization techniques and wet chemical methods. Required lesson planning for 3 hours of daily lecture and 4 hours of daily hands-on laboratory work related to lecture.

Student Tutor:

- *Department of Chemistry, Mississippi State University, Mississippi State, Mississippi*
For all general and organic chemistry undergraduates August 2011-December 2012
- *Department of Math and Science, Mississippi University for Women, Columbus, Mississippi*
For all general chemistry and calculus students January 2009-May 2011

ADDITIONAL RELEVANT TEACHING EXPERIENCE

- *McWane Science Center, Birmingham, Alabama*
Planned, coordinated, and performed scientific demonstrations for the general public pertaining to physics, chemistry, and biology. Demonstrations were designed to be highly informative but also engaging to children of ages 5 to 18, which implemented hands-on experimentation allowing audience member participation. May 2005-August 2007

AFFILIATES

- Society for Applied Spectroscopy 2012-2015
- American Chemical Society 2013-2016
- Chemistry Graduate Student Association (MSU)
Member 2011-2016
Cohead of Chemistry TA Presentation Orientation 2012-2014
Head of Presentation Organization Committee 2011-2013
Vice-President 2013-2014

REFERENCES

References are available upon request.