

Education

Stanford University

Ph.D. Physics

Massachusetts Institute of Technology

B.S. Physics

Proficiencies

- Instruction**
- Graduate & undergraduate instructor in Physics, Mathematics and Astronomy
 - Web-based Online Distance Education design
- Research**
- High energy astrophysics, cosmology, physics education
 - Power electronic devices. Photovoltaic systems. Vehicle efficiency optimization.
- Software**
- Online distance-learning software design
 - Web-based online student testing
 - Web statistics and 'click streams' analysis of student use patterns
 - C++, .NET, ASPX, HTML, AJAX, CGI, PHP, JAVASCRIPT, SQL
 - Multiple access wireless communication protocols
 - Digital satellite communications
 - Proxy-based network optimization for wireless & satellite Internet applications
 - Windows, web and wireless 'smart device' applications
 - Database-driven architectures
 - HTTP proxy design, HTML parsing
- Hardware**
- PCB design and fabrication.
 - Power electronic and motion control device design, prototype and fabrication.
 - PM brushless motor design.
 - Machinist.

Professional History

- Senior Software Developer** – Health Analytic Services, Hokupa'a Technologies, Emerald Lake Software 2000 – 2011
- Science and Educational Materials Director** – NASA / CERES Project 1998 – 2000
- Associate Professor of Physics** – Montana State University 1996 – 2000
- Research Associate** – Montana State University 1994 – 1996
- Research Assistant** – Stanford University 1986 – 1992

Patents

Predictive Browser and Protocol Package (U.S. Serial No. 10/933,444)

Miscellaneous

Director, Stanford University Solar Vehicle Project (1987–1992)

Director, Faculty advisor, Montana State University Solar Vehicle Project (1993-2000)

Founder and Lead Instructor, TangoMontana school of Dance (1999-2005)

Selected Publications

HTTP Proxy Specification for Random Access Channels in Digital Satellite Communications, Caditz, D. 2004, Hokupa'a Technologies.

Demand Assigned Multiple Access Architecture for Digital Satellite Communications, Caditz, D. and Abramson, N. 2004, Hokupa'a Technologies.

Online Journey Through Astronomy: Course Implementation Guide, Caditz, D., Gale, D., and Harper, B. W., 2000 1st Edition, Brooks/Cole Publishing

Relativistic Adiabatic Shocks in Accretion Flows, Caditz, D. and Tsuruta, S. 2000, Highly Energetic Physical Processes and Mechanisms for Emission from Astrophysical Plasmas, Proceedings of IAU Symposium #195, 6-10 July 1999. Published by Astronomical Society of the Pacific, San Francisco, p. 381.

Technology Assessment and Preliminary Design Study of Electromechanical Actuation Systems, Venkataramanan, G., and Caditz, D., 1999, successful Proposal to Montana Space Grant Consortium.

A Systemic Approach to Improving K-12 Astronomy Education Using NASA's Internet Resources. Slater, T. F., Beaudrie, B., Caditz, D. M., Governor, D. S., Roettger, E. S, Stevenson, S., Tuthill, G. 1999, Manuscript for Journal of Computers in Math and Science Teaching. Available: <http://www.thefreelibrary.com/A+Systemic+Approach+to+Improving+K-12+Astronomy+Education+Using...-a078398578>

Integration of Image Data into Classroom Activities: Three Perspectives, Stevenson, S., Caditz, D. and Ruscher, P. 1998, INET '98 Proceedings
http://www.isoc.org/inet98/proceedings/4x/4x_2.htm

Teaching Astronomy by Internet Jigsawing, Beaudrie, B., Slater, T. F., Stevenson, S., & Caditz, D. 1998, Leading and Learning with Technology, 26, 2

Adiabatic Shocks in Accretion Flows, D. Caditz and S. Tsuruta 1998, , Astrophysical Journal v.501, p.242

Effects of Shocks on Emission from the Central Engines of Active Galactic Nuclei. , Sivron, R., Caditz, D., & Tsuruta, S. 1996, The Astrophysical Journal v.469, p.542

Comparing Censoring and Random Truncation via Nonparametric Estimation of a Distribution Function, D. Caditz 1996, Statistical Challenges in Modern Astronomy II, Proceedings of the conference held 2-5 June, 1996 at Pennsylvania State University. Edited by G.J. Babu and E.D. Feigelson. Berlin: Springer-Verlag, 1997., p.100

Smoothed Nonparametric Density Estimation for Censored or Truncated Samples, D. Caditz 1996, Proceedings of the conference held 2-5 June, 1996 at Pennsylvania State University. Edited by G.J. Babu and E.D. Feigelson. Berlin: Springer-Verlag, 1997., p.429

Effects of Shocks on Emission from AGN's Central Engines, R.Sivron, D.Caditz, and S.Tsuruta 1996, arXiv:astro-ph/9604043v1

Shock Induced Modifications of AGN Central Source Emission Sivron, R., Tsuruta, S., & Caditz, D. 1994, Bull. Am. Astron. Soc., Vol. 26, No. 1, p. 797

The Luminosity-Colour Distribution of Quasar Accretion Disks, D. Caditz 1994, Proceedings of the 33rd Herstmonceux Conference held at Cambridge, 16-22 July 1992, Cambridge: Cambridge University Press, |c1994, edited by Robinson, Andrew; Terlevich, Roberto, ISBN 0521464803

Solar Vehicle Design, Caditz, D., 1994, Successful Proposal to General Motors Corp.

Statistical Evidence for Accretion Disks in Active Galactic Nuclei, D. Caditz 1993, Astrophysical Journal, Part 1 (ISSN 0004-637X), vol. 411, no. 1, p. 103-107.

The Slope of the BATSE Number-Flux Distribution, D. Caditz 1993, Astrophysical Journal v.452, p.140

Evolution of the Luminosity-Color Distribution of Quasar Accretion Disks, D. Caditz 1993, Astrophysical Journal, Part 1 (ISSN 0004-637X), vol. 404, no. 2, p. 539-550.

Smoothed Nonparametric Estimation of the Luminosity Function for Flux-limited Samples, Caditz, D. & Petrosian, V. 1993, Astrophysical Journal v.416, p.450

The Slope of the BATSE logN - Log C, D. Caditz 1993, Bulletin of the American Astronomical Society, Vol. 26, p.881

Luminosity-Function Evolution of Quasar Accretion-Disks, D. Caditz and A. Wandel 1991, Institute d'Astrophysique de Paris (IAP) Edited by C. Bertout, S. Collin-Souffrin, and J. P. Lasota. Gif-sur-Yvette: Editions Frontieres, 1991., p.391

Evolution of the Luminosity Function of Quasar Accretion Disks, Caditz, D. M., Petrosian, V., & Wandel, A. 1991, Astrophysical Journal, Part 2 - Letters (ISSN 0004-637X), vol. 372, May 10, 1991, p. L63-L66.

Evolution of the Quasar Distribution, Cosmology, and the Accretion Disk Model of AGN, D. Caditz 1990, PH.D. Thesis, Stanford University, Stanford, CA

Statistical and Physical Evolution of Quasi-Stellar Objects, Caditz, D., and Petrosian, V. 1990, The Astrophysical Journal, 357, 326.

Statistical and Physical Evolution of QSO's, Caditz, D., and Petrosian, V. 1989, NASA STI/Recon Technical Report N, 1989

Quasar and AGN Evolution, Petrosian, V. & Caditz, D. Active Galactic Nuclei: proceedings of the 134th Symposium of the International Astronomical Union, held in Santa Cruz, California, August 15-19, 1988. Edited by Donald E. Osterbrock and Joseph S. Miller. International Astronomical Union. Symposium no. 134, Kluwer Academic Publishers, Dordrecht, p.59

Cosmological Parameters and Evolution of the Galaxy Luminosity Function, Caditz, D., and Petrosian, V. 1989, The Astrophysical Journal, volume 337, part 2 (1989), page L65

The Evolution of the Luminosity Function of Galaxies and the Value of the Density Parameter Ω , D. Caditz and Petrosian, V. 1987, Bulletin of the American Astronomical Society, Vol. 19, p.1106

The Theory and Design of Multi-wire Drift Chambers, D. Caditz, Bates Linear Accelerator Report (1985)

Summary of Courses Taught

- Undergraduate**
- Physics I - Mechanics
 - Physics II – Electricity and Magnetism
 - Physics III – Thermodynamics, Relativity and Modern Physics
 - Special Topic: Solar Vehicle Project
- Graduate**
- Electromagnetic Theory I
 - Electromagnetic Theory II
 - Mathematical Physics I
 - Mathematical Physics II
 - Quantum Mechanics I
 - Quantum Mechanics II
 - Studying the Universe with Space Observatories (Online – Distance Learning) Available online:
http://btc.montana.edu/ceres/malcolm/cd/universe/html/body_long_winded_intro.html
- Professional Development**
- Astronomy for Teachers (Online - Distance learning course developed for the National Teachers Enhancement Network - NTEN)
<http://www.scienceeducationblog.info/online-astronomy-course>
- Miscellaneous**
- The Topology of Tango Dance