

**JONATHAN ROBERT SAPIRSTEIN****PROFESSOR****AT NOTRE DAME SINCE 1984****BORN:** March 1, 1951**AT:** Los Angeles, California

Stanford University; 1973; B.S.  
 Stanford University; 1979; Ph.D.

National Science Foundation Fellowship, 1973-1976  
 Postgraduate Researcher, UCLA, 1979-1980  
 Adjunct Assistant Professor, UCLA, 1980-1982  
 Research Associate, Cornell University, 1982-1984  
 Assistant Professor, University of Notre Dame, 1984-1988  
 Associate Professor, University of Notre Dame, 1988-1992  
 Professor, University of Notre Dame, 1992-present  
 Member of Institute for Theoretical Physics at Santa Barbara Program 'Relativistic,  
 Quantum Electrodynamics, and Weak Interaction Effects in Atoms', January-June 1988  
 Consultant, Lawrence Livermore National Laboratory, October 1989-Present  
 Fellow of the American Physical Society

**Research Area:**

QED, Many-Body Perturbation Theory Calculations in Heavy Atoms, Highly Charged Ions,  
 Atomic Parity Violation, Precision Helium Calculations

**Grant Support:**

Principal Investigator, NIST Precision Measurement Grant  
 'Calculation of Higher Order QED Effects in Helium,' 1996-1999  
 Principal Investigator, National Science Foundation Grant  
 'Weak and Electromagnetic Radiative Corrections in Atoms,' 1998-present

**Invited Addresses:**

14<sup>th</sup> Annual Meeting of DEAP, Boulder, Colorado, May, 1983  
 NATO Advanced Study Institute on QED and Quantum Optics, Boulder, Colorado, May, 1983  
 Ninth International Conference on Atomic Physics, Seattle, Washington, July, 1984  
 (Presented by T. Kinoshita)  
 Atomic Theory Workshop on Relativistic and QED Effects in Heavy Atoms, Gaithersburg,  
 Maryland, May, 1985  
 Colloquium, Oak Ridge National Laboratory, October, 1985  
 Workshop on Fundamental Muon Physics, Los Alamos, New Mexico, January, 1986  
 Colloquium, University of Louisville, February, 1986  
 Seminar, Yale University, March, 1986  
 Colloquium, Illinois Institute of Technology, March, 1986  
Invited Addresses (cont'd.)

2<sup>nd</sup> Conference on the Intersections between Particle and Nuclear Physics, Lake Louise, Canada, May, 1986  
 Colloquium, Zeeman Laboratory, Amsterdam, June, 1986  
 Seminar, NIKHEF, Amsterdam, June, 1986  
 Relativistic Many Body Problems, ICTP, Trieste, Italy, July, 1986  
 International Conference on Atomic Physics 10, Tokyo, Japan, August, 1986  
 Workshop on Heavy Ion Physics and Instrumentation for a 15-TM Booster and Storage Ring, Oak Ridge, Tennessee, October, 1986  
 Workshop on 'Opportunities for Atomic Physics Using Slow, Highly-Charged Ions', Argonne, Illinois, January, 1987  
 Supercomputers in Atomic, Molecular, and Optical Physics, Argonne, Illinois, March, 1987  
 Current Topics in Many-Body Theory, AMO Physics Symposium, Crystal City, Virginia, April, 1987  
 Symposium on Atomic Spectroscopy and Highly Ionized Atoms, Lisle, Illinois, August, 1987  
 Seminar, University of Colorado at Boulder, August, 1987  
 Special Atomic Seminar, Argonne National Laboratory, Argonne, Illinois, September 1987  
 Colloquium, University of Colorado at Boulder, Boulder, Colorado, September 1987  
 Computational Atomic and Nuclear Physics at One Gigaflop, Oak Ridge, Tennessee, April 1988  
 Colloquium, Institute for Theoretical Physics at Santa Barbara, May 1988  
 Conference on the Application of Accelerator in Research & Industry, Denton, Texas, November 1988  
 Workshop on Highly Charged Ions: New Physics and Advanced Techniques, Berkeley, California, March, 1989  
 Division of Atomic, Molecular, and Optical Physics of the APS, Windsor, Canada, May 1989  
 Theoretical Advanced Study Institute in Elementary Particle Physics, Boulder, Colorado, June, 1989  
 Theoretical Chemistry Seminar, Columbus, Ohio, June 1989  
 Colloquium, Franklin & Marshall College, Lancaster, PA, October 1989  
 Colloquium, Indiana University, Bloomington, IN, January 1990  
 Seminar, Lawrence Livermore National Laboratory, Livermore, CA, March 1990  
 Two talks at Workshop on Coupled-Cluster Methods at the Harvard-Smithsonian Institute, Boston, MA, August 1990  
 Workshop 'From Fundamental Fields to Nuclear Phenomena', Boulder, CO, September 1990  
 Seminar, Brookhaven National Laboratory, Upton, NY, October 1990  
 Seminar, University of Chicago, Chicago, IL, November 1990  
 Seminar, Fermilab, Batavia, IL, December 1990  
 Colloquium, University of Western Ontario, London, Canada, February 1991  
 Seminar, Ohio State University, Columbus, OH, March 1991  
 Two talks at the Wan der Walls-Zeeman Laboratory, University of Amsterdam, Amsterdam, the Netherlands, June 1991  
 Colloquium, S.U.N.Y. at Stony Brook, Stony Brook, NY, November 1991  
 Seminar, University of Chicago, December 1991  
 Seminar, Harvard University, Boston, MA, March 1992  
 Seminar, Institute for Nuclear Theory, Seattle, WA, March 1992  
 Colloquium, U. Western Michigan, Kalamazoo, MI, March 1992  
 Invited Talk, Nobel Symposium, Saltsjobaden, Sweden, June 1992  
 Invited Talk, Highly Charged Ion Conference, Manhattan, KS, September 1992  
Invited Addresses (cont'd.)

Invited Talk, DPF Meeting, St. Charles, IL, November 1992  
Two Invited Talks at APS Atomic Physics Meeting, Reno, NV, May 1993  
Seminar, NIST, Gaithersburg, MD, August 1993  
Invited Talk, Cornell University, Ithaca, NY, December 1993  
Colloquium, Argonne National Lab, Argonne, IL, February 1994  
Invited Talk, International Conference on Atomic Physics, Boulder, CO, August 1994  
Invited Talk, Symposium on Low Energy Tests of the Standard Model, Institute for Nuclear Theory, Seattle, WA, July 1995  
Invited Talk, APS Atomic Physics Meeting, Washington, DC, April 1997  
Seminar, NIST, Gaithersburg, MD, September 1997  
Seminar, Brookhaven National Laboratory, Upton, NY, October 1997  
Seminar, Cornell University, Ithaca, NY, October 1997  
Invited Talk, at the Workshop 'Physics with Trapped Highly Charged Ions at the LLNL EBIT/RETRAP,' Livermore, CA, February 1998  
Invited Talk, at the Sixteenth International Conference on Atomic Physics, Windsor, Ontario, Canada, August 3-7, 1998  
Invited Talk, at the International Conference on Trapped Charged Particles and Fundamental Physics, Asilomar Conference Center, Pacific Grove, California, August 31 - September 4, 1998  
Invited Talk, University of Michigan, Ann Arbor, MI, November 1998  
Seminar, York University, Toronto, Ontario, Canada, November 1998  
Invited Talk, Workshop on Fundamental Symmetries, National Institute for Nuclear Theory, Seattle, Washington, July 1999  
Invited Talk, Workshop on Effective Field Theories in Nuclear Physics, Institute for Nuclear Theory, University of Washington, Seattle, Washington, July 2000  
Invited Talk, University of Delaware, Newark, Delaware, March 2001  
Invited Talk, Euroconference on Electron Correlations in a Relativistic Framework, Kerkrade, The Netherlands, April 2001  
Invited Talk, Workshop 'Tests of Fundamental Symmetries in Atoms and Molecules,' Institute for Theoretical Atomic and Molecular Physics, Cambridge, Massachusetts, November 2001  
Invited Talk, 'Rare Isotope Accelerator Symposium' Argonne, Illinois, April 2003  
Invited Talk, SHARCNET Workshop on QED in Atoms, University of Windsor, Canada, October 2003  
Invited Talk, International Workshop on Fundamental Interactions at the ECT, Trento, Italy, June 21-25, 2004  
Invited Talk, 2006 Sanibel Symposium, St. Simons Island, Georgia, February 26 – March 3, 2006  
Invited Talk, '20 Years of Spectroscopy with EBIT,' Berkeley, California, November 13-16, 2006

**Jonathan R. Sapirstein**

**List of Scientific Publications**

1. "On the Radiation of Soft Gluons," C.T. Sachrajda and J. Sapirstein, *Physics Letters* 65B, 136 (1976).
2. "Order Alpha Corrections to the Decay Rate of Orthopositronium," W.E. Caswell, G.P. Lepage, and J. Sapirstein, *Physical Review Letters* 38, 488 (1977).
3. "Higher Order QCD Corrections in  $e^+e^-$  Annihilation," M. Dine and J. Sapirstein, *Physical Review Letters* 43, 668 (1979).
4. "Quark Color Magnetic Moment," J. Sapirstein, *Physical Review* D20, 3246 (1979).
5. "Higher Order Binding Corrections to the Lamb Shift," J. Sapirstein, *Physical Review Letters* 47, 1723 (1981).
6. " $a(Z\alpha)^2$   $E_F$  Binding Corrections to Hyperfine Splitting in Muonium," J. Sapirstein, *Physical Review Letters* 51, 985 (1983).
7. "Additional Radiative Recoil Corrections to Muonium and Positronium Hyperfine Splitting," J. Sapirstein, E.A. Terray, and D.R. Yennie, *Physical Review Letters* 51, 982 (1983).
8. "Recent Advances in Muonium Hyperfine Splitting Calculations, In Quantum Electrodynamics and Quantum Optics," J. Sapirstein, Vol. 110, NATO ASI Series, Edited by A.O. Barut, (Plenum) 83-95.
9. "Radiative-Recoil Corrections to Muonium and Positronium Hyperfine Splitting," J. Sapirstein, E.A. Terray, and D.R. Yennie, *Physical Review* D29, 2290 (1984).
10. "Quantum Electrodynamical Energy Shifts of Quarks Bound in a Cavity," P.J. Mohr and J. Sapirstein, *Physical Review Letters* 54, 514 (1985).
11. "New Developments in QED," T. Kinoshita and J. Sapirstein, In Ninth International Conference on Atomic Physics, Edited by R.S. Van Dyck and E. Norval Fortson, World Scientific, p. 38-52, Seattle, Washington (1985).
12. "Weak Interaction Effects in Atomic Physics," W.R. Johnson, D.S. Guo, M. Idrees, and J. Sapirstein, *Physical Review* A32, 2093 (1985).
13. "Weak Interaction Effects in Atomic Physics II," W.R. Johnson, D.S. Guo, M. Idrees, and J. Sapirstein, *Physical Review* A34, 1043 (1986).
14. "QED In Exotic Atoms," J. Sapirstein, in workshop on Fundamental Muon Physics: Atoms, Nuclei, and Particles LA-10714-C, p. 56-61, Los Alamos, New Mexico (1986).

15. "Computation of Second-Order Many-Body Corrections in Relativistic Atomic Systems," W.R. Johnson and J. Sapirstein, *Physical Review Letters* 57, 1126 (1986).
16. "Recent and Future Progress in Quantum Electrodynamics," J.R. Sapirstein, *AIP Conference Proceedings* 136, pgs. 100-112.
17. "Present Status of QED," J. Sapirstein, 2<sup>nd</sup> Conference on the Intersections between Particle and Nuclear Physics, *AIP Conference Proceedings No. 150*, pgs. 567-574 (1986).
18. "QED of Many Electron Atoms," J. Sapirstein, *Physica Scripta* 36, 801 (1987).
19. "Theoretical Problems in QED," J. Sapirstein, in *Atomic Physics 10*, Ed. M. Naromi and I. Shimamura, pp. 77-94 (North Holland) (1987).
20. "Second-Order Energies and Third-Order Matrix Elements of Alkali Atoms," W.R. Johnson, M. Idrees, and J. Sapirstein, in *Physical Review* A35, 3218 (1987).
21. "Formulas From First-, Second-, and Third-Order Perturbation Theory for Atoms With One Valence Electron," S.A. Blundell, D.S. Guo, W.R. Johnson, and J. Sapirstein, *Atomic and Nuclear Data Tables*, 37, 103 (1987).
22. "The Status of QED in Atomic Physics," J. Sapirstein, in Proceedings of the Workshop on Opportunities for Atomic Physics Using Slow, Highly Charged Ions, ANL-PHY-87-1, 1-15.
23. "Finite Basis Sets for the Dirac Equation Constructed From B-Splines," W.R. Johnson, S.A. Blundell, and J. Sapirstein, *Phys. Rev.* A37, 307-315, (1988).
24. "Many-Body Perturbation Theory Calculations of Energy Levels Along the Lithium Isoelectronic Sequence," W.R. Johnson, S.A. Blundell, and J. Sapirstein, *Physical Review* A37, 2764 (1988).
25. "QED of High-Z, Three-Electron Atoms," J. Sapirstein, *Nuclear Instruments and Methods*, B31, 70 (1988).
26. "Correlation Effects in the Parity Nonconserving  $6s \rightarrow 7s$  Transition in Cesium," W.R. Johnson, S.A. Blundell, Z.W. Liu, and J. Sapirstein, *Physical Review* A37, 1395 (1988).
27. "Many-Body Perturbation-Theory Calculations of Energy Levels Along the Sodium Isoelectronic Sequence," W.R. Johnson, S.A. Blundell and J. Sapirstein, *Physical Review* A38, 2699 (1988).
28. "Higher Order Many-Body Perturbation Theory Calculations of Energy Levels in Cesium," S.A. Blundell, W.R. Johnson and J. Sapirstein, *Physical Review* A38, 4961 (1988).
29. "Precision Calculations of QED Effects in Atoms," J. Sapirstein, *Nuclear Science Research Conference series*, Vol. 16, 25-42 (1988).

30. "Evaluation of two-photon exchange graphs for the helium isoelectronic sequence," J. Sapirstein, 'Relativistic, Quantum Electrodynamics, and Weak Interaction Effects in Atoms', AIP Conference Proceedings #189, pp. 196-208 (1988).
31. "Relativistic all-order equations for helium," S.A. Blundell, W.R. Johnson, Z.W. Liu and J. Sapirstein, *Physical Review* A39, 3768 (1989).
32. "Many-Body Theory Applied to Negative Ions," W.R. Johnson, J. Sapirstein, S.A. Blundell and M. Yu. Kuchiev, *J. Phys.* B22, 2341 (1989).
33. "Parity Nonconservation in Cesium," W.R. Johnson, J. Sapirstein and S.A. Blundell, *Atomic Physics XI*, ed. S. Haroche, J.C. Gay and G. Grynberg, World Scientific, Singapore (1988), 133-150.
34. "Relativistic All-Orders Calculations of Energies and Matrix Elements for Li and Be+," S.A. Blundell, W.R. Johnson, Z.W. Liu and J. Sapirstein, *Phys. Rev.* A40, 2233 (1989).
35. "Evaluation of Two-Photon Exchange Graphs for the Helium Isoelectronic sequence," P.J. Mohr, S.A. Blundell, W.R. Johnson and J. Sapirstein, in preparation.
36. "Field Theoretic Effects in Highly Charged Ions," J. Sapirstein, *Nuclear Instruments and Methods in Physics Research* B43, 338 (1989).
37. "QED in High-Z Two- and Three-Electron Ions," J. Sapirstein, *Nuclear Instruments and Methods* B40/41, 193 (1989).
38. "Improved Many-Body Perturbation Theory Calculations of the  $n = 2$  States of Lithiumlike Uranium," S. A. Blundell, W.R. Johnson, and J. Sapirstein, *Phys. Rev.* A41, 1698 (1990).
39. "Theory of Hydrogenic Bound States," Jonathan R. Sapirstein and Donald R. Yennie, in "Quantum Electrodynamics," ed. T. Kinoshita, World Scientific, Singapore, 560-672 (1990).
40. "Atomic Parity Violation Theory," Jonathan R. Sapirstein, Proceedings of the Theoretical Advanced Study Institute in Elementary Particle Physics, T. DeGrand and D. Toussaint, eds., World Scientific, 655-674 (1989).
41. "Many-body perturbation theory calculations of energy levels along the copper isoelectronic sequence," W.R. Johnson, S.A. Blundell and J. Sapirstein, *Phys. Rev.* A42, 1087 (1990).
42. "Third-order many-body perturbation theory calculations of the ground-state energies of cesium and thallium," S.A. Blundell, W.R. Johnson and J. Sapirstein, *Phys. Rev.* A42, 3751 (1990).
43. "High-Accuracy Calculation of the  $6s_{v2} \rightarrow 7s_{v2}$  parity Nonconserving Transition in Atomic Cesium and Implications for the Standard Model," S.A. Blundell, W.R. Johnson and J. Sapirstein, *Phys. Rev. Letters* 65, 1411 (1990).

44. "Relativistic All-Order Calculations of Energies and Matrix Elements in Cesium," S.A. Blundell, W.R. Johnson and J. Sapirstein, Phys. Rev. A43, 3407 (1991).
45. "QED and Highly Ionized Many-Electron Atoms," J. Sapirstein, Proceedings of the Workshop 'From Fundamental Fields to Nuclear Phenomena', ed. J.A. McNeil and C.E. Price, World Scientific, Singapore, 96-106 (1991).
46. "Screened Lamb Shift Calculations for Lithiumlike Uranium, Sodiumlike Platinum, and Copperlike Gold," K.T. Cheng, W.R. Johnson and J. Sapirstein, Phys. Rev. Letters 66, 2960 (1991).
47. "Calculations of the parity non-conserving  $6s \rightarrow 7s$  transition in Caesium," S.A. Blundell, A.C. Hartley, Z.-W. Liu, A.M. Martensson-Pendrill, and J. Sapirstein, Theor. Chim. Acta. 80, 257 (1991).
48. "High-Accuracy Calculation of Parity Nonconservation in Cesium and Implications for Particle Physics," S.A. Blundell, J. Sapirstein and W.R. Johnson, Phys. Rev. D45, 1602 (1992).
49. "Relativistic Many-body Perturbation Theory Applied to  $N = 2$  Triplet States of Heliumlike Ions," W.R. Johnson, J. Sapirstein, Phys. Rev. A46, R2197 (1992).
50. "Many-Body Perturbation Theory Formulas for Energy Levels of Excited States of Closed-Shell Atoms," E. Avgoustoglou, W.R. Johnson, D.R. Plante, J. Sapirstein, S. Sheinerman, and S.A. Blundell, Phys. Rev. A46, 5478 (1992).
51. "Theory of Many-Electron Atoms," J. Sapirstein, Physica Scripta T46, 52 (1993).
52. "Lamb Shift Calculations for Non-Coulomb Potentials," K.T. Cheng, W.R. Johnson and J. Sapirstein, Physical Review A47, 1817 (1993).
53. "Evaluation of two-photon exchange graphs for highly charged heliumlike ions," S.A. Blundell, P.J. Mohr, W.R. Johnson, and J. Sapirstein, Phys. Rev. A48, 2615 (1993).
54. "Relativistic configuration-interaction calculations for the ground state and  $n=2$  singlet states of heliumlike ions," K.T. Cheng, M.H. Chen, W.R. Johnson, and J. Sapirstein, Phys. Rev. A50, 247 (1994).
55. "Relativistic all-order many-body calculations of the  $n=1$  and  $n=2$  states of heliumlike ions," D.R. Plante, W.R. Johnson, and J. Sapirstein, Phys. Rev. A49, 3519 (1994).
56. "Advances in the Theory of Atomic Structure," J. Sapirstein, Fourteenth International Conference on Atomic Physics, pgs. 45-62, D.J. Wineland, C.E. Wieman and S.J. Smith, eds. (AIP Press, New York) 1994.
57. "Relativistic many-body calculations of  $[2p^5 3s]$  excited-state energy levels for neonlike ions," E. Avgoustoglou, W.R. Johnson, Z.W. Liu, and J. Sapirstein, Phys. Rev. A51, 1196 (1995).
58. "Theory of  $2s_{1/2} \rightarrow 2p_{3/2}$  transitions in highly-ionized uranium," W.R. Johnson, J. Sapirstein, and K.T. Cheng, Phys. Rev. A51, 297 (1995).

59. "Relativistic Configuration-Interaction Calculations for the  $n=2$  States of Lithiumlike Ions," M.H. Chen, K.T. Cheng, W.R. Johnson, and J. Sapirstein, *Phys. Rev.* 52, 166 (1995).
60. "The Theory of Atomic Parity Violation," S.A. Blundell, W.R. Johnson, and J. Sapirstein, in *Precision Tests of the Standard Model*, (ed. Paul Langacker, World Scientific, Singapore), pp. 577-598 (1995).
61. "Relativistic Calculations of Transition Amplitudes in the Helium Isoelectronic Sequence," D.R. Plante, W.R. Johnson, and J. Sapirstein, *Advances in Atomic Physics*, V. 35, 255 (1996).
62. "Transition Rates for Lithiumlike Ions, Sodiumlike Ions, and Neutral Alkali-Metal Atoms," W.R. Johnson, Z.W. Liu, and J. Sapirstein, *Atomic and Nuclear Data Tables* 64, 279 (1996).
63. "Parity Nonconserving Effects in Atoms," J. Sapirstein, in *Atomic, Molecular, and Optical Physics Reference Book*, ed. Gordon Drake (AIP Press, New York, 1996) 352-356.
64. "Quantum Electrodynamics," J. Sapirstein, in *Atomic, Molecular, and Optical Physics Reference Book*, ed. Gordon Drake (AIP Press, New York, 1996) 327-340.
65. "Fourth-order vacuum-polarization contribution to the Lamb shift," S. Mallampalli and J. Sapirstein, *Phys. Rev.* A54, 2714 (1996).
66. "The use of basis splines in theoretical atomic physics," J. Sapirstein and W.R. Johnson, *J. Phys.* B29, 5213 (1996).
67. "Radiative Corrections in Atomic Physics in the Presence of Perturbing Potentials," S.A. Blundell, K.T. Cheng, and J. Sapirstein, *Phys. Rev.* A55, 1857-1865 (1997).
68. "All-order Binding Corrections to Muonium Hyperfine Splitting," S.A. Blundell, K.T. Cheng, and J. Sapirstein, *Phys. Rev. Lett.* 78, 4914-4917 (1997).
69. "Theoretical Methods for the Atomic Many-Body Problem," J. Sapirstein, *Reviews of Modern Physics* 70, 55 (1998).
70. "Fourth-Order Self-Energy Contribution to the Lamb Shift," S. Mallampalli and J. Sapirstein, *Phys. Rev.* A57, 1325 (1998).
71. "Finite Basis Sets in Momentum Space," S. Mallampalli and J. Sapirstein, *J. Phys.* B31, 3779 (1998).
72. "Perturbed Orbital Contribution to the Two-Loop Lamb Shift in Hydrogen," S. Mallampalli and J. Sapirstein, *Physical Review Letters* 80, 5297 (1998).
73. "Order  $m\alpha^6$  contributions to ground state hyperfine splitting in positronium," G.A. Adkins and J. Sapirstein, *Phys. Rev.* A58, 3552 (1998). (E), A61, 069902(E) (2000).
74. "Relativistic and QED Effects in Few-Electron High-Z Systems," J. Sapirstein, *AIP Conference Proceedings* 457 (AIP, Woodbury, New York) p. 3-12 (1998).

75. "Potential independence of the solution to the relativistic many-body problem and the role of negative-energy states in heliumlike ions," J. Sapirstein, K.T. Cheng, and M.N. Chen, *Phys. Rev. A* 59, 259 (1999).
76. "Recoil corrections to the Lamb shift in helium," K. Pachucki and J. Sapirstein, *J. Phys. B* 33, 455 (2000).
77. "Order  $\alpha^2$  corrections to the decay rate of orthopositronium," G.A. Adkins, R.N. Fell, and J. Sapirstein, *Phys. Rev. Lett.* 84, 5086 (2000).
78. "Quantum electrodynamic corrections in high-Z Li-like and Be-like ions," K.T. Cheng, M.H. Chen, and J. Sapirstein, *Phys. Rev. A* 62, 054501 (2000).
79. "Evaluation of Two-Photon Exchange Graphs for Excited States of Highly-Charged Helium like Ions," Peter J. Mohr and Jonathan Sapirstein, *Phys. Rev. A* 62, 052501 (2000).
80. "Contributions to helium fine structure of order  $m\alpha^7$ ," K. Pachucki and J. Sapirstein, *J. Phys. B* 33, 5297 (2000).
81. "Relativistic and QED corrections to the polarizability of helium," K. Pachucki and J. Sapirstein, *Phys. Rev. A* 63, 012504 (2001).
82. "Light-by-light scattering contributions to positronium decay rates," G.A. Adkins, R.N. Fell, and J. Sapirstein, *Phys. Rev. A* 63, 032511 (2001).
83. "Hyperfine splitting in lithiumlike bismuth," J. Sapirstein and K.T. Cheng, *Phys. Rev. A* 63, 032506 (2001).
84. "Determination of the two-loop Lamb shift in lithiumlike bismuth," J. Sapirstein and K.T. Cheng, *Phys. Rev. A* 64, 022502 (2001).
85. "Order  $m\alpha^8$  contribution to the orthopositronium decay rate," G.S. Adkins, R.N. Fell, and J. Sapirstein, *Annals of Physics* 295, 136 (2002).
86. "Determination of the fine structure constant from helium spectroscopy," K. Pachucki and J. Sapirstein, *J. Phys. B* 35, 1783 (2002).
87. "Calculation of the Lamb Shift in neutral alkali metals," J. Sapirstein and K.T. Cheng, *Phys. Rev. A* 66, 042501 (2002).
88. "Parity Violation," J. Sapirstein in *Relativistic Electronic Structure Theory: Part I, Fundamentals*, Elsevier Science, P. Schwerdtfeger, Ed. (2002).
89. "Higher Order Recoil Corrections to Helium Fine Structure," K. Pachucki and J. Sapirstein, *J. Phys. B* 36, 803 (2003).
90. "Calculation of Radiative Corrections to Hyperfine Splittings in the Neutral Alkalis," J. Sapirstein, K.T. Cheng, *Phys. Rev. A* 67, 022512 (2003).

91. "Radiative Corrections to Parity Nonconserving Transitions in Atoms," J. Sapirstein, K. Pachucki, A. Veitia, and K.T. Cheng, Phys. Rev. A67, 052110 (2003).
92. "Transition energies of the  $3s$ - $3p_{3/2}$  resonance lines in sodiumlike to phosphoruslike uranium," M.H. Chen, K.T. Cheng, P. Beiersdorfer, E. Träbert, and J. Sapirstein, Phys. Rev. A68, 022507 (2003).
93. "Two-loop corrections to the decay rate of parapositronium," Gregory S. Adkins, Nathan M. McGovern, Richard N. Fell and Jonathan Sapirstein, Phys. Rev. A68, 032512 (2003).
94. "Vacuum polarization calculations for hydrogenlike and alkali-metal-like ions," J. Sapirstein and K.T. Cheng, Phys. Rev. A68, 042111 (2003).
95. "Radiative corrections to one-photon decays of hydrogenic ions," J. Sapirstein, K. Pachucki and K.T. Cheng, Phys. Rev. A69, 022113 (2004).
96. "Accurate S-state helium wave functions in momentum space," J. Sapirstein, Phys. Rev. A69, 042515 (2004).
97. "Calculation of radiative corrections to E1 matrix elements in the neutral alkali metals," J. Sapirstein and K.T. Cheng, Phys. Rev. A71, 022503 (2005).
98. "Hydrogenic and screened self-energies for d states," J. Sapirstein and K.T. Cheng, Phys. Rev. A73, 012503 (2006).
99. "Recoil corrections in the hydrogen isoelectronic sequence," G.S. Adkins and J. Sapirstein, Phys. Rev. A73, 032505 (2006).
100. "Interplay of relativistic and nuclear effects in few-electron atoms and ions," J. Sapirstein, to appear in International Journal of Quantum Chemistry.
101. "QED corrections to the  $4p$ - $4d$  transition energies of copperlike heavy ions," M.H. Chen, K.T. Cheng, W.R. Johnson, and J. Sapirstein, submitted to Phys. Rev. A.
102. "Calculation of radiative corrections to hyperfine splitting in  $P_{1/2}$  states," J. Sapirstein and K.T. Cheng, in preparation.
103. "High-precision relativistic atomic structure calculations and the EBIT: Tests of QED in highly charged ions," K.T. Cheng, M.H. Chen, W.R. Johnson, and J. Sapirstein, submitted to Can. J. Phys.
104. "Tests of QED with EBIT," J. Sapirstein and K.T. Cheng, submitted to Can. J. Phys.