

# ROBERT WAGNER

Mississippi State University ◊ Mississippi State, MS 39762  
(309) · 307 · 3651 ◊ rw1714@msstate.edu

## EDUCATION

---

**Princeton University** 2008  
Ph.D. in Physics

**Illinois State University** 2002  
B.S. in Computational Physics

## TEACHING EXPERIENCE

---

**Mississippi State University** August 2020 - Present  
*Instructor* *Starkville, MS*

- General Physics I
- Physics II

**Illinois Wesleyan University** August 2014 - May 2020  
*Visiting Professor* *Bloomington, IL*

- Computational Physics (a course which I developed)
- General Physics I
- Sound, Music, and Hearing
- Modern Physics
- Mathematical Methods in the Physical Sciences
- Theoretical Mechanics
- Electricity and Magnetism
- Quantum Mechanics
- Thermodynamics and Statistical Mechanics

**Illinois State University** August 2013 - May 2014  
*Instructional Assistant Professor* *Normal, IL*

- Fundamentals of Physics
- Calculus I
- Calculus II

**Illinois Wesleyan University** August 2013 - December 2014  
*Adjunct Professor* *Bloomington, IL*

- Theoretical Mechanics

**Illinois State University** October 2009 - August 2013  
*Postdoctorate* *Normal, IL*

- Fundamentals of Physics
- Advanced Computational Physics
- Supervised 7 undergraduate research students

## SUPERVISION OF UNDERGRADUATE RESEARCH STUDENTS

---

As a postdoctorate at Illinois State, I supervised 7 research students (including one high school student) in the Intense Laser Physics group. This led to 9 publications with student coauthors, as well as numerous research talks by undergraduate students, including 2 talks by students at the 2011 American Physical Society meeting in Atlanta, GA.

## STUDENT HONORS AND AWARDS

---

LeRoy Apker Award, American Physical Society	2001
National Science Foundation Graduate Research Fellowship	2002
Joseph Henry Prize, Princeton University	2002
Centennial Fellowship, Princeton University	2002
Barry M. Goldwater Scholarship	2001
Robert C. Byrd Honors Scholarship	1998
Presidential Scholarship, Illinois State University	1998

## PUBLICATIONS

---

- [36] R.E. Wagner, Q. Su, and R. Grobe, “Computational renormalization scheme for quantum field theories”, *Physical Review A* 88, 012113 (2013).
- [35] S. Norris, A. Vikartofsky, R.E. Wagner, Q. Su and R. Grobe, “Absorbing-like boundaries for quantum field theoretical grid simulations”, *Computer Physics Communications* 184, 2412-2418 (2013).
- [34] B. Rogers, B. Graybeal, A.C. Su, R.E. Wagner, M.R. Ware, Q. Su and R. Grobe, “Scanning techniques for decomposition based imaging of turbid media”, *Laser Physics* 23, 036003 (2013).
- [33] E.V. Stefanovich, R.E. Wagner, Q. Su and R. Grobe, “Comparison of mass renormalization schemes for simple model systems”, *Laser Physics* 23, 035302 (2013).
- [32] R.E. Wagner, S. Acosta, S.A. Glasgow, Q. Su and R. Grobe, “Quantum fluctuations in the dressed vacuum of a bosonic model system”, *Journal of Physics A* 45, 275303 1-21 (2012).
- [31] R.E. Wagner, M.R. Ware, A.M. Vikartofsky, Q. Su, and R. Grobe, “Dynamics of two- and four-boson interactions in dressed vacuum states”, *International Journal of Theoretical Physics* 51, 3787-3804 (2012).
- [30] R. E. Wagner, M. R. Ware, E. V. Stefanovich, Q. Su and R. Grobe, “Local and nonlocal spatial densities in quantum field theory”, *Physical Review A* 85, 022121 (2012).
- [29] R. E. Wagner, B. T. Shields, M. R. Ware, Q. Su, and R. Grobe, “Causality and relativistic localization in one-dimensional Hamiltonians” *Physical Review A* 83, 062106 (2011).
- [28] R. E. Wagner, M. R. Ware, Q. Su, and R. Grobe, “Space-time properties of a boson-dressed fermion for the Yukawa model”, *Physical Review A* 82, 032108 (2010).
- [27] R. E. Wagner, Q. Su, and R. Grobe, “Time-resolved Compton scattering for a model fermion-boson system”, *Physical Review A* 82, 022719 (2010).
- [26] R. E. Wagner, M. R. Ware, B. T. Shields, Q. Su, and R. Grobe, “Space-Time Resolved Approach for Interacting Quantum Field Theories”, *Physical Review Letters* 106, 023601 (2011).
- [25] R. E. Wagner, M. R. Ware, Q. Su, and R. Grobe, “Exponential enhancement of field-induced pair creation from the bosonic vacuum”, *Physical Review A* 81, 052104 (2010).
- [24] R. E. Wagner, M. R. Ware, Q. Su, and R. Grobe, “Bosonic analog of the Klein paradox”, *Physical Review A* 81, 024101 (2010).
- [23] D0 Collaboration, ”Search for Single Top Quarks in the Tau+Jets Channel using 4.8 fb<sup>-1</sup> of pp Collision Data”, *Physics Letters B* 690, 5 (2010).
- [22] D0 Collaboration, ”Measurement of the Top Quark Mass in Final States with Two Leptons”, *Physical Review D* 80, 092006 (2009).

- [21] D0 Collaboration, "Direct Measurement of the Mass Difference Between Top and Antitop Quarks", *Physical Review Letters* 103, 132001 (2009).
- [20] D0 Collaboration, "Measurement of the  $t\bar{t}$  Production Cross Section and Top Quark Mass Extraction Using Dilepton Events in  $pp$  Collisions", *Physics Letters B* 679, 177 (2009).
- [19] D0 Collaboration, "Measurement of the  $t\bar{t}$  production cross section in  $ppbar$  collisions at  $\sqrt{s} = 1.96$  TeV," *Physical Review Letters* 100, 192004 (2008).
- [18] D0 Collaboration, "Simultaneous measurement of the ratio  $B(t \rightarrow Wb)/B(t \rightarrow Wq)$  and the top quark pair production cross section with the D0 detector at  $\sqrt{s}=1.96$  TeV," *Physical Review Letters* 100, 192003 (2008).
- [17] D0 Collaboration, "First measurement of the forward-backward charge asymmetry in top quark pair production," *Physical Review Letters* 100, 142002 (2008).
- [16] D0 Collaboration, "Model-independent measurement of the W boson helicity in top quark decays," *Physical Review Letters* 100, 062004 (2008).
- [15] D0 Collaboration, "Measurement of the  $t\bar{t}$  production cross-section in  $ppbar$  collisions using dilepton events," *Physical Review D* 76, 052006 (2007).
- [14] D0 Collaboration, "Measurement of the  $t\bar{t}$  production cross section in  $ppbar$  collisions at  $\sqrt{s} = 1.96$  TeV using kinematic characteristics of lepton+jets events," *Physical Review D* 76, 092007 (2007).
- [13] R.E. Wagner, Q. Su and R. Grobe, "Classical mechanical ionization probability in strong magnetic fields", *Laser Physics* 13, 414 (2003).
- [12] A.F. Lewis, M.S. Bell, R.E. Wagner, Q. Su and R. Grobe, "Dark cone produced by light back-scattered off turbid media", *Laser Physics* 13, 207 (2003).
- [11] R.E. Wagner, S. Radovich, J. Gillespie, Q. Su and R. Grobe, "Dephasing model for spatially extended atomic states in cyclotron-like resonances", *Physical Review A* 66, 043412 (2002).
- [10] P. Krekora, R.E. Wagner, Q. Su and R. Grobe, "Retardation and kinematic relativistic effects in scattered light", *Laser Physics* 12, 455 (2002).
- [9] P.J. Peverly, R.E. Wagner, G.H. Rutherford, M. Marsalli, Q. Su and R. Grobe, "Photon density waves in macro- and microscopic plane-parallel scattering samples", *Physical Review E* 65 031908 (2002).
- [8] Q. Su, P.J. Peverly, R.E. Wagner, P. Krekora and R. Grobe, "Relativistic electron spin motion in cyctoatoms", *Optics Express* 8, 51 (2001).
- [7] R.E. Wagner, P.J. Peverly, Q. Su and R. Grobe, "Quantum signatures in time-resolved electron-electron collisions?", *Laser Physics* 11, 221 (2001).
- [6] P. Krekora, R.E. Wagner, Q. Su and R. Grobe, "Dirac theory of ring-shaped electron distributions", *Physical Review A* 63, 25404 (2001).
- [5] R.E. Wagner, Q. Su and R. Grobe, "Relativistic resonances in combined magnetic and laser fields", *Physical Review Letters* 84, 3282 (2000).
- [4] R.E. Wagner, P.J. Peverly, Q. Su and R. Grobe, "Classical versus quantum dynamics for a driven relativistic oscillator", *Physical Review A* 61, 35402 (2000).
- [3] Q. Su, R.E. Wagner, P.J. Peverly and R. Grobe, "Spatial electron clouds at fractional and multiple magneto-optical resonances", in *Frontiers of Laser Physics and Quantum Optics*, eds, Z. Xu, S. Xie, S.-Y. Zhu and M.O. Scully, (Springer, Berlin) 117 (2000).
- [2] P.J. Peverly, R.E. Wagner, Q. Su and R. Grobe, "Fractional resonances in relativistic magnetic-laser-atom interactions", *Laser Physics* 10, 303 (2000).
- [1] R.E. Wagner, Q. Su and R. Grobe, "High-order harmonic generation in relativistic ionization of magnetically dressed atoms", *Physical Review A* 60, 3233 (1999).