

Curriculum Vitae:

Davon W. Ferrara
Graduate Student, PhD Program
Department of Physics and Astronomy
Vanderbilt University

Contact Information:

Email: davon.ferrara@vanderbilt.edu
Personal Webpage: <http://people.vanderbilt.edu/davon.ferrara>
Office Phone: (615) 343-5650

Degree:

B.S. from Centenary College of Louisiana, May 2004,
Physics and Mathematics (double major),
Graduated *Summa Cum Laude*, May 2004,
Earned Departmental Honors in both Physics and Mathematics

Graduate Positions Held:

- Research Assistant, Applied Optical Physics Group (Spring 2006 – Present)
- Research Assistant, PHENIX Collaboration, (Summer 2005)
- Master Teaching Assistant, Physics 117B Lab (Spring 2005-Fall 2006)
- Teaching Affiliate (TA Orientation Leader, Center for Teaching, Vanderbilt U., May 2005-May 2006)
- Teaching Assistant, Physics 116B Lab (Fall 2004)

Classes Taught:

Introductory (Calculus Based) Physics “B” Labs - *2nd semester labs which focus on electrostatics, simple DC and AC circuits, and optics aimed at engineers and pre-medicine majors*

Professional Societies:

- American Physical Society
- Society of Physics Students

Summary of Scholarly Interests and career goal

I am currently working in the field of Applied Optical Physics, and, in particular, I am studying the plasmonics. My research will look at both theoretical and experimental methods for understanding non-linear dynamics and energy localization in metal nanoparticles. When I graduate, I will pursue a career in academia, with the hope of becoming a successful teacher and scientist.

Teaching and Professional Development Activities:

Contributions to Introductory Physics Lab Manual at Vanderbilt:

- Helped in lab manual development through major rewrite and reorganization of 2 particular lab activities, as well as writing supplementary materials, modification of lab activities, etc. (Spring 2005 – Fall 2006)

Programs, Courses, and Workshops Attended/Enrolled:

- Graduate Seminar in Teaching Science (Fall 2004)
- Making Sense of Student Course Evaluations, 19 Jan 2005, Workshop sponsored by Center for Teaching

- What Will Your Dissertation Do When It Gets Out of Graduate School?, 18 Feb 2005, Workshop sponsored by the College of Arts and Science Dean's Office

Professional Conferences Attended:

- Frontiers in Contemporary Physics – III (Vanderbilt University, 23-28 May 2005)

Meetings attended as an undergraduate:

- Meeting of the Gulf Coast Section of the American Physiological Society (Jackson, MS, 2002)
- NAEMSP meeting on Prehospital Emergency Care (Tucson, Arizona, Jan 2002)
- Society of Physics Students, Zone 10 Meeting (Rhodes College, Memphis, TN, 2003)

Undergraduate Research Experience:

- Near Infrared Spectroscopy measurements of blood volume and oxidation in the brains of rats undergoing cardiac arrest and resuscitation,
- Sensitivity of surface blood flow in the tails of rats due to changes in light,
- Intrinsic Optical Imaging of the brains of rats
- Development of a technique to increase the sensitivity of NO gas detection through condensation

Previously Published Papers (undergraduate research):

1. Xiao F, Rodriguez J, Arnold TC, Zhang S, Ferrara D, Ewing J, Alexander JS, Carden DL, Conrad SA. Near-infrared spectroscopy: a tool to monitor cerebral hemodynamic and metabolic changes after cardiac arrest in rats. *Resuscitation*. **63**, 213-20 (2004).
2. J. Rodriguez, F. Xiao, D. Ferrara, J. Ewing, S. Zhang S, S. Alexander, and H. Battarbee, "Implementation of near-infrared spectroscopy in a rat model of cardiac arrest and resuscitation" Saratov Fall Meeting 2001: Optical Technologies in Biophysics and Medicine III, SPIE Proceedings vol.4707, V.V. Tuchin ed., 83-91 (2002).

Talks and poster presentations (undergraduate research)

1. Davon Ferrara, Martin Feelisch, Juan Rodriguez," Method for Detecting Low Concentrations of Nitric Oxide Gas", *LSUHSC-Physiology/Centenary Summer Program- Poster Session* (2003).
2. Davon Ferrara, Martin Feelisch, Juan Rodriguez "Does Candle Light affect Peripheral Blood Flow", *LSUHSC-Physiology/Centenary Summer Program- Poster Session* (2002).
3. Davon Ferrara, Shu Zhang, Feng Xiao, Jennifer Ewing, Steven Alexander, and Juan Rodriguez, "Feasibility of Near Infrared Spectroscopy for Transcranially Monitoring Brain Edema, Cytochrome Redox State, Blood Oxygenation, and Blood Volume Simultaneously in Rats", Meeting of the Gulf Coast Section of the American Physiological Society (2002).
4. Feng Xiao, Juan Rodriguez, Shu Zhang, Davon Ferrara, Jennifer Ewing, J Steven Alexander, Thomas Arnold, Donna Carden and Steven Conrad "Real-time Monitoring of Cerebral Hemodynamic and Neurometabolic Changes By Near-infrared Spectroscopy Following Normothermic or Hypothermic Cardiac Arrest in Rats" 2002 SAEM Annual Meeting, St. Louis.
5. Ferrara D*, Xiao F, Rodriguez J, Zhang S, Ewing J, Battarbee H, Arnold T, and Alexander JS. Near-infrared spectrometry: a sensitive technique to determine changes in cerebral blood volume following cardiac arrest in rats. Accepted for Oral Presentation at NAEMSP, Tucson, Arizona, Prehospital Emerg Care 1/2002.
6. J. Rodriguez, F. Xiao, D. Ferrara, J. Ewing, S. Zhang S, S. Alexander, and H. Battarbee, "Implementation of near-infrared spectroscopy in a rat model of cardiac arrest and resuscitation" *Invited presentation at Saratov Fall Meeting, Saratov 2001*.

7. Davon Ferrara, Shu Zhang, Jennifer Ewing, Steven Alexander, Feng Xiao, and Juan Rodriguez, "Viability of Near-Infrared Spectroscopy for Studies of CA-induced Brain Edema in Rats", *LSUHSC-Physiology/Centenary Summer Program- Poster Session* (2001).
8. Jennifer Ewing, Shu Zhang, Davon Ferrara, Steven Alexander, Feng Xiao, Juan Rodriguez, "Implementation of Near-Infrared Spectroscopy for Studies of CA/Resuscitation in Rats", *LSUHSC-Physiology/Centenary Summer Program- Poster Session* (2001).

Other Undergraduate Achievements:

Honor Societies (currently an alumni member of each):

- Sigma Pi Sigma - Physics Honor Society
- Alpha Chi - academic honor society that recognizes the top 10% of students based on the GPA ranking within their undergraduate class
- National Residence Hall Honorary (NRHH) - I'm an alumni member of this organization which recognizes the top 1% of students living on campus

Campus Involvement and Achievements:

- Centenary Astronomical Society, President and co-founder (2003-2004)
- Vice-president, Society of Physics Students, Centenary College Chapter (2002-2004)
- Sigma Pi Sigma, President of Centenary chapter (2003-2004)
- Centenary College Physics Student of the Year, 2004

Served on the following campus committees:

- Hiring committee for Health Services Director,
- Hiring committee for Residence Life Staff South-side Coordinator, Health Services Student Advisory Committee

Residence Life Involvement and Achievements:

- Residence Hall Association member (2001-2004), member of Policy and Projects Committee
- James Residence Hall Council, President (2002-2004)
- Cline Hall Council, President (2001-2002)
- National Residence Hall Honorary, Vice-president of Records (2003-2004)
- NACURH Silver medal recipient for Outstanding OTM writing
- RHA President's Bronze Pin recipient (2004)
- Centenary Residence Life Student of the Year (2003-2004)
- Chaired bid committee for "School of the Year" which won on the national level at NACURH 2004
- Chaired bid committee for "Residence Hall of the Year", James Residence Hall won on the regional level at SWACURH, 2003
- Co-chaired Centenary Leadership Conference, Fall 2003