

Curriculum Vitae

1. **Name and surname (Thai):** เดวิด รูฟโฟโล
(English): David Ruffolo
2. **Gender:** Male
Marital status: Married
3. **Birth date:** March 12, 1968
4. **Present rank (Lect., Asst. Prof., Assoc. Prof., Prof., or Non-faculty):** Professor
5. **Work address:** Department of Physics, Faculty of Science, Mahidol University
Province: Bangkok
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6. **Home address:** 314/43 Soi Sri Ayudhaya 7
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7. **e-mail address:** david.ruf@mahidol.ac.th
8. **Educational background**
 - 8.1. **Bachelor's degree subject:** Two degrees: B.S. in Physics & B.A. in Mathematics
Institution: University of Cincinnati
Year of graduation: 1985
 - 8.2. **Master's degree subject:** ---
Institution:
Year of graduation:
 - 8.3. **Doctoral degree subject:** Ph.D. in Physics
Institution: University of Chicago
Year of graduation: 1991
 - 8.4. **Other (specify):**

9. Research output

9.1. Research publications in international journals (specify journal also):

[Researchers working in Thailand in bold type, 2014 impact factors in parentheses, asterisk indicates corresponding author.]

- 2017 **W. Mitthumsiri, A. Seripienlert, U. Tortempun, P.-S. Mangeard, A. Sáiz, D. Ruffolo*, and R. Macatangay**, Modeling polar-region atmospheric ionization induced by the giant solar storm on 20 January 2005, *J. Geophys. Res. Space Phys.*, **122**, 7946 (3.318)
- 2017 **S. Ek-In, K. Malakit*, D. Ruffolo**, M. A. Shay, and P. A. Cassak, Effects of a Guide Field on the Larmor Electric Field and Upstream Electron Temperature Anisotropy in Collisionless Asymmetric Magnetic Reconnection, *Astrophys. J.*, **845**, 113 (5.909)
- 2017 **A. F. Rappazzo*, W. H. Matthaeus, D. Ruffolo**, M. Velli, and S. Servidio, Coronal Heating Topology: The Interplay of Current Sheets and Magnetic Field Lines, *Astrophys. J.*, **844**, 87 (5.909)
- 2017 **R. Chhiber, P. Subedi, A. V. Usmanov, W. H. Matthaeus*, D. Ruffolo**, M. L. Goldstein, and T. N. Parashar, Cosmic Ray Diffusion Coefficients Throughout the Inner Heliosphere from Global Solar Wind Simulation, *Astrophys. J. Suppl.*, **230**, 21 (11.257)
- 2017 **P. Subedi, W. Sonsrettee**, P. Blasi, **D. Ruffolo**, W. H. Matthaeus*, D. Montgomery, P. Chuychai, P. Dmitruk, M. Wan, T. N. Parashar, and R. Chhiber, Charged Particle Diffusion in Isotropic Random Magnetic Fields, *Astrophys. J.*, **837**, 140 (5.909)
- 2016 **P.-S. Mangeard, D. Ruffolo*, A. Sáiz, W. Nuntiyakul**, J. W. Bieber, J. Clem, P. Evenson, R. Pyle, M. L. Duldig, and J. E. Humble, Dependence of the neutron monitor count rate and time delay distribution on the rigidity spectrum of primary cosmic rays, *J. Geophys. Res. Space Physics*, **121**, 11620, doi:[10.1002/2016JA023515](https://doi.org/10.1002/2016JA023515) (3.318)
- 2016 **P. Tooprakai, A. Seripienlert, D. Ruffolo*, P. Chuychai**, and W. H. Matthaeus, Simulations of Lateral Transport and Dropout Structure of Energetic Particles from Impulsive Solar Flares, *Astrophys. J.*, **831**, 195 (5.909)
- 2016 **P.-S. Mangeard, D. Ruffolo*, A. Sáiz, S. Madlee**, and T. Nutaro, Monte Carlo Simulation of the Neutron Monitor Yield Function, *J. Geophys. Res. Space Physics*, **121**, 743 (3.318)
- 2016 **A. P. Snodin, D. Ruffolo***, and W. H. Matthaeus, Evolution of the Magnetic Field Line Diffusion Coefficient and Non-Gaussian Statistics, *Astrophys. J.*, **827**, 115 (5.909)
- 2016 **W. Sonsrettee**, P. Subedi, **D. Ruffolo***, W. H. Matthaeus, **A. P. Snodin, P. Wongpan, P. Chuychai**, G. Rowlands, and S. Vyas, Magnetic Field Line Random Walk in Isotropic Turbulence with Varying Mean Field, *Astrophys. J. Suppl.*, **225**, 20 (11.257)

- 2016 R. D. Strauss*, J. A. Le Roux, N. E. Engelbrecht, **D. Ruffolo**, and P. Dunzlaff, Non-axisymmetric Perpendicular Diffusion of Charged Particles and Their Transport Across Tangential Magnetic Discontinuities, *Astrophys. J.*, **825**, 43 (5.909)
- 2016 J. A. Tessein, **D. Ruffolo**, W. H. Matthaeus*, and M. Wan, Local Modulation and Trapping of Energetic Particles by Coherent Magnetic Structures, *Geophys. Res. Lett.*, **43**, doi:10.1002/2016GL068045 (4.196)
- 2016 **D. Ruffolo***, **A. Sáiz**, **P.-S. Mangeard**, **N. Kamyán**, **P. Muangha**, **T. Nutaro**, **S. Sumran**, **C. Chaiwattana**, **N. Gasiprong**, **C. Channok**, **C. Wuttiya**, **M. Rujiwarodom**, **P. Tooprakai**, **B. Asavapibhop**, J. W. Bieber, J. Clem, P. Evenson, and K. Munakata, Monitoring Short-Term Cosmic-Ray Spectral Variations Using Neutron Monitor Time-Delay Measurements, *Astrophys. J.*, **817**, 38 (5.993)
- 2015 J. Tessein*, **D. Ruffolo**, W. H. Matthaeus, M. Wan, J. Giacalone, and M. Neugebauer, Effect of Coherent Structures on Energetic Particle Intensity in the Solar Wind at 1 AU, *Astrophys. J.*, **812**, 68 (5.993)
- 2015 **N. Aiensa-ad**, **D. Ruffolo***, **A. Sáiz**, **P.-S. Mangeard**, **T. Nutaro**, **W. Nuntiyakul**, **N. Kamyán**, **T. Khumlumlert**, H. Krüger, H. Moraal, J. W. Bieber, J. Clem, and P. Evenson, Measurement and Simulation of Neutron Monitor Count Rate Dependence on Surrounding Structure, *J. Geophys. Res. Space Physics*, **120**, doi:10.1002/2015JA021249 (3.426)
- 2015 **D. Ruffolo*** and W. H. Matthaeus, Dynamical Field Line Connectivity in Magnetic Turbulence, *Astrophys. J.*, **806**, 233 (5.993)
- 2015 **W. Sonsrettee**, P. Subedi, **D. Ruffolo***, W. H. Matthaeus, **A. P. Snodin**, **P. Wongpan**, and **P. Chuychai**, Magnetic Field Line Random Walk in Isotropic Turbulence with Zero Mean Field, *Astrophys. J.*, **798**, 59 (5.993)
- 2014 **W. Nuntiyakul**, P. Evenson, **D. Ruffolo***, **A. Sáiz**, J. W. Bieber, J. Clem, R. Pyle, M. L. Duldig, and J. E. Humble, Latitude Survey Investigation of Galactic Cosmic Ray Solar Modulation during 1994-2007, *Astrophys. J.*, **795**, 11 (5.993)
- 2014 S. Servidio, W. H. Matthaeus*, M. Wan, **D. Ruffolo**, A. F. Rappazzo, and S. Oughton, Complexity and Diffusion of Magnetic Flux Surfaces in Anisotropic Turbulence, *Astrophys. J.*, **785**, 56 (5.993)
- 2014 **T. Yeeram**, **D. Ruffolo***, **A. Sáiz**, **N. Kamyán**, and **T. Nutaro**, Corotating Solar Wind Structures and Recurrent Trains of Enhanced Diurnal Variation in Galactic Cosmic Rays, *Astrophys. J.*, **784**, 136 (5.993)

- 2013** **D. Ruffolo***, **A. Seripienlert**, **P. Tooprakai**, **P. Chuychai**, and W. H. Matthaeus, Squeezing of Particle Distributions by Expanding Magnetic Turbulence and Space Weather Variability, *Astrophys. J.*, **779**, 74 (5.993)
- 2013** **A. P. Snodin**, **D. Ruffolo***, S. Oughton, S. Servidio, and W. H. Matthaeus, Magnetic Field Line Random Walk in Models and Simulations of Reduced Magnetohydrodynamic Turbulence, *Astrophys. J.*, **779**, 56 (5.993)
- 2013** J. A. Tessein, W. H. Matthaeus*, M. Wan, K. T. Osman, **D. Ruffolo**, and J. Giacalone, Association of Suprathermal Particles with Coherent Structures and Shocks, *Astrophys. J. Lett.*, **776**, L8 (5.339)
- 2013** **K. Malakit**, M. A. Shay, P. A. Cassak, and **D. Ruffolo***, New Electric Field in Asymmetric Magnetic Reconnection, *Phys. Rev. Lett.*, **111**, 135001 (7.512)
- 2013** J. W. Bieber, J. Clem, P. Evenson, R. Pyle, **A. Sáiz**, and **D. Ruffolo***, Giant Ground Level Enhancement of Relativistic Solar Protons on 2005 January 20. I. *Spaceship Earth* Observations, *Astrophys. J.*, **771**, 92 (5.993)
- 2013** **D. Ruffolo*** and W. H. Matthaeus, Theory of Magnetic Field Line Random Walk in Noisy Reduced Magnetohydrodynamic Turbulence, *Phys. Plasmas*, **20**, 012308 (2.142)
- 2013** **A. P. Snodin**, **D. Ruffolo***, and W. H. Matthaeus, Model of the Field Line Random Walk Evolution and Approach to Asymptotic Diffusion in Magnetic Turbulence, *Astrophys. J.*, **762**, 66 (5.993)
- 2012** A. F. Rappazzo, W. H. Matthaeus, **D. Ruffolo**, S. Servidio, and M. Velli, Interchange Reconnection in a Turbulent Corona, *Astrophys. J. Lett.*, **758**, L14 (5.339)
- 2012** **P. Pluengphon**, **T. Bovornratanaraks***, **S. Wannarat**, **K. Yoodee**, **D. Ruffolo**, and **U. Pinsook**, *Ab Initio* Calculation of High Pressure Phases and Electronic Properties of CuInSe₂, *Solid State Comm.*, **152**, 775 (1.897)
- 2012** **D. Ruffolo***, **T. Pianpanit**, W. H. Matthaeus, and **P. Chuychai**, Random Ballistic Interpretation of Nonlinear Guiding Center Theory, *Astrophys. J. Lett.*, **747**, L34 (5.339)
- 2011** **M. C. Ghilea**, **D. Ruffolo***, **P. Chuychai**, **W. Sonsrettee**, **A. Seripienlert**, and W. H. Matthaeus, Magnetic Field Line Random Walk for Disturbed Flux Surfaces: Trapping Effects and Multiple Routes to Bohm Diffusion, *Astrophys. J.*, **741**, 16 (5.993)
- 2010** **T. Bovornratanaraks***, **V. Saengsuwan**, **K. Yoodee**, M. I. McMahon, C. Hejny, and **D. Ruffolo**, High Pressure Orthorhombic Structure of CuInSe₂, *J. Phys.: Condens. Matter*, **22**, 355801 (2.346)

- 2010 **A. Seripienlert, D. Ruffolo***, W. H. Matthaeus, and **P. Chuychai**, Dropouts in Solar Energetic Particles: Associated with Local Trapping Boundaries or Current Sheets?, *Astrophys. J.*, **711**, 980 (5.993)
- 2009 **W. Krittinatham and D. Ruffolo***, Drift Orbits of Energetic Particles in an Interplanetary Flux Rope, *Astrophys. J.*, **704**, 831 (5.993)
- 2009 **R. Kittinaradorn, D. Ruffolo***, and W. H. Matthaeus, Solar Moss Patterns: Heating of Coronal Loops by Turbulence and Magnetic Connection to the Footpoints, *Astrophys. J. Lett.*, **702**, L138 (5.339)
- 2009 J. Minnie, W. H. Matthaeus*, J. W. Bieber, **D. Ruffolo**, and R. A. Burger, When Do Particles Follow Field Lines?, *J. Geophys. Res.*, **114**, A01102 (3.426)
- 2008 **D. Ruffolo***, P. Chuychai, **P. Wongpan**, J. Minnie, J. W. Bieber, and W. H. Matthaeus, Perpendicular Transport of Energetic Charged Particles in Nonaxisymmetric Two-Component Magnetic Turbulence, *Astrophys. J.*, **686**, 1231 (5.993)
- 2008 **A. Sáiz, D. Ruffolo***, J. W. Bieber, P. Evenson, and R. Pyle, Anisotropy Signatures of Solar Energetic Particle Transport in a Closed Interplanetary Magnetic Loop, *Astrophys. J.*, **672**, 650 (5.993)
- 2007 W. H. Matthaeus*, J. W. Bieber, **D. Ruffolo**, P. Chuychai, and J. Minnie, Spectral Properties and Length Scales of Two-Dimensional Magnetic Field Models, *Astrophys. J.*, **667**, 956 (5.993)
- 2007 **P. Tooprakai***, P. Chuychai, J. Minnie, **D. Ruffolo**, J. W. Bieber, and W. H. Matthaeus, Temporary Topological Trapping and Escape of Charged Particles in a Flux Tube as Cause of Delay in Time Asymptotic Transport, *Geophys. Res. Lett.*, **34**, L17105 (4.196)
- 2007 P. Chuychai*, **D. Ruffolo**, W. H. Matthaeus, and **J. Meechai**, Trapping and Diffusive Escape of Field Lines in Two-Component Magnetic Turbulence, *Astrophys. J.*, **659**, 1761 (5.993)
- 2006 **D. Ruffolo***, **P. Chuychai**, and W. H. Matthaeus, Random Walk of Magnetic Field Lines in Non-axisymmetric Turbulence, *Astrophys. J.*, **644**, 971 (5.993)
- 2006 **D. Ruffolo***, **P. Tooprakai**, **M. Rujiwarodom**, **T. Khumlumlert**, **M. Wechakama**, J. W. Bieber, P. Evenson, and R. Pyle, Relativistic Solar Protons on 1989 October 22: Injection and Transport along Both Legs of a Closed Interplanetary Magnetic Loop, *Astrophys. J.*, **639**, 1186 (5.993)
- 2005 **C. Channok, D. Ruffolo**, M. I. Desai, and G. M. Mason, Finite Time Shock Acceleration of Energetic Storm Particles, *Astrophys. J. Lett.*, **633**, L53 (5.339)
- 2005 **P. Chuychai, D. Ruffolo**, W. H. Matthaeus, and G. Rowlands, Suppressed Diffusive Escape of Topologically Trapped Field Lines, *Astrophys. J. Lett.*, **633**, L49 (5.339)

- 2005** A. Sáiz, P. Evenson, **D. Ruffolo**, and J. W. Bieber, On the Estimation of Solar Energetic Particle Timing from Onset Times near Earth, *Astrophys. J.*, **626**, 1131 (5.993)
- 2005** J. W. Bieber*, J. Clem, P. Evenson, R. Pyle, **D. Ruffolo**, and **A. Sáiz**, Relativistic Solar Neutrons and Protons on 28 October 2003, *Geophys. Res. Lett.*, **32**, L03S02 (4.196)
- 2004** **D. Ruffolo***, W. H. Matthaeus, and **P. Chuychai**, Separation of Magnetic Field Lines in Two-Component Turbulence, *Astrophys. J.*, **614**, 420 (5.993)
- 2004** J. W. Bieber*, P. Evenson, W. Dröge, R. Pyle, **D. Ruffolo**, **M. Rujiwarodom**, **P. Tooprakai**, and **T. Khumlumlert**, Spaceship Earth Observations of the Easter 2001 Solar Particle Event, *Astrophys. J. Lett.*, **601**, L103 (5.339)
- 2003** **D. Ruffolo***, W. H. Matthaeus, and **P. Chuychai**, Trapping of Solar Energetic Particles by Small-Scale Topology of Solar Wind Turbulence, *Astrophys. J. Lett.*, **597**, L169 (5.339)
- 2003** **K. Leerunnavarat**, **D. Ruffolo***, and J. W. Bieber, Loss Cone Precursors to Forbush Decreases and Advance Warning of Space Weather Effects, *Astrophys. J.*, **593**, 587 (5.993)
- 2003** **S. Wannawichian**, **D. Ruffolo***, and **Yu. Yu. Kartavykh**, Ionization Fractions of Slow Ions in a Plasma with Kappa Distributions for the Electron Velocity, *Astrophys. J. Suppl.*, **146**, 443 (11.215)
- 2002** **D. Ruffolo***, Classification of Solar Energetic Particles, *Adv. Space Res.*, **30**(1), 45 (1.358)
- 2002** **Yu. Yu. Kartavykh**, **S. Wannawichian**, **D. Ruffolo**, and V. M. Ostryakov, Charge State Distributions of Mg and Si from Stochastic Acceleration in Impulsive Solar Flares, *Adv. Space Res.*, **30**(1), 119 (1.358)
- 2002** J. W. Bieber*, W. Dröge, P. A. Evenson, R. Pyle, **D. Ruffolo**, **U. Pinsook**, **P. Tooprakai**, **M. Rujiwarodom**, **T. Khumlumlert**, and S. Krucker, Energetic Particle Observations during the 2000 July 14 Solar Event, *Astrophys. J.*, **567**, 622 (5.993)
- 2001** **T. Nutaro**, **S. Riyavong**, and **D. Ruffolo***, Application of a Generalized Total Variation Diminishing Algorithm to Cosmic Ray Transport and Acceleration, *Comp. Phys. Comm.*, **134**, 209 (3.112)
- 2000** V. M. Ostryakov, Yu. Yu. Kartavykh, **D. Ruffolo**, G. A. Kovaltsov, and L. Kocharov, Charge State Distributions of Iron in Impulsive Solar Flares: Importance of Stripping Effects, *J. Geophys. Res.*, **105**, 27315 (3.426)
- 1999** **D. Ruffolo***, Transport and Acceleration of Energetic Particles near an Oblique Shock, *Astrophys. J.*, **515**, 787 (5.993)
- 1998** **D. Ruffolo***, **T. Khumlumlert**, and **W. Youngdee**, Deconvolution of Interplanetary Transport of Solar Energetic Particles, *J. Geophys. Res.*, **103**, 20591 (3.426)

- 1998** W. Sidhisoradej, S. Hannongbua, and D. Ruffolo, Three-body Effects in Calcium(II)-ammonia Solutions: Molecular Dynamics Simulations, *Z. Naturforschung*, **53a**, 208 (0.789)
- 1997** D. Ruffolo*, Charge States of Solar Cosmic Rays and Constraints on Acceleration Times and Coronal Transport, *Astrophys. J. Lett.*, **481**, L119 (5.339)
- 1996** W. Dröge, D. Ruffolo, and B. Klecker, Observation of Electrons from the Decay of Solar Flare Neutrons, *Astrophys. J. Lett.*, **464**, L87 (5.339)
- 1995** J. A. Earl*, D. Ruffolo, H. L. Pauls, and J. W. Bieber, Comparison of Three Numerical Treatments of Charged Particle Transport, *Astrophys. J.*, **454**, 749 (5.993)
- 1995** D. Ruffolo* and T. Khumlumlert, Formation, Propagation, and Decay of Coherent Pulses of Solar Cosmic Rays, *Geophys. Res. Lett.*, **22**, 2073 (4.196)
- 1995** D. Ruffolo*, Effect of Adiabatic Deceleration on the Focused Transport of Solar Cosmic Rays, *Astrophys. J.*, **442**, 861 (5.993)
- 1991** D. Ruffolo*, Interplanetary Transport of Decay Protons from Solar Flare Neutrons, *Astrophys. J.*, **382**, 688 (5.993)
- 1989** R. Leske, P. Meyer, D. Ruffolo, C. Smith, and M. Wiedenbeck, Isotopic Identification of Energetic Heavy Nuclei Using dE/dx vs. Total Energy in a High Pressure Gas Ionization Detector, *Nucl. Instr. Meth.*, **A277**, 627 (1.216)
- 1985** D. Ruffolo and P. Boolchand*, Origin of Glass Formation, *Phys. Rev. Lett.*, **55**, 242 (7.512)

9.2. Other research output:

- 9.2.1.** Textbook: D. Ruffolo, *Classical Mechanics*, Bangkok: Chula. Univ., 185 pp. (ISBN 974-13-1935-5)
- 9.2.2.** About 365 conference presentations

10. Subjects of expertise (may specify more than one): Cosmic rays, neutron monitors, space physics, astrophysics, random walks

11. Research-related awards:

- 2017** Outstanding Scientist Award (3rd to a physicist, 1st in 30 years)
- 2016** Senior Researcher Award from the Thailand Research Fund
- 2015** Fellow, Chinese Academy of Sciences President's International Fellowship Initiative
- 2014** Mahidol University Award for Research, received from Her Royal Highness Princess Sirindhorn
- 2013** Fellow, The World Academy of Sciences (5th fellow from Thailand, 1st in 18 years)
- 2011** Mahidol University Top Citation Award (Physical Science) for 2010

1987-1990 Awarded a three-year fellowship under the Graduate Student Researchers Program of the National Aeronautics and Space Administration.