
Curriculum Vitae

John C. Vernaleo, Ph.D.

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Employment

2008-present: Scientific Programmer for Fermi/GLAST Science Support Center at NASA/Goddard, working for Wyle Information Systems.

I work on the Fermi ScienceTools (the analysis tools for NASA's Fermi Gamma Ray Space Telescope), concentrating on the spacecraft pointing simulator, the data binning tool, code portability, and code validation and testing.

I maintain and enhance the Fermi LAT dataserver. This is where the astronomical community can search and download the entire dataset for the main instrument on the Fermi telescope (<http://fermi.gsfc.nasa.gov/cgi-bin/ssc/LAT/LATDataQuery.cgi>).

Education

2001-2008: Ph.D., Astronomy, University of Maryland, College Park; Advisor: Dr. Christopher Reynolds
Title: *Hydrodynamic Models of AGN Feedback in Cooling Core Clusters*

2001-2003: M.S. Astronomy, University of Maryland, College Park

1996-2001: B.S. Physics and Astronomy, University of Rochester, Cum Laude, with Distinction

1996-2001: B.A. Philosophy, University of Rochester, Cum Laude, with High Distinction

Computer Experience

Languages: Python, PERL, C/C++, FORTRAN 77/95, Java, MySQL, IDL, C-shell scripting, Bash scripting, and parallel programming with MPI, XML.

Systems: UNIX: GNU/Linux (esp. Redhat/Fedora, Mandrake/Mandriva, Ubuntu, and Gentoo), Mac OS X, and Solaris.

Miscellaneous: Hydrodynamic modeling; Setup and use of the condor batch processing system and BEOWULF cluster setup; Modifying and creating styles and classes for L^AT_EX typesetting system; The POVray raytracer and other 3D visualization tools; Setup, use, and maintenance of TWiki web collaboration platform; Portability and maintenance issues in both current and legacy C++ and FORTRAN codes; Data formats such as HDF4/5 and FITS; Web applications; Version control with cvs and subversion. Experience with CMMI.

Webmaster for <http://stallman.org> (personal page of the founder of the GNU project, Richard Stallman), 2004-present.

Member W3C's HTML working group, 2007-present.

Professional Interests

High-Performance and Numerical Computing

Data Visualization

UNIX software development and portability

Hydrodynamics and Magneto-Hydrodynamics

General data handling/manipulation in Astrophysics

Research Experience

2002-2008: Graduate Research Assistant, Department of Astronomy, University of Maryland, College Park

1999-2001: Undergraduate Research Assistant, Department of Physics and Astronomy Near Infrared Astronomy Lab, University of Rochester

1998-1999: Undergraduate Research Assistant, Department of Physics and Astronomy, University of Rochester

Teaching Experience

2004-2007: Guest Lecture (Advanced UNIX) for Graduate Introduction to Research (Astro 695), University of Maryland, College Park

2003: Teaching Assistant, Introduction to Astronomy for Non-Majors (Astro 100), University of Maryland, College Park

2001-2002: Teaching Assistant, Observational Astronomy (Astro 310), University of Maryland, College Park

2001-2003: Teaching Assistant, Introduction to Astrophysics I and II (Astro 120 and 121), University of Maryland, College Park

Honors and Awards

2010: NASA/Goddard Astrophysics Science Division Peer Award

2000: Sigma Pi Sigma, National Physics Honors Society

1996-2001: Dean's List, University of Rochester

Society Memberships

2002-Present: American Astronomical Society

2002-Present: Historical Astronomy Division of the American Astronomical Society

2000-2008: Society of Physics Students

Departmental Activities

2009-Present: Answer questions for Goddard's *Ask an Astrophysicist* website.

2006-2008: Graduate Student Representative on UMD Astronomy Department Computer Committee.

2005-2006: Organized weekly UMD astronomy theory group lunchtime talks.

Publications

Publications in Refereed Journals

1. *Energetic impact of jet inflated cocoons in relaxed galaxy clusters*, **J. C. Vernaleo**, C. S. Reynolds, 2007, ApJ, 671, 171
2. *AGN Feedback and Cooling Flows: The Failure of Simple Hydrodynamical Models*, **J. C. Vernaleo**, C. S. Reynolds, 2006, ApJ, 645, 83
3. *Buoyant radio lobes in a viscous intracluster medium*, C. S. Reynolds, B. McKernan, A. C. Fabian, J. M. Stone, **J. C. Vernaleo**, 2005, MNRAS, 357, 242

Conference Abstracts and Proceedings

4. *The Fermi Science Support Center*, **J. C. Vernaleo**, Fermi Science Support Center, 2009, AAS Meeting 213, #468.04
5. *Hydrodynamic Models of AGN Feedback in Cooling Core Clusters*, **J. C. Vernaleo**, C. S. Reynolds, 2006, AAS/AAPT Joint Meeting 2007, AAS Meeting 209, #113.01
6. *AGN Heating of Cooling Flow Clusters: Problems with 3D Hydrodynamic Models*, **J. C. Vernaleo**, C. S. Reynolds, Proceedings of "Heating vs. Cooling in Galaxies and Clusters of Galaxies", August 2006 - Garching, Germany
7. *AGN Heating of Cooling Flow Clusters: The Failure of Simple Hydrodynamical Models*, **J. C. Vernaleo**, C. S. Reynolds, 2005, AAS Meeting 207, #55.03; Bulletin of the American Astronomical Society, 37, 1239
8. *Radio Galaxy Heating of Cooling Flow Clusters: Problems with Pure Hydrodynamic Models*, **J. C. Vernaleo**, C. S. Reynolds, 2005, 6 years of Science with Chandra Symposium

Invited and Public Talks

9. *Looking Back to the Future*, guest speaker on Goddard's Astrophysical Science Division's Blueshift Podcast, December 16, 2009

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10. *Astronomical Data's Long Road Home*, guest speaker on Goddard's Astrophysical Science Division's Blueshift Podcast, June 30, 2009
 11. *Hydrodynamic Models of AGN Feedback on Cooling Cluster Gas*, Galaxy and Black Hole Evolution: Towards a Unified View November 30, 2007, Tucson, Arizona
 12. *Hydro Simulations: How We Can Model Fluids to Understand Astronomy.*, University of Maryland Observatory Open House, October 5, 2007