Curriculum Vitae

Gabriele U. Varieschi

Department of Physics
Loyola Marymount University
110 Seaver Hall – 1 LMU Drive – MS 8227
Los Angeles, CA 90045-2659
Voice: (310) 338-7632 - Fax: (310) 338-5816
E-mail: gvarieschi@lmu.edu
Web-site: http://myweb.lmu.edu/gvarieschi/

EDUCATION

- **Ph.D**. in Physics, University of California, Los Angeles, June 2000. Department of Physics.
  Title of dissertation: "**Perturbative Quantum Chromodynamics Predictions for Very High Energy Atmospheric Neutrinos and Muons**," (2000), UCLA, Ph. D. dissertation.
  Committee members: Prof. G.B. Gelmini (Chair and Advisor), Prof. Z. Bern, Prof. D.A. Gieseker, Prof. R. Peccei (UCLA, Vice Chancellor of Research).

- **M.S.** in Physics, University of California, Los Angeles, March 1996. Department of Physics.

- **Laurea in Fisica**, Università degli Studi di Milano, Italy, March 1989 (110/110, "Con Lode"). Department of Physics.
  Title of dissertation: "**Studies and Measures on the Stability and Quench Propagation in High Field Super-Conducting Magnets**," (1987-1989), Università di Milano, Laurea dissertation.
  Committee members: Prof. E. Acerbi (Chair and Advisor), Prof. L. Rossi (Co-Advisor, CERN, Geneva).

CURRENT ACADEMIC EMPLOYMENT

Full Professor of Physics, Loyola Marymount University	Aug. 2012-present

PRIOR ACADEMIC EMPLOYMENT

Acting Chair, Dept. of Physics, Loyola Marymount University	Spring 2012
Associate Professor of Physics, Loyola Marymount University (tenured in August 2006)	2006-2012
Department Chairperson, Dept. of Physics, Loyola Marymount University	2007-2008
Assistant Professor of Physics, Loyola Marymount University	2000-2006
Research Assistant, Dept. of Physics and Astronomy, UCLA	1997-2000
Teaching Assistant, Dept. of Physics and Astronomy, UCLA	1994-1998
Physics and Math Instructor, Liceo "Leone XIII", Milano, Italy (Jesuit High School)	1991-1994
Research Associate, Dept. of Physics, University of Milano and I.N.F.N	1987-1989

PROFESSIONAL EXPERIENCE

Computer Methodologies International Coordinator, Pirelli Tire Company, Italy	1989-1991

TEACHING/ADVISING

COURSES TAUGHT AT LMU (Fall–F or Spring-S semester):

- Physics 101- *Introduction to Mechanics*: S2001, S2002, S2003, S2005, S2006, S2007, S2010, S2011, S2015, S2016, and S2017.
- Physics 101lab - *Introduction to Mechanics Laboratory*: S2001, S2002, S2003, S2005, S2006, S2007, S2008, S2010, S2011, S2015, S2016, and S2017.
- Physics 201 - *Introduction to Electricity and Magnetism*: F2000, F2002, F2005, F2009, F2010, F2011, F2014, and F2015.
- Physics 201lab - *Introduction to Electricity and Magnetism Laboratory*: F2000, F2002, F2005, F2007, F2009, F2010, F2011, F2014, and F2015.
- Physics 212 - *Intermediate Mechanics*: S2001, S2002, and S2010.
- Physics 253 - *General Physics I*: F2001, F2003, F2004, F2008, F2012, S2013, and F2017.
- Physics 253lab - *General Physics I Laboratory*: F2002, F2003, F2004, F2008, F2009, S2012, F2012, S2013, and F2017.
- Physics 254 - *General Physics II*: S2009, and F2016.
- Physics 254lab - *General Physics II Laboratory*: S2009, and F2016.
- Physics 298 - *Research in Physics*: F2008, S2009, F2010, S2011, F2011, and S2012.
- Physics 301 - *Electromagnetic Fields*: F2004, F2005, F2007, F2008, and F2014.
- Physics 302 - *Electromagnetic Waves*: S2005, S2006, S2008, S2009, and S2015.
- Physics 321 - *Quantum Physics I*: F2011, F2015, and F2017.
- Physics 322 - *Quantum Physics II*: S2012, and S2016.
- Physics 398 - *Research in Physics*: F2009, S2010, F2012, S2013, F2014, and S2015.
- Physics 461 - *Elementary Particles*: F2001, and S2011 (**new LMU course developed**).
- Physics 471 - *Introduction to Relativity and Cosmology*: F2010 (**new LMU course developed**).
- Physics 490 - *Physics Teaching*: every semester.
- Physics 498 – *Research in Gravitational Physics*: F2003, F2005, F2007, F2015, S2016, and F2017.

TEACHING INTERESTS:

- Fundamental Physics courses with emphasis on problem solving, conceptual aspects and use of active learning techniques and tools.
- Advanced undergraduate courses in theoretical Physics, Particle Physics, Gravitation and Cosmology.

LMU STUDENTS ADVISED:

- Advised 21 LMU undergraduate students (14 physics majors, 7 engineering physics majors) between Spring 2007 and Fall 2017.
- Prior to Spring 2007: informal advising only to physics and engineering physics students (formal advising to all students was done by Dept. Chair).

LMU PHYSICS STUDENTS SUPERVISED AS RESEARCH ASSISTANTS:

- Mr. Kabir Buxani – particle physics thesis. 2017-2018
- Mr. Daniel Dijamco – gravitational physics thesis. 2017-2018
- Ms. Kellie Ault – gravitational physics research and thesis. 2014-2016
- Ms. Zily Burstein –musical acoustics and gravitational physics research/thesis. 2010-2014
- Ms. Christina Gower –musical acoustics research. 2007-2010
- Ms. Isabel Jully – astro-particle and classical physics research. 2003-2005
- Ms. Kaoru Kamiya – astro-particle and classical physics research. 2002-2003
- Mr. Danny Harrington – cosmic ray research. 2000-2001

SCHOLARSHIP

PUBLISHED PEER REVIEWED PAPERS OR DISSEMINATED WORK:

J. Mureika and G. Varieschi, "**Black hole shadows in fourth-order conformal Weyl gravity**," Can. J. Phys., DOI: 10.1139/cjp-2017-0241 , June 2017, preprint: **arXiv:1611.00399 [gr-qc]**.

G. Varieschi and K. Ault (+), "**Wormhole geometries in fourth-order conformal Weyl gravity**," Int. J. Mod. Phys. D, DOI: 10.1142/S0218271816500644, Apr. 2016, preprint: arXiv:1510.05054 [gr-qc]. (+) LMU student co-author.

G. U. Varieschi, "**Astrophysical Tests of Kinematical Conformal Cosmology in Fourth-Order Conformal Weyl Gravity**," Galaxies, 2 (2014) 4, 577-600, December 2014, DOI: 10.3390/galaxies2040577 (preprint: **arXiv:1410.2944** [astro-ph.CO]).

G. U. Varieschi, "**Kerr metric, geodesic motion, and Flyby Anomaly in fourth-order Conformal Gravity**," Gen. Relativ. Gravit., 46, 1741, June 2014, DOI10.1007/s10714-014-1741-z (preprint: arXiv:1401.6503 [gr-qc]).

G. Varieschi and Z. Burstein (+), "**Conformal Gravity and the Alcubierre Warp Drive Metric**," ISRN Astronomy and Astrophysics, vol. 2013, Article ID 482734, Jan. 2013, preprint: arXiv:1208.3706 [gr-qc]. (+) LMU student co-author.

Z. Burstein (+), C. Gower (+) and G. Varieschi, "**Simulating a guitar with a conventional sonometer**," Open Journal of Acoustics, Vol. 2 N. 2, June 2012 (preprint: arXiv:1105.4570 [physics.class-ph]). (+) LMU student co-author.

G. Varieschi, "**Conformal cosmology and the Pioneer Anomaly**," Phys. Res. Int. 2012:469095, 2012. (arXiv preprint: arXiv:1010.3262 [astro-ph.CO]).

G. Varieschi, "**Kinematical conformal cosmology: fundamental parameters from astrophysical observations**," ISRN Astronomy and Astrophysics, vol. 2011, Article ID 806549, May 2011, DOI:10.5402/2011/806549 (arXiv preprint: arXiv:0812.2472 [astro-ph]).

G. Varieschi (*) and C. Gower (+), "**Intonation and compensation of fretted string instruments**," Am. J. Phys. **78** (1), 47-55, January 2010 (arXiv preprint: arXiv:0906.0127 [physics.class-ph]). (*) First author of paper; (+) LMU student co-author.

G. Varieschi, "**A kinematical approach to conformal cosmology**," Gen. Relativ. Gravit., **42** (4), 929-974, April 2010, DOI: 10.1007/s10714-009-0890-y (arXiv preprint: arXiv:0809.4729 [gr-qc]).

G. Varieschi, "**Eight and a half minutes**," Physics Education, Vol. 43 (1), 68-74, January 2008 (arXiv preprint: physics/0612074).

G. Varieschi, "**The projectile inside the loop**," Physics Education, Vol. 41 (3), 236-239, May 2006 (arXiv preprint: physics/0506032).

G. Varieschi (*) and I. Jully (+), "**Toy blocks and rotational physics**," The Physics Teacher, Vol. 43 (6), 360-362, September 2005 (arXiv preprint: physics/0402119). (*) First author of paper; (+) LMU student co-author.

G. Gelmini, G. Varieschi and T. Weiler, "**Bounds on relic neutrino masses in the Z-burst model**," Phys. Rev. D **70**, 113005, 2004 (arXiv preprint: hep-ph/0404272). (Authors in alphabetical order)

G. Varieschi (*) and K. Kamiya (+), "**Toy models for the falling chimney**," Am. J. Phys. **71** (10), 1025-1031, October 2003 (arXiv preprint: physics/0210033).
(*) First author of paper; (+) LMU student co-author.

G. Gelmini, P. Gondolo and G. Varieschi, "**Measuring the prompt atmospheric neutrino flux with down-going muons in neutrino telescopes**," Phys. Rev. D **67**, 017301, 2003 (arXiv preprint: hep-ph/0209111).
(Authors in alphabetical order)

G. Gelmini and G. Varieschi, "**Cosmic rays above the ankle from Z bursts with 0.07-eV relic neutrinos**," 2002 (arXiv preprint: hep-ph/0201273).
(Authors in alphabetical order)

G. Gelmini, P. Gondolo and G. Varieschi, "**Measurement of the gluon partonic distribution function at small x with neutrino telescopes**," Phys. Rev. D **63**, 036006, 2001 (arXiv preprint: hep-ph/0003307).
(Authors in alphabetical order)

G. Gelmini, P. Gondolo and G. Varieschi, "**Prompt atmospheric neutrinos and muons: dependence on the gluon distribution function**," Phys. Rev. D **61**, 056011, 2000 (arXiv preprint: hep-ph/9905377).
(Authors in alphabetical order)

G. Gelmini, P. Gondolo and G. Varieschi, **"Prompt atmospheric neutrinos and muons: NLO vs LO QCD predictions**," Phys. Rev. D **61**, 036005, 2000 (arXiv preprint: hep-ph/9904457).
(Authors in alphabetical order)

GRANTS AWARDED IN SUPPORT OF RESEARCH:

- **Faculty Summer Research Grant**, *LMU* 2017
- **Faculty Summer Research Grant**, *LMU* 2015
- **Faculty Summer Research Grant**, *LMU* 2012
- **Faculty Summer Research Grant**, *LMU* 2010
- **Faculty Summer Research Grant**, *LMU* 2008
- **Faculty Summer Research Grant**, *LMU* 2004
- **Cottrell College Science Award**, *Research Corporation, Tucson, AZ* 2002-2004
- **New Faculty Summer Research Grant**, *LMU* 2001

WORK IN PROGRESS:

G. Varieschi, "**Applications of Fractional Calculus to Newtonian Mechanics**," 2017, arXiv:1712.03473, submitted to the European Journal of Physics, under review.

G. Tonzig and G. Varieschi, "**Foundations of Classical Mechanics**," Physics textbook for scientists and engineers (2017, in preparation).

PRESENTATIONS

G. Varieschi and K. Ault, "**Wormhole geometries in fourth-order conformal Weyl gravity**," presented at the APS (American Physical Society) April Meeting, Salt Lake City, Utah, 2016.

G. Varieschi and Z. Burstein, "**Conformal Gravity and the Alcubierre Warp Drive Metric**," presented at the APS (American Physical Society) April Meeting, Denver, Colorado, 2013.

G. Varieschi and C. Gower, "**Intonation and compensation of fretted string instruments**," presented at the APS (American Physical Society) April Meeting, Anaheim, California, 2011.

G. Varieschi, "**A kinematical approach to conformal cosmology** ," presented at the APS (American Physical Society) April Meeting, Denver, Colorado, 2009.

G. Varieschi, "**Eight and a half minutes**," presented at the APS (American Physical Society) April Meeting, St. Louis, Missouri, 2008.

G. Varieschi, "**Bounds on relic neutrino masses in the Z-bursts model**," presented at the APS (American Physical Society) April Meeting, Denver, Colorado, 2004.

G. Varieschi, "**Toy models for the falling chimney**," presented at the 128th AAPT (American Association of Physics Teachers) National Meeting, Miami Beach, Florida, 2004.

UNIVERSITY/PROFESSIONAL/COMMUNITY SERVICE

LOYOLA MARYMOUNT UNIVERSITY:

• University Student Affairs Committee	2017-present
• University Library Committee	2009-2012
• Undergraduate Library Research Award committee	2013
• University Student Affairs Committee	2005-2007
• University Special Committee on Math and Science Teachers Preparation	2004-2006
• University Library Committee	2001-2004

FRANK R. SEAVER COLLEGE OF SCIENCE AND ENGINEERING:

• College Faculty Development Committee (Co-chair 2015-2017)	2014-2017
• College Internship Committee	2011-2013
• College Scheduling/Conflict Committee	2007-2012
• College Secondary Science Education Task Force	Fall 2011
• College Curriculum Committee	Fall 2010
• College New Building User Committee (for new science building)	Fall 2008
• College Planning Committee for new science building	2007-Spring 2008
• Freshman Advisor Committee	Spring 2008
• Reviewer for LMU internal summer grant	2008

DEPARTMENT OF PHYSICS:

• Faculty Library Representative – Physics Department	2017-present
• Four-unit curriculum task force	2017-present
• Faculty Library Representative – Physics Department	2008-2013
• Chair of Physics Department	2007-2008
• Faculty Library Representative – Physics Department	2001-2006
• Departmental Search Committee	2001, 2004, and 2017
• Reviewer of part-time instructors	

PROFESSIONAL:

- Reviewer for Astrophysics and Space Science – Springer Science Journal
- Reviewer for Bentham Science Publishers , eBooks
- Reviewer for JCAP – Journal of Cosmology and Astroparticle Physics – IOP Science
- Reviewer for Physics Letters B – Elsevier Journal
- Reviewer for The Physics Teacher - AAPT
- Reviewer for Foundations of Physics – Springer Science Journal
- Reviewer for Central European Journal of Physics – Springer Versita Journal
- Reviewer for Canadian Journal of Physics

AFFILIATIONS AND PAST AWARDS:

- American Physical Society (APS), Division of Particles and Fields.
- American Association of Physics Teachers (AAPT).
- The National Physics Honor Society (Sigma Pi Sigma).
- Guitar Foundation of America (GFA).
- Honorary Teaching Award, *Dept. of Physics and Astronomy, UCLA* 1996-1997
- Outstanding Teaching Award, *Dept. of Physics and Astronomy, UCLA* 1995-1996
- Physics Foreign Scholar Award, *Dept. of Physics and Astronomy, UCLA* 1994-1998
- I.N.F.N. (Italian National Institute of Nuclear Physics) Fellowship 1987-1989
- Ansaldo Research Scholarship - Italy 1987-1989

OTHERS

RESEARCH INTERESTS:

- Cosmology and General Relativity. Alternative theories of Gravity. Fractional Physics.
- Elementary Particle Physics. Astro-Particle Physics and Astrophysics. Cosmic Rays.
- Musical Acoustics and Physics of Musical Instruments.
- Classical and General Physics.

COMPUTER SKILLS:

- Languages: FORTRAN, TeX, LaTeX, HTML.
- Operating Systems: Unix and Windows platforms.
- Application Packages and Tools: Scientific WorkPlace, Origin, MS Office, Mathematica.

PHYSICS CONFERENCES ATTENDED:

- SCAAPT Meeting, April 2017, Loyola Marymount University, Los Angeles.
- APS April Meeting 2016, Salt Lake City, Utah, April 16-19, 2016.
- APS April Meeting 2015, Baltimore, Maryland, April 11-14, 2015.
- 30th Pacific Coast Gravity Meeting, San Diego, CA, March 2014.
- APS April Meeting 2013, Denver, Colorado, April 13-15, 2013.
- APS April Meeting 2011, Anaheim, California, April 30-May 3, 2011.
- APS April Meeting 2009, Denver, Colorado, May 2-5, 2009.
- APS April Meeting 2008, St. Louis, Missouri, April 12-15, 2008.
- Sources and Detection of Dark Matter in the Universe (DM 2008), Marina del Rey, California, February 20-22, 2008.
- Sources and Detection of Dark Matter in the Universe (DM 2006), Marina del Rey, California, February 22-24, 2006.
- APS April Meeting 2004, Denver, Colorado, May 1-4, 2004.
- Sources and Detection of Dark Matter in the Universe (DM 2004), Marina del Rey, California, February 18-20, 2004.
- AAPT National Meeting 2004, Miami Beach, Florida, January 24-28, 2004.
- Sources and Detection of Dark Matter in the Universe (DM 2002), Marina del Rey, California, February 20-22, 2002.
- 2002 Workshop for New Physics and Astronomy Faculty, AAPT, College Park, Maryland, November 7-10, 2002.
- APS April Meeting 2000 and EUSO Meeting, Long Beach, California, April 29-May 2, 2000.
- Sources and Detection of Dark Matter in the Universe (DM 2000), Marina del Rey, California, February 23-25, 2000.
- OWL/AW Neutrino Workshop, University of California Los Angeles, November 1-3, 1999.

- Division of Particles and Fields Conference (DPF ’99), University of California Los Angeles, January 5-9, 1999.
- Sources and Detection of Dark Matter in the Universe (DM ’98), Marina del Rey, California, February 18-20, 1998.

PERSONAL:

- Born: November 18, 1961, Milano, Italy.
- Citizenship: USA and Italian.
- Marital status: married, two children.

ACTIVITIES AND SKILLS:

- Music: classical guitar and lute player.
- Sports: alpine and cross-country skiing.

Last updated: December 2017