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PROFESSIONAL POSITIONS

8/92 – present Faculty, Department of Physics and Astronomy, College of Charleston
8/06-12/06 Instructor in English, Yangtze Normal University, Fuling, China (sabbatical)
9/98 - 8/99 Consultant in environmental analysis. (On leave from CofC)
9/91 - 8/92 Visiting Assistant Professor, Dept. of Physics, University of Missouri-Columbia
Research, teaching and graduate student recruiting responsibilities
1/88 - 8/91 Post-Doctoral Fellow, Dept. of Physics, Univ. of Missouri-Columbia
ca. 1982 Master Parachute Rigger certificate, Federal Aviation Administration
1978 and 1979 Two-time National Champion Skydiver
1976 – 1982 Designer and builder of high performance custom parachutes

EDUCATION

Ph.D. in Physics, December 1987, University of Missouri-Columbia.

Dissertation: Experimental Tunable Diode Laser Infrared Spectroscopy

Superior Graduate Achievement Award, May 1986

M.S. in Physics, August 1984, University of Maine. Thesis: Point Contact Spectroscopy

B.S. in Physics, December 1982, *magna cum laude*, Boise State University

EXPERIENCE

Teaching

- Introductory physics, optics, experimental physics, quantum mechanics and more.
- Designed the current advanced undergraduate Experimental Physics course, which includes extensive professional document preparation and writing practice.
- Teacher of English and Technical English at Yangtze Normal University, Fuling, Chongqing, China and guest lecturer at regional schools, 2005- present.
- Extensive experience with pre-college student enrichment programs.

Consulting

- Expert witness/consultant for legal cases involving automobile collisions, friction, gunshot ballistics, and optics.
- Editorial consultant for publishers of textbooks in introductory physics and modern physics
- Worked in the environmental analysis industry in a rapid-turn-around lab specializing in chemical analysis of soil and water. Responsible for determining trace metal levels using plasma spectroscopy, and technical documentation.

Research

- Areas of significant expertise: Electron microscopy, scanning probe microscopy (AFM and STM), variable stars (numerical simulation of photometry), biomedical optics, vacuum systems, Raman, micro-Raman and tunable diode laser infrared spectroscopy, and cryogenics
- Grant Review panelist for NSF and Oak Ridge Associated universities.
- Journal referee for *Health Physics Journal*, *Journal of Vacuum Science and Technology*

PUBLICATIONS

- Nineteen publications in: *Nature*, *The Physics Teacher*, *Physical Review B*, *Review of Scientific Instruments*, *Surface Science Letters*, and elsewhere.
1. "Metallic Polyaniline: Charge Transport, Moisture Effects, and Magnetism," T. Marrero, D.L. Cowan, D.C. Bradford, H.W. White, J.L. Wragg and F.F. Oldfield, *Chem. Engr. Comm.* 183: 61-70(2000).
 2. "Characterization of Corrosion Protective Films on Steel and Aluminum Alloys," H.W. White, J.E. Chamberlain, J.L. Wragg, F. Mansfeld and T. Sugama, in *Nondestructive Characterization of Materials VI*, R.E. Green, K.J. Kozaczek and C.O. Ruud, Eds., pp. 757-64, Plenum Press, New York (1994).
 3. "Growth of oriented aluminium nitride films on silicon by chemical vapour deposition," A. H. Khan, M. F. Odeh, J. M. Meese, E. M. Charlson, E. J. Charlson, T. Stacy, G. Popovici, M. A. Prelas, and J. L. Wragg, *J. Materials Science* 29, 4314(1994).
 4. "Ion beam surface modification for achieving rectification in Gold-Aluminum nitride-Silicon junctions," T. Stacy, B. Y. Liaw, A. H. Khan, G. Zhao, E. M. Charlson, E. J. Charlson, J. M. Meese, M. Prelas, J. L. Wragg, J. E. Chamberlain, and H. W. White, *Mat. Res. Soc. Symp. Proc.* 316, 355(1994).
 5. "Characterization of Polyacrylic Acid Modified Zinc Phosphate Crystal Conversion Coatings," J. L. Wragg, J. E. Chamberlain, L. Chann, H. White, T. Sugama and S. Manalis, *J. Appl. Polymer Sci.* **50**, 917-928(1993)..
 6. "Past, Present and Future Developments in Optical Spectroscopies as Applied to the Characterization of Corrosion," H.W. White and J.L. Wragg, Paper No. 352, *Corrosion/93*, pp. 392/1-15. National Association of Corrosion Engineers, Houston, TX (1993).
 7. "Current and Future Directions in Corrosion Research," H. W. White and J.L. Wragg; Tri-Service Conference on Corrosion, Gordon A. Bruggeman, Conf. Chairman, Milton Levy, Program Chairman, pp. 489-500, Plymouth, MA, 12-14 May (1992).
 8. "Tunable Diode IRRAS Study of CO on Pt(111)," H. W. White, L. F. Sutcu and J. L. Wragg, *Proceedings of Conference on Applied Spectroscopy in Materials Science II*, ed. William G. Golden, SPIE Vol. **1636**, Los Angeles, CA (Jan 20-22, 1992), pp 27-31.

9. "Scanning Tunneling Microscopy of Solid C₆₀/C₇₀," J. L. Wragg, J. E. Chamberlain, H. W. White, W. Krätschmer, and D. R. Huffman, *Nature* **348**, 623-4(1990).
10. "High Resolution Vibrational Linewidth Study of CO on Pt(111)," L. F. Sutcu, H. W. White, and J. L. Wragg, *Surface Science Letters* **249**, L343-46(1991).
11. "Terminal Velocity on an Air Track," C. W. Tompson and J. L. Wragg, *The Physics Teacher* **29**, 178(1991).
12. "In Situ Infrared Spectroscopy," J. L. Wragg and H. W. White, an invited review article for Corrosion/91, the National Association of Corrosion Engineers (NACE) annual meeting, paper # 77.
13. "Large-scale Periodic Features Associated with Surface Boundaries in STM Images of Graphite," J. E. Buckley, J. L. Wragg, H. W. White, A. Bruckdorfer, and D. L. Worcester, *J. Vac. Sci. Technol. B* **9**(2), 1079-82(1991).
14. "Characterization of Protective Films on Steel and Metal Matrix Composites," H. W. White, J.L. Wragg, R. Moore, and L. Chann, Workshop on Surface Science and Technology, Ed., J. Belilo and R. Reeber, Ann Arbor, MI, pp. 42-43, November 7-9 (1990).
15. "Tunable Diode Laser Infrared Reflection Absorption Spectroscopy of Carbon Monoxide on Pt (111)," L. F. Sutcu, J. L. Wragg, and H. W. White, *Phys. Rev. B* **41**, 8164-69(1990).
16. "In Situ Infrared Spectroscopy of Thin Films and Liquids on Solid Surfaces," J. L. Wragg, H. W. White, and L. F. Sutcu, Corrosion/88, National Association of Corrosion Engineers (NACE) annual meeting, paper # 151.
17. "In Situ Infrared Spectroscopy of the Oxide-Liquid Interface: Pyridine on Aluminum Oxide," J. L. Wragg, H. W. White, and L. F. Sutcu, *Phys. Rev. B* **37**, 2508(1988).
18. "Tunable Diode Laser Infrared Spectroscopy of the Metal-Liquid Interface," J. L. Wragg, H. W. White, and L. F. Sutcu, *Rev. Sci. Instr.* **59**, 89(1988).
19. "A New Sample Geometry for Point Contact Spectroscopy," J. L. Wragg, P. J. Dolan, and C. W. Smith, *Physics Lett.* **113A**, 102(1985).