

# Curriculum Vitae

## Paul Drew Beale

Department of Physics, 390 UCB  
University of Colorado Boulder  
Boulder, CO 80309  
(303) 492-0297  
Paul.Beale@Colorado.EDU

8947 Sage Valley Rd  
Longmont, CO 80503  
(303) 386-4626  
(303) 241-3308 (cell)

BIRTHDATE February 20, 1955

SPOUSE Erika A. Gulyas

EDUCATION	Ph.D., Cornell University, 1982 (Physics) B.S. (with highest honors), University of North Carolina at Chapel Hill, 1977 (Physics)
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**PRESENT POSITION**      Professor and Chair  
Department of Physics  
University of Colorado **Boulder**

## Employment History

1997-present	Professor of Physics, Department of Physics, University of Colorado Boulder
1991-1997	Associate Professor of Physics, Department of Physics, University of Colorado Boulder
1984-1991	Assistant Professor of Physics, Department of Physics, University of Colorado Boulder
1982-1984	Postdoctoral Research Associate, Department of Theoretical Physics, Oxford University
1977-1982	Graduate teaching and research assistant, Department of Physics, Cornell University
1976-1977	Undergraduate research assistant, Department of Physics, University of North Carolina at Chapel Hill

## Research Interests

Theoretical physics, statistical mechanics, phase transitions, critical and multicritical phenomena, renormalization group, phenomenological finite-size scaling, commensurate-incommensurate phase transitions, switching and fatigue in thin-film ferroelectrics, failure modes in random materials, exact solutions of the two-dimensional Ising model, solid-liquid transitions in systems of small molecules, thermodynamic integration methods and their applications to equilibrium solids and grain boundary kinetics, liquid crystal phase transitions, pseudorandom number generators.

Honors Thesis: *Experimental Study of the Kondo Effect in  $Au_xAg_{1-x}(Mn)$* , (earned highest honors). Thesis Advisor: Professor Louis D. Roberts.

Ph.D. Thesis: *Theory of Structural Phase Transitions*, Thesis Advisor: Professor James A. Krumhansl.

## Honors and Awards

2004 Boulder Faculty Assembly Excellence in Teaching Award

2004 CU-Boulder Residence Life Academic Teaching Award

2004 President's Teaching with Technology Award: Boulder Campus nominee (with Steven Pollock and Michael Dubson)

## Department and College Administrative Positions

2008-present: Chair, Department of Physics

Responsibilities include oversight of recruiting, hiring, supporting, and promoting all faculty and staff in the department, overseeing the undergraduate and graduate degree programs, promoting and supporting all research programs, overseeing all aspects of the department's general fund, auxiliary, gift and research budgets, interaction with the Associate Dean, Dean and Provost, as well as chairs, directors, deans, vice chancellors, and the Chancellor on academic and budgetary matters, fund raising, and promotion of the Department with campus public relations officials and the press.

2006-2008: Director of the Honors Program, College of Arts and Sciences

Responsibilities included overseeing the honors curriculum and Latin Honors thesis process for all undergraduate students at the University of Colorado at Boulder. I expanded the size and scope of the program, and integrated honors into the campus undergraduate merit scholarship and recruiting process.

1999-2008: Faculty Advisor for the Individually Structured Major (ISM)

I wrote the proposal to the Arts and Sciences Curriculum Committee to transition the ISM from a free-standing major to a track in Distributed Studies. Responsibilities included advising the students on curricular issues, assuring consistency with Arts and Sciences minimum major requirements and certifying graduation requirements.

2000: Acting Associate Dean for the Social Sciences, College of Arts and Sciences

2000: Acting Associate Dean for the Natural Sciences, College of Arts and Sciences

1997-1999: Associate Dean for the Natural Sciences, College of Arts and Sciences

Responsibilities included oversight of 16 departments and programs in the Division of Natural Sciences. I had the opportunity to work with physics, astrophysical and planetary sciences, atmospheric and oceanic sciences, geological sciences, chemistry and biochemistry, molecular, cellular and developmental biology, integrative physiology (then kinesiology), ecology and evolutionary biology (then EPOB), psychology and neuroscience (then psychology), geography, political science, mathematics, applied mathematics, Baker RAP, University Writing Program, and honors. I was the primary contact on all budgetary and faculty personnel actions including hiring, reappointment, tenure, and promotion. I also oversaw all instructional fees and instructional computing projects in the college.

1996: Associate Dean for Faculty Affairs, College of Arts and Sciences

Responsibilities included oversight of all faculty hiring, and reappointment, tenure, and promotion cases for all departments in the college. I also served as the space coordinator including serving on the design team for the Eaton Humanities Building.

1996: Arts and Sciences Dean of Summer Session

Responsibilities included oversight of all curriculum and budget for the Arts and Sciences summer session.

1996: Acting Chair of the Department of Fine Arts

I served as the chair of fine arts for six weeks after the chair resigned suddenly.

1994-1996: Faculty Associate for Curricular Affairs, College of Arts and Sciences

Responsibilities included oversight for all interdisciplinary programs in the college including honors, the RAPs, FallFEST, instructional computing, and course fees.

## Books Published

*Statistical Mechanics*, Third Edition, R.K. Pathria and Paul D. Beale, (Academic, Boston, 2011)

*Instructor's Manual to Statistical Mechanics*, Third Edition, R. K. Pathria and Paul D. Beale, (Academic, Boston, 2011)

## Peer-Reviewed Research Publications

1. P.D. Beale, S. Sarker and J.A. Krumhansl, "Renormalization-group study of crossover in structural phase transitions," *Physical Review B* 24, 266 (1981).
2. P.D. Beale, "Critical and crossover behavior of the two-dimensional  $\phi^4$  model on a lattice," *Physical Review B* 24, 6711 (1981).
3. G.A. Baker, Jr., A.R. Bishop, K. Fesser, P.D. Beale and J.A. Krumhansl, "Critical and crossover behavior of the double gaussian model," *Physical Review B* 26, 2596 (1982).
4. C.J. Lambert, P.D. Beale and M.F. Thorpe, "Phase correlations and metastability in a one-dimensional solid," *Physical Review B* 27, 5860 (1983).
5. P.D. Beale, "Probability density function of the double gaussian model," *Physical Review B* 27, 5804 (1983).
6. P.D. Beale, "Criticality and crossover in structural phase transitions," in *Multicritical Phenomena* : eds. R. Pynn and A. Skjeltorp, (Plenum, New York, 1984).
7. P.M. Duxbury, J. Yeomans and P.D. Beale, "Wavevector scaling and the phase diagram of the chiral clock model," *Journal of Physics A* 17, L179 (1984).
8. P.D. Beale, "Finite-size scaling at an Ising tricritical point," *Journal of Physics A* 17, L335 (1984).
9. P.D. Beale, P.M. Duxbury and J.M. Yeomans, "Finite-size scaling of the two-dimensional axial next-nearest neighbor Ising model," *Physical Review B* 31, 7166 (1985).
10. P.D. Beale, "Finite-size scaling of the two dimensional Blume-Capel model," *Physical Review B* 33, 1717 (1986).
11. Y. Tang, P.D. Beale, R.C. Mockler and W.J. O'Sullivan, "Observation of a correlation-length finite-size effect in Rayleigh scattering from thin critical fluid films," *Physical Review Letters* 56, 480 (1986).
12. G.N. Hassold, J.F. Dreitlein, P.D. Beale and J.F. Scott, "Dynamics of the two- dimensional axial third-nearest-neighbor Ising model: entrainment and diffusivity," *Physical Review B* 33, 3581 (1986).
13. P.M. Duxbury, P.D. Beale and P.L. Leath, "Size effects of breakdown in quenched random media," *Physical Review Letters* 57, 1052 (1986).
14. P.M. Duxbury, P.L. Leath and P.D. Beale, "The breakdown properties of quenched random systems - the random fuse network," *Physical Review B* 36, 367-380 (1987).
15. P.D. Beale, "Two-dimensional models of commensurate-incommensurate phase transitions," in *Incommensurate Crystals, Liquid Crystals and Quasi-crystals* , eds. J.F. Scott and N.A. Clark, pp. 55-61 (Plenum, New York, 1987).
16. P.D. Beale and P.M. Duxbury, "Theory of dielectric breakdown in metal-loaded dielectrics," in *Time-Dependent Effects in Disordered Materials*, eds. R. Pynn and T. Riste, pp. 103-106 (Plenum, New York, 1987).

17. P.D. Beale and P.M. Duxbury, "Dielectric breakdown in metal-loaded dielectrics," *Physical Review B* 37, 2785-2791 (1988).
18. P.D. Beale and D.J. Srolovitz, "Elastic fracture in random materials," *Physical Review B* 37, 5500-5507 (1988).
19. P.D. Beale, J.F. Scott, M.-S. Zhang, Z. Chen, G. Hu, X. Jin, H. Shao, G. Wang and J. Zhao, "Raman Spectroscopic Study of High-Tc Superconductors  $\text{YBa}_2\text{Cu}_{1-x}\text{Sn}_x\text{O}_{7-y}$ ," *Solid State Communications* 65, 1145-1147 (1988).
20. D.J. Srolovitz and P.D. Beale, "A computer simulation of failure in an elastic model with randomly distributed defects," *Journal of the American Ceramics Society* 71, 362-369 (1988).
21. J.F. Scott, H.M. Duiker, P.D. Beale, B. Pouligny, K. Dimmler, M. Parris, D. Butler and S. Eaton, "Properties of ceramic  $\text{KNO}_3$  thin film memories," *Physica B* 150, 160-167 (1988).
22. P.D. Beale, "Noise-induced escape from attractors in one-dimensional maps," *Physical Review A* 40, 3998-4003 (1989).
23. Mark F. Gyure and P.D. Beale, "Dielectric breakdown in a random array of conducting cylinders," *Physical Review B* 40, 9533-9540 (1989).
24. H.M. Duiker and P.D. Beale, "Grain-size effects in ferroelectric switching," *Physical Review B* 41, 490-495 (1990).
25. Matthew A. Glaser, Noel A. Clark, Allen J. Armstrong and Paul D. Beale, "Geometrical Quasiparticle Condensation Model of Melting in Two Dimensions," in the Proceedings of the 4th Nishinomiya-Yukawa Memorial Symposium "Dynamics and Patterns in Complex Fluids: New Aspects of the Physics-Chemistry Interface" (1990).
26. Mark F. Gyure and Paul D. Beale, "Modeling of Dielectric Breakdown in Metal- Loaded Dielectrics: Theory" in the proceedings of the Joint Army, Navy, NASA, Air Force (JANNAF) Propulsion Systems Hazards Subcommittee Meeting at the Johns Hopkins Applied Physics Laboratory in Laurel, Maryland, April 3-5. 1990.
27. Paul D. Beale and Mark F. Gyure, "Modeling of Dielectric Breakdown in Metal- Loaded Dielectrics: Applications," in the proceedings of the Joint Army, Navy, NASA, Air Force (JANNAF) Propulsion Systems Hazards Subcommittee Meeting at the Johns Hopkins Applied Physics Laboratory in Laurel, Maryland, April 3-5. (1990).
28. P.M. Duxbury, P.D. Beale, H. Bak and P.A. Schroeder, "Capacitance and Dielectric Breakdown of Metal-Loaded Dielectrics," *Journal of Physics D, Applied Physics* 23, 1546-1553 (1990).
29. H.M. Duiker, P.D. Beale, J.F. Scott, C.A. Paz de Araujo, B.M. Melnick, J.D. Cuchiaro, and L.D. McMillan, "Fatigue and Switching in Ferroelectric Memories: Theory and Experiment," *Journal of Applied Physics* 68, 5783 (1990).
30. Paul D. Beale and H.M. Duiker, "Grain-size effects in ferroelectric switching," in the conference proceedings of the First USA-USSR Seminar on Ferroelectricity, *Ferroelectrics* 117, 165-170 (1991).
31. P.D. Beale and H.M. Duiker, "Microscopic Modeling of Thin-Film Ferroelectrics: Fatigue," *Ferroelectrics* 116, 111-116 (1991).
32. Shou-Jong Sheih, Paul D. Beale, Ting Chen and J.F. Scott, "Thermal Focusing in Ferroelectrics Near  $T_c$ : Effect of Conjugate Electric Fields," *Ferroelectrics* 123, 1-10 (1991).

33. Mark F. Gyure and Paul D. Beale, "Dielectric Breakdown in Continuous Models of Metal-Loaded Dielectrics," *Physical Review B* 46, 3736-3746 (1992).
34. D.C. Parks, N.A. Clark, D.M. Walba, and Paul D. Beale, "Scanning Tunneling Microscopy of Coexisting 2D Crystalline and 1D Stacking-Disordered Phases at the Chiral- Liquid-Crystal-Graphite Interface," *Physical Review Letters*, 70, 607-610 (1993).
35. Paul D. Beale, "Comparison of Classical Nucleation Theories with Monte Carlo Simulations of Ising Models," *Integrated Ferroelectrics* 4, 107-111 (1994).
36. P.M. Duxbury, Paul D. Beale and C. Moukarzel, "Breakdown of Two-Phase Random Resistor Networks," *Physical Review B* 51, 3476-3488 (1995).
37. Valeriy V. Ginsburg, Paul D. Beale, and Noel A. Clark, "Scaling Theory of Particle Annihilation in Systems with a Long-Range Interaction," *Physical Rev E* 52, 2583 (1995).
38. Paul. D. Beale, "Exact Distribution of Energies in the Two-Dimensional Ising Model," *Physical Review Letters* 76, 78-81 (1996).
39. L.S. Kirschenbaum, C.T. Rogers, P.D. Beale, S.E. Russek, and S.C. Sanders, "Bias current dependent resistance peaks in NiFe/Ag giant magnetoresistance multilayers," *Applied Physics Letters* 68, 3099 (1996).
40. L.S. Kirschenbaum, C.T. Rogers, P.D. Beale, S.E. Russek, and S.C. Sanders, "High current density self-field effects and low frequency noise in NiFe/Ag GMR multilayers," *IEEE Transactions on Magnetism* 32, 4684-4686 (1996).
41. C.T. Rogers, L.S. Kirschenbaum, P.D. Beale, S.E. Russek, and S.C. Sanders, "Observation of a fluctuation-enhanced magneto-resistance in  $\text{Ni}_{81}\text{Fe}_{19}/\text{Ag}$  multilayers at high current density," *Physical Review B Rapid Communications* 56 R8503-8506 (1997).
42. Jon T. Moore, Paul D. Beale, Thomas A. Winningham, and Kenneth Douglas, "Controlled Morphology of Biologically Derived Metal Nanopatterns" *Applied Physics Letters*, 71, 1264-1266 (1997).
43. Uwe B. Sleytr, et. al. (23 authors including Paul D. Beale, Noel A. Clark, Kenneth Douglas, Jon T. Moore and Thomas A. Winningham from CU), "Applications of S-Layers," *FEMS (Federation of European Microbiological Societies) Microbiology Reviews* 20 151-175 (1997).
44. J.T. Moore, P.D. Beale, T.A. Winningham, and K. Douglas, "Creation of Nanometer Scale Patterns With Selected Metal Films," *Applied Physics Letters* 72, 1840 (1998).
45. S. C. Gay, P. D. Beale, J. C. Rainwater, "Solid-Liquid Equilibrium of Dipolar Heteronuclear Hard Dumbbells in a Generalized van der Waals Theory: Application to Methyl Chloride," *Journal of Chemical Physics*, 109, 6820-6827 (1998).
46. S. C. Gay, P. D. Beale, J. C. Rainwater, "Solid-Fluid Phase Coexistence of Hard Heteronuclear Dumbbells via Cell Theory and Monte Carlo Simulation," *International Journal of Thermophysics*, 19 1535-1544 (1998).
47. S. C. Gay, P. D. Beale, J. C. Rainwater, "Thermodynamic perturbation theory applied to the dipolar heteronuclear dumbbell fluid," *Molecular Physics*, 96, 301-308 (1999).
48. S. C. Gay, J. C. Rainwater, P.D. Beale, "Two Dimensional Hard Dumbbells,: I. Fluctuating Cell Model," *Journal of Chemical Physics*, 112, 9841-9848 (2000).

49. S. C. Gay, J. C. Rainwater, P.D. Beale, "Two Dimensional Hard Dumbbells,; II. Pressure in terms of Free Volumes and Surfaces,," Journal of Chemical Physics, 112, 9849-9859 (2000).
50. Paul D Beale, "Acoustic Crystal Thermodynamic Integration Method," Physical Review E 66, 036132-036139 (2002).
51. Steven A. Kadlec, Paul D. Beale and James Rainwater, "Three-Dimensional Hard Dumbbell Solid Free Energy Calculation Via the Fluctuating Cell Model," Proceedings of the Fifteenth Symposium on Thermophysical Properties, published in the International Journal of Thermophysics, 25 1415-1427 (2004).
52. Mark T. Lusk and Paul D. Beale, "Grain Boundary Free Energy in an Assembly of Elastic Disks,," Physical Review E, 69, 026117-026727 (2004).
53. Mark T. Lusk, Michael R. Fellingner and Paul D. Beale, "Grain boundary free energy of hard disk assemblies under constant volume via thermodynamic integration,," Journal of Chemical Physics, 124 064707-064716 (2006).
54. Merrill Lessley and Paul Beale, "Projecting Mathematical Curves with Laser Light," Bridges Leeuwarden Mathematical Connections in Art, Music, and Science, Proceedings 483-484 (2008).
55. Steve Goldhaber, Steven J. Pollock, Michael Dubson, Paul D. Beale and Katherine K. Perkins, "Transforming Upper-Division Quantum Mechanics: Learning Goals and Their Assessment" Proceedings of the Physics Education Research Conference, AIP Conference Proceedings Volume 1179, Eds: Mel Sabella, Charles Henderson, Chandralekha Singh (2009)
56. Stephanie V. Chasteen, Katherine K. Perkins, Paul D. Beale, Steven J. Pollock, Carl E. Wieman, "A Thoughtful Approach to Instruction: Course transformation for the rest of us," Journal of College Science Teaching, vol 40, no. 4, 24-30 (2011).

### Papers with ten or more citations (2011)

Paper Number	Times Cited	Paper Number	Times Cited	Paper Number	Times Cited
29	346	10	55	34	19
13	204	22	50	42	14
14	194	9	39	45	14
21	155	7	29	12	13
24	112	36	27	23	13
18	108	1	24	2	12
38	84	33	21	48	11
17	73	20	20		

Total Citations: 1,732

h-index: 17

### Other Published Work

1. R.W. Larson, P.D. Beale, J.D. Curry, F. Eriksen, M.F. Frisoni, and M.F. Gyure, "Microstructural Modeling of Electrical Breakdown in Solid Fuel Propellants," ELECTRO MAGNETIC APPLICATIONS Inc., Final Report ADA263466 (1993).

### Current Contracts and Grants

"Developing research-based Tutorials in Upper-division Electricity and Magnetism," PI - Steven J. Pollock, co-PIs - Katherine K. Perkins, Michael A. Dubson, Paul D. Beale. Funded: \$530,906 for the period September 15, 2010 through August 31, 2013.

"Using a Research-based Approach to Reform Upper-division Laboratory Courses," PI: Heather J.

Lewandowski, co-PIs: Katherine K. Perkins, Noah D. Finkelstein, and Paul D. Beale. Funded: \$199,747 for the period May 1, 2011 through April 30, 2013.

## Teaching since 2000

Date	Course	Enrollment	FCQ (Course/ Instructor)
Spring 2000	PHYS-1110-100 General Physics 1	202	B/B+
	PHYS-1110-200 General Physics 1	226	B/B+
Fall 2001	PHYS-1110-100 General Physics 1	237	B/B+
	PHYS-1110-200 General Physics 1	235	B/B+
Spring 2002	PHYS 7440 Solid State Theory	13	A+/A+
Summer 2002	PHYS-1120 General Physics 2	52	B+/A
Fall 2002	PHYS-1120-100 General Physics 2	211	B/B+
	PHYS-1120-200 General Physics 2	161	B/B+
Spring 2003	PHYS 7230 Statistical Mechanics	45	B/B+
Summer 2003	PHYS-1120 General Physics 2	66	B/B+
Fall 2003	PHYS 2010-100 – General Physics 1	311	B/B+
	PHYS 2010-200 – General Physics 1	197	B/A
	HONR-2500 – Honors Modern Physics for Nonscientists	16	A/A+
Spring 2004	PHYS 7230 Statistical Mechanics	38	B+/B+
Fall 2004	PHYS 2010-100 – General Physics 1	311	B/B+
	PHYS 2010-200 – General Physics 1	147	B+/A
Spring 2005	PHYS 2020-100 – General Physics 2	232	B+/A-
	PHYS 2020-100 – General Physics 2	190	B/A-
Fall 2005	HONR 2500-880-Honors Modern Physics for Nonscientists	12	5.1/6.0 5.6/6.0
Spring 2006	PHYS 4320-001 Thermodynamics and Statistical Mechanics	13	5.2/6.0 5.7/6.0
Spring 2007	PHYS 7230-001 Statistical Mechanics	29	5.5/6.0 5.8/6.0
Spring 2008	PHYS 7230-001 Statistical Mechanics	24	5.4/6.0 5.6/6.0
Fall 2008	HONR 1001-887 Honors co-seminar for PHYS 1110	13	4.7/6.0 5.1/6.0
Fall 2009	PHYS 4610/4620/4630 Honors Thesis	22	5.5/6.0 5.7/6.0
Spring 2010	PHYS 1120-800: Honors General Physics 2	16	5.8/6.0 5.9/6.0
Spring 2011	PHYS 1120-800: Honors General Physics 2	18	5.6/6.0 5.9/6.0
Fall 2011	PHYS 3320: Electricity and Magnetism 2	30	

## Ph.D. Students

H. Matt Duiker, "Statics and Dynamics of Thin-Film Ferroelectrics," Graduated 1989. Co-founder Renegade Geophysics, Boulder, CO.

Mark Gyure, "Dielectric Breakdown in Random Materials". Graduated 1990. Senior staff scientist at Hughes Research in Malibu, CA.

Brad Johnson, titular advisor, "Surface effects in magnetic superlattices " Advisor: Robert Camley,

Department of Physics UCCS, Graduated 1991. Professor of Physics at Western Washington University, Bellingham, WA.

Shawn Gay, "Solid-Fluid Equilibrium of Fused Hard Sphere Systems: Free Volume Theories and Simulation," Graduated 1999. Staff scientist Metatech Corp., Albuquerque, NM, (co-advised by Jim Rainwater at NIST).

Steven Kadlec, "Phase Equilibrium in Various Systems of Hard and Soft Core Particles" 2004. Neva Ridge Technologies, Boulder, CO, (co-advised by Jim Rainwater at NIST).

Carly Donahue, titular advisor. "Investigation of wetted particle collisions theoretically and experimentally using a pendulum apparatus ,"Advisor: Prof Christine Hrenya, Department of Chemical and Biological Engineering, 2011.

## Departmental Service

- Associate chair for graduate studies, Department of Physics (1989-1992)
- Course fees coordinator (1993-1994)
- Instructor search committee (chair) (1994). We hired Michael Dubson.
- Physics Program Review Committee (chair) (1999-2000)
- Physics Program Review Committee (2000-2001)
- Director, Condensed Matter Laboratory (1999-2001)
- Teaching Evaluation Committee (chair) Spring (2000)
- Department of Physics 100th Anniversary Celebration Committee (Chair). Organized two-day program to celebrate the 100th anniversary of the first graduate degree in Physics. (2002)
- Instructor Search Committee: Noah Finkelstein was eventually hired as a tenure-track Assistant Professor. (2003)
- Condensed matter theory search committee (2002-2003)
- Physics Department Evaluation Panel (2002-2003)
- Physics Department Evaluation Panel (chair) (2003-2004)
- Condensed matter theory search committee (2002-2003)
- Teaching Evaluation Committee (chair) (2002-2003)
- Theoretical Physics Search Committee (co-chair) (2004-2005) (We selected Oliver DeWolfe.)
- Physics Science Education Initiative Director. (2007-2010)



## College, Campus and University Service

- Arts and Sciences Curriculum Committee (1992-1994)
- Executive Committee of the Colorado Center for Chaos and Complexity (1997-1999)
- Instructional Computing Working Group (1994-1999)
- Information Technology (IT) Strategic Plan Faculty Review Committee (1998)
- Academic Committee on Rules and Procedures (1994-2000)
- Facilities Master Plan Task Force (1997)
- Norlin Scholars Program Advisory Committee (1998)
- Council of Associate Deans (1994-1999)
- Boulder Campus Planning Commission (1994-1996)
- Humanities Building Design Team (1998-1999)
- Honors Council (2000-present)
- Leeds School of Business Frasca Teaching Excellence Award Selection Committee (2003).
- University Libraries Blue Ribbon Panel: This committee appointed by the Provost was charged with reviewing the Libraries' Strategic Plan as part of the Program Review process. (1999-2000)
- CU Boulder National Council: National Council is CU-Boulder' nonresident undergraduate recruiting team. Faculty, administrators and admissions staff visit major metropolitan areas around the country to recruit students to CU. I visit two or three cities each year (2002-present)
- Faculty Council Committee on Educational Policy and University Standards (EPUS) (2002-2003)
- Vice Chancellor's Advisory Committee: (2004-2006)
- Academic Affairs Budget Advisory Committee (2005-2008)
- Committee on Research and Creative Work (2006-2008)
- LEAP Advisory Board (2007-2008)
- Undergraduate Academy Advisory Committee (2006-2008)
- Truman Scholar Nomination Committee (2007)
- Astronaut Scholarship Selection Committee (2008-2010)
- Flagship 2030 Strategic Planning Committee: Co-chair (with Professor Brenda Schick, SLHS), Research, Scholarship and Creative Work Committee (2007).
- Flagship 2030 Implementation Committee: Co-chair (with Ric Porecca, CFO), Budget Committee (2008).

- CU-Boulder Re-accreditation Committee (2009-2010)
- CU-Boulder Chief Information Officer Search Committee (2009).
- CU-Boulder, Provost Search Committee (2009-2010)
- Arts and Sciences Budget Committee (2009-present)
- CU-Boulder Information Technology Executive Committee (2011-present)
- CU-Boulder Research Cabinet (2011-present)

### Community Service and Outreach

- CU Wizards Program: Founding member of the CU Wizards in 1994 after John Taylor stepped down as *the* Wizard. The CU Wizards consists of about twenty science faculty members who give large public shows each month for elementary school students to introduce them to the fun of science
- CU Wizards Program: "Time and Clocks" (1995)
- CU Wizards Program: "The Four Fundamental Forces of Nature" (1996)
- CU Wizards Program: "Time and Clocks" (1996)
- Two CU Wizard shows at Boulder Valley Schools (1997)
- CU Wizards Program: "The Physics of Flight" (1998)
- CU Wizards Program "Heat, Temperature and Absolute Zero" (2002)
- CU Wizards Program: "Heat, Temperature and Absolute Zero" (2003)
- CU Wizards Program: "Much Ado About Absolute Zero" (2005)
- Saturday Physics Series: "Much Ado About Absolute Zero" (2006)
- CU Wizards Program: "Much Ado About Absolute Zero" (2007)
- CU Wizards Program: "Much Ado About Absolute Zero" (2009)
- On-camera expert for "Stan Lee's Supermen," a History Channel documentary about people with extraordinary abilities (2010)
- On-camera expert for a Korean television documentary about George Gamow "The Milestones of Scientific Civilization" (2011)
- CU Wizards Program: "Time Flies" (2011)