

CURRICULUM VITAE

Name **Phuoc Dai Ha**

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Education

B.Sc.: Physics, Hue University (1981)
M.S. : Electrical Engineering, University of Wisconsin – Madison (2001)
Ph.D.: Theoretical Physics, University of Wisconsin – Madison (1999)

**Ph.D. Thesis/
Advisor**

“Baryon masses and baryon moments in QCD”
Professor Loyal Durand

Positions Held

2016 – Professor, Towson University
2011 – 2016 Associate Professor, Towson University
2005 – 2011 Assistant Professor, Towson University
2003 – 2005 Visiting Assistant Professor, Indiana University South Bend
2001 – 2003 Visiting Assistant Professor, Creighton University
1999 – 2001 Teaching Assistant, University of Wisconsin - Madison
1994 – 1999 Research Assistant, University of Wisconsin - Madison
1992 – 1994 Teaching Assistant, University of Wisconsin - Madison
1989 – 1992 Researcher, Institute of Physics and Electronics, Hanoi, Vietnam
1988 – 1989 Researcher, Joint Institute for Nuclear Research, Dubna, Moscow, Russia
1982 – 1987 Researcher, Institute of Physics, Hanoi, Vietnam

Course Taught

- *At Towson University:*

PHYS 211 General Physics I (algebra-based)	PHYS 212 General Physics II (algebra-based)
PHYS 241 General Physics I (calculus-based)	PHYS 242 General Physics II (calculus-based)
PHYS 312 Modern Physics II	
PHYS 337 Digital Electronics	PHYS 352 Thermodynamics & Kinetic Theory
PHYS 459 Nuclear & Particle Physics	PHYS 670 Computational Physics

- *At Other Universities (IUSB, Creighton University, Hue University):*

Taught College Physics, University Physics, Computational Physics, Introduction to Nuclear & Particle Physics, Quantum Mechanics, Modern Physics, Thermodynamics & Statistical Mechanics, and Digital Electronics.

Professional Activities

- Member of American Physical Society (1992 - 2018)
- Member of Sigma Pi Sigma, the National Physics Honor Society (since 2002)

Schools and Conferences

- Gave a contributed talk at the PDF - Phenomenology Symposium in Pittsburgh, PA (2024).
- Gave contributed talks at the Phenomenology Symposium in Pittsburgh, PA (2023 and 2018).
- Gave a plenary talk at International Symposium on Neutrino Frontiers, ICISE, Quy Nhon, Vietnam (2018).
- Gave a lecture at Vietnam School on Neutrinos, ICISE, Quy Nhon, Vietnam (2018).
- Gave contributed talks at The April Meetings of the American Physical Society met in Atlanta, Georgia (2012), Denver, Colorado (2013), and Baltimore, Maryland (2015).
- Attended the 2009 Summer Program of the Aspen Center for Physics.
- Attended the 2009 New Faculty Workshop of the American Association of Physics Teachers.
- Gave contributed talks at The April Meetings of the American Physical Society met in Dallas, Texas (2006) and St. Louis, Missouri (2008).
- Attended PHENOMENOLOGY Symposium, UW - Madison, USA (2004).
- Presented scientific reports at the International Conferences:
 - The XIth Rencontres de Blois on Frontiers of Matter, Blois, France (1999)
 - The IIIrd International Conference on Quark Confinement and Hadron Spectrum, Newport News, Virginia, USA (1998)
 - The XXXIIIrd Rencontres de Moriond on QDC and Hadronic Interactions, Les Arcs 1800, France (1998).
- Attended International Summer Schools for High Energy Physics and Cosmology, International Centre for Theoretical Physics, Trieste, Italy (1991 & 1992).

Service

- FCSM Diversity Action Committee (2023 - 2025)
- Served on the College Elections Committee (Spring 2020)
- FCSM Information Technology Committee (2007 - 2022)
- Chair, Gary Pennington Lecturer Search Committee (2022)
- Chair, Biophysics Faculty Search Committee (2019)
- Served as a Lecturer at Vietnam School on Neutrinos, Quy Nhon, Vietnam (July, 2018).
- Towson University Core Curriculum Reporting Committee (2014 - 2017)
- Chair, the Department Promotion, Reappointment, and Tenure Committee (2014 - 2018)
- Chair, PAGS Executive Committee (Fall 2021, 2023, 2024)
- Coordinator of the Physics Program Review (2017, 2024)
- PAGS Assessment Coordinator (Spring 2015)
- FCSM Council (Corresponding Secretary: 2008 - 2009, Member: 2009 - 2011)
- School of Emerging Technology Task Force (2006 - 2008)

- Professional Science Masters in Applied Physics Committee (2008 - present)
- Departmental Rank Committee (2008 - 2011); Departmental Tenure Committee (2011 - present); Departmental Merit Committee (2018 - 2019 & 2020 - 2021)
- Physics Lecturer Search Committee (2018); Physics Faculty Search Committee (2009 & 2010); Geology Faculty Search Committee (2013)
- Faculty Advisor, Society of Physics Students, TU Chapter (2008 - present)
- Represented PAGS at the Commencements, the College Information Sessions and the Open House Events. Served as a Student Marshal (Spring 2014 Commencement).
- Referee: The International Journal of Modern Physics A (2011, 2017); the International Journal of Theoretical Physics (2014); Physics Letters B (2024)
- Coach, IUSB Rube Goldberg Machine Contest Team (2004); Book Reviewer: Tipler Physics (2003)

Honors & Awards

2015 - 2018	FCSM Faculty Travel Grant
2012 - 2013	FCSM Faculty Travel Grant
2006 - 2009	FCSM Faculty Travel Grant
2006	Certificate of Recognition, Disability Support Services, Towson University: <i>In Recognition of Contributions to Students with Disabilities.</i>
2003	The Department of Physics, Creighton University, Merit Award: <i>Outstanding Contributions to Teaching, Scholarship and Service.</i>

Publications

I. Refereed Journal Articles

1. G. R. Boroun and **Phuoc Ha**, *Decoupling of the structure functions in momentum space based on the Laplace transformation*, Phys. Rev. **D 109**, 094037 (2024).
2. **Phuoc Ha**, *Some applications of the eikonal model with Coulomb and curvature corrections in pp and $\bar{p}p$ scattering*, Phys. Rev. **D 107**, 094016 (2023).
3. Loyal Durand and **Phuoc Ha**, *Reply to Comment on ‘Coulomb-nuclear interference effects in proton-proton scattering: A simple new eikonal approach*, Phys. Rev. **D 103**, 018902 (2021).
4. Loyal Durand and **Phuoc Ha**, *“Coulomb-nuclear interference effects in proton-proton scattering: A simple new eikonal approach”*. Phys. Rev. **D 102**, 036025 (2020).
5. Loyal Durand and **Phuoc Ha**, *Eikonal and asymptotic fits to high energy data for σ , ρ , and B : An update with curvature corrections*, Phys. Rev. **D 99**, 014009 (2019).

6. Luis Anchordoqui, Martin Block, Loyal Durand, **Phuoc Ha**, Jorge Soriano, and Thomas Weiler, *Evidence for a break in the spectrum of astrophysical neutrinos*, Phys. Rev. **D 95**, 083009 (2017).
7. Martin Block, Loyal Durand, **Phuoc Ha**, and Francis Halzen, *Slope, curvature, and higher parameters in p - p and $p\bar{p}$ - p scattering, and the extrapolation of measurements of $d\sigma(s,t)/dt$ to $t=0$* . Phys. Rev. **D 93**, 114009 (2016).
8. Martin Block, Loyal Durand, **Phuoc Ha**, and Francis Halzen, *Comment on “More on Heisenberg’s model for high energy nucleon-nucleon scattering”*, Phys. Rev. **D 93**, 078501 (2016).
9. Martin Block, Loyal Durand, **Phuoc Ha**, and Francis Halzen, *Comprehensive fits to high energy data for σ , ρ , and B and the asymptotic black-disk limit*. Phys. Rev. **D 92**, 114021 (2015).
10. Martin Block, Loyal Durand, **Phuoc Ha**, and Francis Halzen, *Eikonal fit to p - p and $p\bar{p}$ - p scattering and the edge in the scattering amplitude*. Phys. Rev. **D 92**, 014030 (2015).
11. Martin Block, Loyal Durand, and **Phuoc Ha**, *Connection of the virtual γ^*p cross section of ep deep inelastic scattering to real γp scattering, and the implications for νN and ep total cross section*. Phys. Rev. **D 89**, 094027 (2014).
12. Martin Block, Loyal Durand, **Phuoc Ha**, and Douglas McKay, *Implications of a Froissart bound saturation of γ^*p deep inelastic scattering. I. Quark distributions at ultra small x* . Phys. Rev. **D 88**, 014006 (2013).
13. Martin Block, Loyal Durand, **Phuoc Ha**, and Douglas McKay, *Implications of a Froissart bound saturation of γ^*p deep inelastic scattering. II. Ultrahigh energy neutrino interactions*. Phys. Rev. **D 88**, 013003 (2013).
14. Martin Block, Loyal Durand, **Phuoc Ha**, and Douglas McKay, *Applications of the leading-order Dokshitzer-Gribov-Lipatov-Altarelli-Parisi evolution equations to the combined HERA data on deep inelastic scattering*, Phys. Rev. **D 84**, 094010 (2011).
15. Martin Block, Loyal Durand, **Phuoc Ha**, and Douglas McKay, *An analytic solution to LO coupled DGLAP evolution equations: a new pQCD tool*, Phys. Rev. **D 83**, 054009 (2011).
16. Martin Block, **Phuoc Ha**, and Douglas McKay, *Ultrahigh energy neutrino scattering: an update*, Phys. Rev. **D 82**, 077302 (2010).
17. Martin Block, Loyal Durand, **Phuoc Ha**, and Douglas McKay, *Decoupling the NLO coupled DGLAP evolution equations: an analytic solution to pQCD*, Eur. Phys. J. **C 69**, 425 (2010).

18. **Phuoc Ha**, *A parametrization of the baryon octet and decuplet masses*, J. Phys. **G35**: 075006, (2008).
19. **Phuoc Ha**, *Estimates isospin breaking contributions to baryon masses*, Phys. Rev. **D 76**, 073004 (2007).
20. Loyal Durand and **Phuoc Ha**, *Electromagnetic corrections to baryon masses*, Phys. Rev. **D 71**, 073015 (2005).
21. **Phuoc Ha** and Loyal Durand, *Analysis of dynamical corrections to baryon magnetic moments*, Phys. Rev. **D 67**, 073017 (2003).
22. Loyal Durand, **Phuoc Ha**, and Gregory Jaczko, *Effective Field Theory and the Quark Model, 2. Structure of loop corrections*, Phys. Rev. **D 65**, 034019 (2002); Erratum-ibid **D 65**, 099904 (2002).
23. Loyal Durand, **Phuoc Ha**, and Gregory Jaczko, *Effective Field Theory and the Quark Model*, Phys. Rev. **D 64**, 014008 (2001).
24. **Phuoc Ha** and Loyal Durand, *Baryon masses in a loop expansion with form factor*, Phys. Rev. **D 59**, 076001 (1999).
25. **Phuoc Ha** and Loyal Durand, *Baryon magnetic moments in a QCD-based quark model with loop corrections*, Phys. Rev. **D 58**, 093008 (1998).
26. **Phuoc Ha**, *Decuplet baryon magnetic moments in a QCD-based quark model beyond the quenched approximation*, Phys. Rev. **D 58**, 113003 (1998).
27. Loyal Durand and **Phuoc Ha**, *Chiral perturbation theory analysis of the baryon magnetic moments revisited*, Phys. Rev. **D 58**, 013010 (1998).
28. Le V. Dzung and **Ha D. Phuoc**, *On the gauge invariance and gauge fixing of closed superstring theories*, Comm. in. Physics **2**, 40 (1992).
29. Le V. Dzung and **Ha D. Phuoc**, *Relativistic bosonic spherical membrane*, Comm. in. Physics **1**, 97 (1991).
30. Le V. Dzung and **Ha D. Phuoc**, *Using REDUCE in calculating Feynman diagrams of higher dimensional theories*, Comm. in. Physics **1**, 71 (1991).
31. Le V. Dzung, O.V. Tarasov, and **Ha D. Phuoc**, *The influence of quark masses on the infrared behaviour of $\bar{\alpha}_s(Q^2)$ in QCD*, Sov. J. Nucl. Physics **50**, 1072 (1989).
32. Le V. Dzung and **Ha D. Phuoc**, *Axial anomaly of the spin 1/2 fermions coupled to S, P, V, and A currents in a curved spacetime*, Annual Reports of NCST of

Vietnam **N1**, 17 (1986).

II. Conference Papers

1. **Phuoc Ha**, Loyal Durand, and Gregory Jaczko, *The Quark Model and Effective Field Theory*, Proceedings of the XIth Rencontres de Blois on Frontiers of Matter, Edited by J. Tran Thanh Van (World Publishers, 1999), p. 311.
2. **Phuoc Ha** and Loyal Durand, *Baryon masses and moments in a loop expansion with a form factor*, Proceedings of the 3rd International Conference in Quark Confinement and Hadron Spectrum (Newport News 1998) p. 313.
3. **Phuoc Ha** and Loyal Durand, *A loop expansion method to the baryon magnetic moments in a QCD-based quark model*, Proceedings of the XXXIIIrd Rencontres de Moriond on QCD and High Energy Hadronic Interactions, Edited by J. Tran Thanh Van (Editions, Frontieres, 1998), p. 615.
4. Loyal Durand and **Phuoc Ha**, *Baryon moments in a QCD-based model*, Proceedings of the Como Conference on Quark Confinement and Hadron Spectrum II, Edited by N. Brambilla and G.M. Prosperi (World Scientific, Singapore, 1996), p. 331.

III. Other papers

1. Loyal Durand and **Phuoc Ha**, *Simple calculation of the Coulomb-nuclear in pp and $\bar{p}p$ scattering*, arXiv:2401.06746 [hep-ph].
2. Martin Block, **Phuoc Ha**, and Douglas McKay, *Comment on "Ultrahigh-Energy Neutrino-Nucleon Deep-Inelastic Scattering and the Froissart Bound"*: *Phys.Rev.Lett.106,231802 (2011)*. arXiv:1110.6665 [hep-ph].
3. M. M. Block, L. Durand, **P. Ha**, and D. W. McKay, *Decoupling the LO coupled DGLAP evolution equations: an analytic solution to pQCD*. arXiv:1004.1440 [hep-ph] .

IV. Talks

1. **Phuoc Ha**, *Simple calculation of the Coulomb-nuclear in pp and $\bar{p}p$ scattering*, DPF-Phenomenology Symposium, Pittsburgh, Pennsylvania (2024).
2. **Phuoc Ha**, *Some applications of the eikonal model with Coulomb and curvature corrections in pp and $\bar{p}p$ scattering*, Phenomenology Symposium, Pittsburgh, Pennsylvania (2023).

3. **Phuoc Ha**, “*Ultra-high energy neutrinos as the ultimate QCD laboratory*”. Sabbatical talk, Towson University, Maryland (2021).
4. **Phuoc Ha**, *Physics of Ultra-high Energy Neutrinos*, International Symposium on Neutrino Frontiers, Quy Nhon, Vietnam (2018).
5. **Phuoc Ha**, *Eikonal fit and comprehensive fit to high energy data for σ , ρ , and B : An Update*, Phenomenology Symposium, Pittsburgh, Pennsylvania (2018).
6. **Phuoc Ha**, *Neutrino oscillations and implications for Particle Physics*, Towson University, Maryland (2016).
7. **Phuoc Ha**, *An analytic determination of the gluon distribution function from HERA combined data for the proton structure function $F_2^{np}(x, Q^2)$* , APS April Meeting, Baltimore, Maryland (2015).
8. **Phuoc Ha**, *Ultra-high Energy Neutrinos and Implications to Physics & Astronomy*, Towson University (2013).
9. **Phuoc Ha**, *A calculation of the ultra-high energy neutrino cross sections*, APS April Meeting, Denver, Colorado (2013).
10. **Phuoc Ha**, *An analytic solution to LO coupled DGLAP evolution equations for $F_2^{np}(x, Q^2)$ and $G(x, Q^2)$* , APS April Meeting, Atlanta, Georgia (2012).
11. **Phuoc Ha**, *Do right-handed neutrinos exist?*, Towson University, Maryland (2009).
12. **Phuoc Ha**, *Vietnam Today: Land and Culture*, Towson University, Maryland (2009).
13. **Phuoc Ha**, *Summetry Breaking*, Towson University, Maryland (2008).
14. **Phuoc Ha**, *A parametrization of the baryon octet and decuplet masses*, APS April Meeting, St. Louis, Missouri (2008).
15. **Phuoc Ha**, *Numerical calculations of electromagnetic corrections to baryon masses*, APS April Meeting, Dallas, Texas (2006).
16. **Phuoc Ha**, *The Quark Model and Effective Field Theory*, the XIth Rencontres de Blois on Frontiers of Matter, Blois, France (1999).
17. **Phuoc Ha**, *Baryon masses and moments in a loop expansion with a form factor*, the 3rd International Conference in Quark Confinement & Hadron Spectrum, Newport News, Virginia (1998).
18. **Phuoc Ha**, *A loop expansion method to the baryon moments in a QCD-based quark model*, the XXXIIIrd Rencontres de Moriond on QCD and High Energy, France (1998).