

Truong V. Le

CURRICULUM VITAE

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EDUCATION:

- **Ph.D. in Computational Astrophysics** (1999-2005)
George Mason University (GMU), Fairfax, VA
- **M.S. in Physics: Gravitational Physics** (1993-1995)
Wichita State University (WSU), Wichita, KS
- **B.S in Physics & Chemical Physics; Minor in Mathematics & Chemistry** (1989-1993)
Wichita State University, Wichita, KS

TEACHING AWARD:

- Recognized by a first year student for outstanding service and making a difference in their life during their first year at the College of Charleston-Office for the Academic Experience & First-Year Experience (FYE), College of Charleston, Charleston, SC (2013-2014).
- Best Teaching Assistant Award, Wichita State University, Wichita, KS (1994-1995)

TEACHING EXPERIENCE:

- **Assistant Professor** (Fall 2016 – current)
Department of Physics, Astronomy, & Geology at Berry College, Mount Berry, GA
- **Visiting Assistant Professor** (Fall 2014 – Spring 2016)
Department of Physics, Astronomy, & Geology at Berry College, Mount Berry, GA
 - Lecturing upper level modern physics, E&M, astrophysics
 - Lecturing introductory physics and laboratory to science majors
 - Lecturing introductory astronomy and laboratory to science majors
 - Improving introductory college physics laboratory experiments
 - Creating introductory astronomy laboratory/manual
 - Attending all physics & astronomy departmental meetings
 - Conducting semester project (upper level modern physics, E&M, astrophysics classes)
 - Improving the opening and re-tracking mechanism to the roof of the observatory (with students)
 - Research mentorship to physics and engineering majors
- **Visiting Assistant Professor** (Fall 2012 – Spring 2014)
Department of Physics & Astronomy at the College of Charleston, Charleston, SC
 - Lecturing introductory physics and laboratory to science majors
 - Improving introductory college physics laboratory experiments
 - Lecturing introductory astronomy and laboratory to non-science majors
 - Improving introductory astronomy laboratory experiments
 - Participating in Astronomy Public Night and Math-Physics Meet
 - Attending all physics and astronomy departmental meetings
 - Conducting semester project
- **Physics Instructor (Temporary)** (Spring 2010 – Spring 2012)
The Governor's School for Science and Technology, Hampton, VA
 - Lecturing calculus-based physics with laboratory to talented and gifted students
 - Developing and improving a university-physics level laboratory manual
 - Maintaining/Improving laboratory equipment inventory and storage spaces
 - Participating in Research Mentorship to high school senior
 - Conducting semester project (autonomous robots – designing and building a line following robot; altering roof structures to maximize solar power efficiency, light sensing as a steering mechanism, alternative filling for sandbags, wind energy for car)

- **Invited Lecturer** in Physics for Gifted and Talented Students from South Korea (Winter 2012)
School of Education at College of William and Mary, Williamsburg, VA
- **Adjunct Professor** in Physics and Astronomy (Fall 2007)
Upper Iowa University, Fayette, IA
Online Training Program to teach a course in Introduction to Astronomy
- **Physics Laboratory Instructor** (1998-1999)
University of New Hampshire, Durham, NH
Responsible for instructing and evaluating students in 4 laboratory sessions per semester
- **Physics Laboratory Instructor** (1994-1995)
Wichita State University, Wichita, KS
Responsible for instructing and evaluating students in 3 laboratory sessions per semester

RESEARCH EXPERIENCE:

- **Programmer Analyst/Senior Software Engineer/Research Scientist** (2008-2011)
Space Telescope Science Institute/Computer Science Corporation
 - Support the development of the James Webb Space Telescope through Operation Scripts Subsystem (participate in Ops & Spacecraft Command Working Groups; generate, design, and implement scripts requirements; prepare test plans, procedures, and reports; conduct script testing; maintain spacecraft command and telemetry mnemonics database; generate requirements, test plans, test reports, and liens from DOORS; conduct peer reviews of all products)
 - Support the development of the James Webb Space Telescope through Integrating and Testing Subsystem (participate in test plan and test procedure reviews; develop components system simulators; simulate and generate test data; conduct peer reviews of all products)
- **NRC/NRL Postdoctoral Fellowship** (2004-2007)
Naval Research Laboratory, Washington, DC
 - Hydrodynamics Instability in Advection-Dominated Accretion disks around black holes using linear perturbation. Advisors: Drs. Kent S. Wood and Michael T. Wolff (NRL)
 - Understanding the time-dependent models for particle acceleration in astrophysical plasmas. Advisors: Drs. Charles D. Dermer (NRL) & Peter A. Becker (GMU)
 - Determining the Gamma Ray Burst (GRB) formation rate based on the GRBs redshift distribution from the pre-Swift and Swift observations. Advisor: Dr. Charles D. Dermer (NRL)
 - Gamma Ray Burst Predictions for the Fermi Gamma Ray Space Telescope. Advisor: Dr. Charles D. Dermer (NRL)
- **Research Assistant (Dissertation Thesis)** (2000 – 2004)
George Mason University, Fairfax, VA
Dissertation Topic: Understanding the theoretical aspect of one-dimensional accretion disk with shocks and relativistic outflows around black holes. Advisor: Dr. Peter Becker (GMU)
- **Research Assistant** (2000-2001)
NASA Goddard Space Flight Center (GSFC), Greenbelt, MD
Research Topic: Theoretical aspects of Cosmic-Ray Modified Shocks Structure and Stability
Advisors: Drs. Peter Becker (GMU) and Kazanas Demo (NASA,GSFC)
- **Summer Research Assistant** (1999)
NASA Goddard Space Flight Center, Greenbelt, MD
Research Topic: The Origin of X-Ray and Ultraviolet Emissions in NGC 7469 through data analysis based on the data from RXTE. Advisor: Dr. Kirpal Nandra (NASA, GSFC)

- **Research Staff** (1995 – 1998)
AETC Incorporated, San Diego, CA
 - Modeling, simulating and developing software to process and analyze real time data
 - to detect, locate, and classify Unexploded Ordnance of underground objects
 - to understand submarine structural acoustics
 - to detect, locate, and classify objects (submarines, ship wrecks, schools of fish, dolphins,...) in shallow water environments
 - Develop and use advanced underwater broadband acoustic processing and advanced signal processing techniques to enhance detectability and locate submarines and objects in shallow water environments

RESEARCH MENTORSHIP:

7) **Cecilia Ratke**; Spring 2017; Physics major @ Berry College
Research Title: The Hubble Constant and its Effect on the Measured GRBs Redshift Distribution

6) **Nathan Gaby & Michael LaRosa**; 3-2 Engineering Major @ Berry College
Research Title: Solar Energy for a Brighter Future

5) **Elizabeth Edge & William Newman**; Fall 2015-Present; Physics major @ Berry College
Research Title: Standing Shock Instability in Advection-Dominated Accretion Flows

4) **Vedant Mehta, Elizabeth Edge & Kelli Little**; Fall 2015-current; Physics major @ Berry College
Research Title: Accretion onto Neutron Stars through MHD First-Order Approximation Perspective

3) **Vedant Mehta**; Fall 2014-Spring 2016; Physics major @ Berry College
Research Title: Revisiting the Redshift Distribution of Gamma-Ray Bursts in the *SWIFT* ERA
Research Title: Solar Energy in Rome, GA: A Case Study

2) **Joy Putney**; Spring 2011- Sp. 2012; Physics major @ Governor's School for Science & Technology
Research Title: Estimating the Initial Jet Radii of 19 high-power radio-loud Fermi Blazars;

Summer 2013-current; major: Physics & Engineering @ Washington & Lee
Research Title: Standing Shock Instability in Advection-Dominated Accretion Flows

1) **Cassandra Brown**; 2011-2012; Engineering @ Governor's School for Science & Technology
Research Title: A Correlation Study between Observed Jets Powers, Mass Accretion Rates, and Initial Jet Radii of 13 selected low-power radio-loud AGNs

GRANTS, SELECTED AWARDS, HONORS AND SCHOLARSHIPS:

- Fermi Guest Investigator Program – Cycle 10, “LONG-DURATION GRBS EXCESS AT LOW REDSHIFT IN THE SWIFT ERA”, **Truong Le** (PI), (submitted to NASA 2017; 1-year proposal)
- Research Undergraduate Institution (RUI)-NSF Program, “Using a Self-Consistent Disk/Shock/Jets Model to Constrain the Mass Accretion Rate, the Jets bulk Lorentz Factor, & the Jets Launching Radius of Radio-Loud AGN”, **Truong Le** (PI), (submitted to NSF 2015; 3-year proposal)
- Fermi Guest Investigator Program – Cycle 5, “Using a Disk/Shock/Outflow model to constrain the Mass Accretion Rates of Radio-Loud AGNs detected by Fermi”, **Truong Le** (PI), Peter A. Becker (Co-I), Neil Gehrels (Co-I); grade: good (2012) – my positions have not offered much opportunity to apply for grants
- Swift Guest Investigator Program – Cycle 3, “Explaining the Rapid X-ray Declines and Redshift Distribution of Swift GRBs”, Charles D. Dermer (PI) and **Truong Le** (Co-I); total award: \$40,000 (2006-2007)

- National Research Council Research Associateship Award (NRC/NRL) (2004-2007)
- Graduate Research Award (SCS, GMU) (2004)
- Graduate Research Award (SCS, GMU) (2003)
- National Collegiate Minority Leadership Award (1989-1990)
- Minority Scholarship, Unhru Scholarship, Physics Department Scholarship (1989-1993)

SERVICE AND PROFESSIONAL AFFILIATIONS:

- NASA Postdoctoral Program Reviewer (2010-present)
- American Astronomical Society (2004-present)
- Virginia Academy of Science: Science Advisory (2012-2013) - Provide scientific and technical advice as requested by state government. Maintain inventory of expertise of members willing to assist state government. Collect, evaluate, and disseminate information of public interest for benefit of state government.

COMPUTER EXPERIENCE:

- Programming Languages: JavaScript, Cecil, ECLIPSE real time commanding, Python, Tcl/Tk, awk, C, Fortran, Pascal, Basic, HTML
- Operating Systems: Unix, Linux, Windows, Apple OS X, OS/2, VAX/VMS
- Software Packages: FTools & Xanadu, fv, PyFITS, NumPy, ds9, IDL, PV-Wave, Mathematica, and Matlab
- Database: MS-Access database, Altova Authentic-XML database, DOORS

REFEREED PUBLICATIONS: (* indicates with my students)

15. **Le, T.** and * Mehta, V. "Revisiting the Redshift Distribution of Gamma-Ray Bursts in the *Swift* Era", 2017, ApJ, Vol. 837, page 17.

14. **Le, T.**, Wood, K. S., Wolff, M. T., Becker, P. A., *Putney, J. "Standing Shock Instability in Advection-Dominated Accretion Flows", 2016, ApJ, Vol. 819, page 112.

13. Becker, P. A., Das, S., **Le, T.** "Particle Acceleration in Viscous Accretion Disks with Shocks: Green's Function Energy Distribution", 2011, ApJ. Vol. 743, page 47.

12. Das, S., Becker, P. A., & **Le, T.** "Dynamical Structure of Viscous Accretion Disks with Shocks", 2009, ApJ, Vol. 702, page 649.

11. **Le, T.**, & Dermer, C., D., "Gamma Ray Burst Predictions for the Fermi Gamma Ray Space Telescope", 2009, ApJ, Vol. 700, page 1026.

10. Becker, P. A., Das, S., & **Le, T.** "Particle Acceleration and the Formation of Relativistic Outflows in Viscous Accretion Disks with Shocks", 2008, ApJ Letter, L93.

9. **Le, T.**, & Dermer, C., D., "Gamma Ray Bursts in the Swift and GLAST Era", 2007, The First GLAST Symposium. AIP Conference Proceeding, Vol. 921, page 462.

8. Dermer, C. D., Ramirez-Ruiz, E., **Le, T.**, "Correlations between Photon and High-Energy Neutrino Fluxes in Blazars and Gamma Ray Bursts", 2007, ApJL, Vol. 664, page L67.

7. **Le, T.**, & Becker, P. A., "Particle Acceleration in Advection-Dominated Accretion Disks with Shocks: Green's Function Energy Distribution", 2007, ApJ, Vol. 661, page 416

6. **Le, T.**, & Dermer, C. D., "On the Redshift Distribution of Gamma Ray Bursts in the Swift Era", 2007, ApJ, Vol. 661, page 394

5. Becker, P. A., **Le, T.**, & Dermer, C. D., “Time-Dependent Stochastic Particle Acceleration in Astrophysical Plasmas: Exact Solutions Including Momentum-Dependent Escape”, 2006, ApJ, Vol. 647, page 539

4. **Le, T.**, & Becker, P. A., “Particle Acceleration and the Production of Relativistic Outflows in Advection-Dominated Accretion Disks with Shocks”, 2005, ApJ, Vol. 632, page 476.

3. **Le, T.**, & Becker, P. A., “A Self-Consistent Model for the Formation of Relativistic Outflows in Advection-Dominated Accretion Disks with Shocks”, 2004, ApJL, Vol. 617, page L25.

2. Becker, P. A., & **Le, T.**, “Inner Boundary Conditions for Advection-Dominated Accretion onto Black Holes”, 2003, ApJ, Vol. 588, page 408.

1. Nandra, K., **Le, T.**, George, I. M., Edelson, R. A., Mushotzky, R. F., Peterson, B. M., & Turner, T. J., “The Origin of the X-Ray and Ultraviolet Emission in NGC 7469”, 2000, ApJ, Vol.544, page 734.

INVITED PUBLIC OUTREACH TALKS (* indicates with my students):

10. **Le, T.**, “Objects in Space and my experience working at NASA”, West End Elementary School, Rome, GA, Mar. 2017

9. *Mehta, V. & **Le, T.**, “Solar Energy in Rome, GA: A Case Study”, Elm Street Elementary School, Rome, GA, Sep. 2015

8. **Le, T.**, Guess Lecturer (Vietnamese's Tet and traditions), Berry Elementary and Middle at Mount Berry, GA, Feb. 2015

7. **Le, T.**, Guess Lecturer, University of South Carolina at Sumter, SC, Feb. 2014

6. Participant in the Astro-Night Open House at the College of Charleston every third Friday of the month (Aug 2012 – 2014)

5. **Le, T.**, “Physics with demonstration to CD & 2nd-grade students”, James Island Elem., Charleston, SC, Mar. 2014

4. **Le, T.**, “Physics with demonstration to fourth grade students”, James Island Elem., Charleston, SC, Oct. 2012

3. **Le, T.**, “Physics with demonstration to kindergarten students”, Seaford Elementary, Yorktown, VA, Mar. 2012

2. **Le, T.**, “Our place in the universe to 1st grade students”, Vincent Farm Elementary, White Marsh, MD, Nov. 2009

1. **Le, T.**, “Exploring objects in space to pre-K students”, Cardinal Montessori School, Woodbridge, VA, Apr. 2007.

CONFERENCE PROCEEDINGS AND ABSTRACTS OF TALKS: (* indicates with my students)

*29. Newnam, W., Edge, B., & **Le, T.**, “Continuous and Episodic Outflows in Advection-Dominated Accretion Flows”, Winter-AAPT, 2017.

*28. Little, K., Edge, B., Mehta, V., & **Le, T.**, “Quasi-Static Plasma Flow Along the Poles of a Neutron Star”, Winter-AAPT, 2017.

27. **Le, T.**, Wood, K. S., Wolff, M. T., Becker, P. A., *Putney, J., *Edge, E., “Formation of Continuous and

Episodic Relativistic Outflows of Stability and Instability in Advection-Dominated Accretion Flows”, AAS Meeting #227, 2016, B.A.A.S.

26. *Mehta, V. & Le, T., “Gamma Ray Bursts in the Swift and GLAST Era: Revisited”, AAS Meeting #227, 2016, B.A.A.S.

25. *Mehta, V. & Le, T., “Gamma Ray Bursts in the Swift and GLAST Era: Revisited”, Berry College's Spring-2015 Symposium (won the “scientific impact” award).

24. Attend the “Physics and Astronomy New Faculty Workshop”, the American Center for Physics in College Park, Maryland, Nov. 13-16, 2014.

23. Le, T., *Putney, J., *Brown, C., “Jets Launching Radius Correlation in Low-Power Radio-Loud AGNs”, Meeting of Astronomers in South Carolina (MASC) in 2014.

22. Le, T., Wood, K. S., Wolff, M. T., Becker, P. A., *Putney, J. “Standing Shock Instability in Advection-Dominated Accretion Flows”, AAS Meeting #223, 2014, B.A.A.S.

*21. Cave, B., DeGrace, C., Butler, J., Wilkerson, M., & Le, T., “Maximizing the Acceleration and Fuel Efficiency for Vehicle at a Particular Price Point” (won Special Award at 2012 Tidewater Science Fair).

*20. Cragg, P., Trepte, M., Kenny, A., & Le, T., “Wind Energy: Harvesting Power Through Cars” (won Special Award at 2012 Tidewater Science Fair).

*19. Douchess, C., Buffkin, J., McCarter, R., & Le, T., “The Mass to Electricity Ratio of Lift in the Biefeld-Brown Effect: An Experiment” (Honorable Mention at 2012 Tidewater Science Fair).

*18. Chambers, L., Luchtenberg, A., Chanza, R., Gonzalez, M., & Le, T., “Altering Roof Structures to Maximize Solar Power Efficiency” (submitted to VA Academy of Science 90th Annual Meeting).

*17. Sharlette, A., Hayward, M., & Le, T., “The Effect of a Magnetic Configuration on the Production of Electricity”, Hampton University 17th Annual Student Research Symposium, Hampton, VA, Feb. 10, 2012.

*16. Stewart, S., Rosen, Z., chasten-Boyd, D., Reese, C., & Le, T., “Most Efficient Alternative Filling for Sandbags”, Hampton University 17th Annual Student Research Symposium, Hampton, VA, Feb. 10, 2012 (3rd place at 2012 Tidewater Science Fair; presented at the VA Academy of Science 90th Annual Meeting).

*15. Silveria, C., Matthews, J., Pandolf, J., Murray, D., & Le, T., “Different swim Suits: A Noticeable Difference?”, Hampton University 17th Annual Student Research Symposium, Hampton, VA, Feb. 10, 2012 (3rd place award; honorable mention at 2012 Tidewater Science Fair; presented at the VA Academy of Science 90th Annual Meeting).

*14. Brown, C. & Le, T., “A Correlation Study between the Jet Locations, Mass Accretions and Jet Power of 13 Radio-Loud AGNs”, Hampton University 17th Annual Student Research Symposium, Hampton, VA, Feb. 10, 2012 (1st place award; presented at the VA Academy of Science 90th Annual Meeting).

13. Le, T., Becker, P. A., Das, S., “Formation of Relativistic Outflows in ADAF Disks with Shocks”, Hampton University 17th Annual Student Research Symposium, Hampton, VA, Feb. 10, 2012.

12. Attend the “Proposal Planning Subsystem System Design Review Infrastructure & Shared Components”, Space Telescope Science Institute, Baltimore, MD, Jan. 22, 2009.

11. Attend the “JWST Integrated Science Instrument Module Flight Software”, Computer Science Corporation, Lanham-Seabrook, MD, April 29 – May 1, 2008.

10. Attend the “JWST Preliminary Design Review”, NASA Goddard Space Flight Center, Greenville, MD, Mar. 31, 2008.
9. Attend the “Science & Operations Center Proposal Planning Subsystem System Requirements Review”, Space Telescope Science Institute, Baltimore, MD, Feb. 19, 2008.
8. Attend the “James Webb Space Telescope Operations Scripts Subsystem Preliminary Design Review”, Space Telescope Science Institute, Baltimore, MD, Jan. 22 – 24, 2008.
7. **Le, T.**, & Dermer, C., D., “Gamma Ray Bursts in the Swift and GLAST Era”, 1st GLAST Symposium, Palo Alto, CA, Feb. 5-8, 2007.
6. **Le, T.**, Becker, P. A., “Jets and Accretion Disks ‘’, Relativistic Jets: The Common Physics of AGN, Microquasars and Gamma-Ray Bursts Meeting, 2005, at Ann Arbor, MI.
5. **Le, T.**, Becker, P. A., “Particle Acceleration in Advection-Dominated Accretion Disks”, TeV Particle Astrophysics Meeting, 2005, Fermilab, Batavia, IL.
4. **Le, T.**, & Becker, P. A., “Self-Consistent Model for Relativistic Outflows from Advection-Dominated Accretion Disks”, AAS Meeting #203, 2004, B.A.A.S.
3. **Le, T.**, & Becker, P. A., “Advection-Dominated Accretion Flows with Outflows”, AAS Meeting #199, 2001, B.A.A.S.
2. Becker, P. A., & **Le, T.**, “Inner Boundary Conditions for Advection-Dominated Accretion onto Black Holes”, AAS Meeting #199, 2001, B.A.A.S.
1. Becker, P. A., **Le, T.**, & Kazanas, D., “Cosmic-Ray Modified Shocks: Structure and Stability”, HEAD Meeting #32, 2000, B.A.A.S.

REFERENCES:

Kuthirummal, Narayanan; Professor, Department of Physics and Astronomy, College of Charleston, Charleston, SC; phone: (843) 953-7457; email: kuthirummaln@cofc.edu

Mehta, Vedant; Nuclear and Radiological Engineering, Georgia Tech, Atlanta, GA; phone: (762) 436-6646; email: vmehta31@gatech.edu

Neff, James; Program Director, Division of Astronomical Sciences at NSF; Arlington, VA; phone: (703) 292-2475; email: jneff@nsf.edu

Richardson, Terry; Professor, Department of Physics and Astronomy, College of Charleston, Charleston, SC; phone: (843) 953-5325; email: richardsont@cofc.edu

Wismer, Vikki; Director, The Governor’s School for Science and Technology, Hampton, VA; phone: (703) 307-2274; email: vikki.wismer@nhrec.org