

RESEARCH SCIENTIST

Summary

Seeking a senior spectroscopist position in challenging environment where I can expand my knowledge and hands-on experience and firmly contribute to the achievement of the mission and values of Pfizer. Solid experience with laser Raman spectroscopy: methodology development and validation; installing, operation, maintenance, and troubleshooting. Exceptional characterization experiences with analytic techniques such as Raman (imaging), FTIR, Fluorescence (imaging), UV-vis-NIR, DLS, AFM, chromatography and electron microscopy (SEM/TEM). Strong chemistry background and laboratory skills in metal complex/polymer/nanoparticle synthesis. Experience with spectroscopic modelling packages, like Gaussian, Grams/AI, and DDSCAT. Lab management: creating SOPs, providing training and assistance on proper instrument operations and data analysis, setting schedules, ordering equipments and supplies, and maintaining MSDS forms and hazardous chemical inventory. Demonstrated abilities in project development, interdisciplinary collaboration, proposal writing, conference presentation and scientific writing. Published 30+ peer-reviewed journal articles. Abilities to work effectively as a dynamic, creative and adaptable team player.

Experience

Research Scientist

January 2009 to Current

- Develop/validate new nanomaterial and spectroscopy based assays for whole cell pathogen and trace heavy metal ion detection in drinking water.
- Spectroscopic analyze the fate, transport and organismal uptake of nanomaterials (Ag, Au, and TiO₂).
- Manage advanced Witec alpha500 Raman/AFM, Veeco Multimode AFM and Cary 5000 UV-VIS-NIR systems, training new users and providing assistance in sample preparation and data analysis.
- Supervise graduate/undergraduate students on experimental design.
- Expand analytical service in different research fields and provide test reports.
- Collaborate in research program development and proposal writing (e.g.
- trace detection of microcystins, inkjet imprinted paper for Poliovirus detection and differentiation, nanoparticle based sensor for the detection and quantification of Staphylococcus aureus, and nanomaterial uptake/fate in bio-organisms etc.).

Assistant Project Scientist

January 2007 to January 2008 Beaumont Hospitals 1/4 Rochester Hills

January 2003 to January 2006 Koman Government Solutions

- Participated in a diverse range of interdisciplinary projects as a key investigator in analyzing organic EO materials, polymer solar cell materials, nanomaterials, and live cells by using multiple spectroscopic techniques, such as Raman, hyper-Raman, SERS, FTIR, UV-VIS, Fluorescence.
- Involved in all aspects from new technique development, experimental design and implementation, data interpretation to journal publication.
- Developed a new spectroscopic technique of surface enhanced hyper-Raman for high-sensitivity chemical analysis and biological sensing.
- Achieved spectra at pulse energies below 2 pJ.
- Collaborated with 4 academic/industrial groups, participated in their research programs with spectroscopy supporting.
- In charge of daily operation, maintenance, troubleshooting and minor repairs of laser-based optical instruments.
- Assisted in instrument relocation and re-installation and lab setup in 2003 and 2007.
- Provided assistance in the development, procurement, assembly, evaluation, installation, calibration, and SOP establishment of new instruments for undergraduate laboratories in 2008.
- Supervised 1 graduate, 5 undergraduate researchers on instrument handling and experimental method development.

Research Associate

January 2002 to January 2003 Bickford Senior Living

- Participated directly in the research program of studying linear and nonlinear optical properties of electro-optic molecules by using Raman, FTIR, UV-VIS and Fluorescence.
- Developed a new technique: resonance hyper-Raman Spectroscopy for a firmer understanding of the mechanisms underlying the second-order non-linear optical responses of conjugated organic molecules - components of EO devices.
- Used computational modeling to study and interpret spectra at ab initio, semi empirical and molecular mechanics levels for better understanding the effect of intermolecular interactions on optical properties under different environmental conditions.

Education

Ph.D : Biomedical Engineering , 2001 Southeast University China Biomedical Engineering

BS : Chemistry , 1996 Yangzhou University China Chemistry

Publications

SELECTED PEER-REVIEWED PUBLICATIONS Leng, W., Vikesland, P. J., MGITC Facilitated Formation of AuNP Multimers, Langmuir, 2014, 30(28), 8342-8349. Szaszak, M.; Chang, J. C., Leng, W., Ojcius, D. M., Kelley, A. M. Characterizing the Intracellular Distribution of Metabolites in Intact Chlamydia-Infected Cells by Raman and two-photon microscopy, Microbes and Infection, 2013, 15(6-7), 461 - 469. Leng, W., Vikesland, P. J., Nanoclustered gold honeycomb for surface-enhanced Raman imaging, Analytical Chemistry, 2013, 85(3), 1342-1349. Detzel, C. J., Leng, W., Vikesland, P. J., Rajagopalan, P., Intracellular localization and kinetics of uptake and clearance of gold nanoparticles in primary Hepatic cells, Nano LIFE, 2012, 2(3), 1241008/1-1241008/12. Halvorson, R. A., Leng, W., Vikesland, P. J., Differentiation of microcystin, nodularin, and their component amino acids by drop coating deposition Raman (DCDR) spectroscopy, Analytical Chemistry, 2011, 83(24), 9273-9280. Sarkar, S., Zimmermann, K., Leng, W., Vikesland, P., Zhang, J., Dorn, H., Rylander, M. N., 2011 Measurement of the thermal conductivity of carbon nanotube-tissue phantom composites with the hot wire probe method, Annals of Biomedical Engineering, 2011,

39(6), 1745-1758. Leng, W., Bazan, G. C., Kelley, A. M., Solvent effects on resonance Raman and hyper-Raman scattering for a centrosymmetric distyrylbenzen and relationship to two-photon absorption, *Journal of Chemical Physics*, 2009, 130, 044501. Lu, J., Yuan D.N., Liu, J., Leng, W., Kopley, T. E., Three dimensional single-walled carbon nanotubes, *Nano letter*, 2008, 8(10), 3325-3329. Leng, W., Kelley, A. M., Resonance hyper-Raman spectra of zinc phthalocyanine, *The Journal of Physical Chemistry A*, 2008, 112(26); 5925-5929. Leng, W., Kelley, A. M., Hyper-Rayleigh and hyper-Raman scatterings with intermediate and two-photon resonances, *Journal of Chemical Physics*, 2007, 127(16), 164509. Leng, W., Yasserli, A. A., Sharma, S., Li, Z., Woo, H. Y., Vak, D., Bazan, G. C., Kelley, A. M., Silver Nanocrystal-Modified Silicon Nanowires as Substrates for Surface-Enhanced Raman and Hyper-Raman Scattering, *Analytical Chemistry*, 2006, 78(17), 6279. Leng, W., Kelley, A. M., Surface-enhanced hyper-Raman spectra and enhancement factors for three SERS chromophores. SEHRS spectra on Ag films at pulse energies below 2 pJ, *Journal of the American Chemical Society*, 2006, 128, 3492. Leng, W., Woo, H. Y., Vak, D., Bazan, G. C., Kelley, A. M., Surface-enhanced resonance Raman and hyper-Raman spectroscopy of water-soluble substituted stilbene and distyrylbenzene chromophores, *Journal of Raman Spectroscopy*, 2006, 37, 132.

Skills

academic, alpha, assembly, calibration, data analysis, FTIR, interpretation, laser, materials, modeling, procurement, program development, proposal writing, publication, repairs, research, SOP, troubleshooting, UV

Professional Affiliations

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