ROBERT F. GALLUP

Southwestern College
100 North College Street
Winfield, KS 67156-2499
(620) 229-6200

222 North Massachusetts Street
Winfield, KS 67156-1820
(620) 221-4889
email: bob.gallup@sckans.edu

EDUCATION

Doctorate of Philosophy, Physics, University of California, Davis, September 1990

Bachelor of Science, Physics, California State University, Fresno, June 1982
Valedictorian of the School of Natural Sciences

QUALIFICATION SUMMARY

Experienced as a classroom teacher and laboratory instructor for introductory and advanced physics and mathematics courses

Clear and logical communicator with an accessible and approachable teaching style and personality

Competent with a variety of instructional technologies

Experienced in experimental and theoretical/computational condensed matter physics research

Organized administrator

HONORS

Charles H. and Vera R. Kopke Distinguished Teaching Award, 2009 – Awarded by the Administration of Southwestern College

Outstanding Faculty Citation, 1999 – Awarded by the Student Government Association of Southwestern College

Fassnacht Outstanding Faculty Award, 1998 – Awarded by the Administration of Southwestern College

IBM Corporation Pre-Doctoral Fellow, UC Davis, 1985-1987

Regent's Fellow, UC Davis, 1982-1984

Valedictorian, School of Natural Sciences, California State University, Fresno, 1982

TEACHING EXPERIENCE

Professor, Southwestern College, Division of Natural Sciences, 2005-present
Associate Professor, Southwestern College, Division of Natural Sciences, 1999-2005
Assistant Professor, Southwestern College, Division of Natural Sciences, 1993-1999
(student evaluations available on request)

Courses Taught

- Physics – *College* (algebra-based introductory) *Physics*, *General* (calculus-based introductory) *Physics*, *Mathematical Physics, Classical Mechanics, Thermodynamics and Statistical Physics, Quantum Mechanics*
- Mathematics – *Calculus 1, Calculus 2, Calculus 3, Differential Equations, Linear Algebra*
- Computer Science – *Introduction to FORTRAN*
- General Education – *Descriptive Astronomy*

Instructional Technologies

- Video capture software for motion analysis
- Computer simulations for quantum physics

- *Stella* computational system modeling software

Institutional Service

- Physics Department Chair, 1996-present
- Faculty Salary Statistician, 1999-2018
- Advisor Trainer, 1996-2010
- Freshman/Sophomore General and Undecided Academic Advisor, 1996-present
- Pre-Engineering Academic Advisor, 1993-present
- Benefits Committee, 2008-2010
- Mathematics Department Chair, 1993-1995, 2003-2007
- Curriculum Committee Chair, 2004-2005, 2019-2021
- Natural Sciences Division Chair, 2000-2002
- Personnel Committee Chair, 2001-2002
- Admissions and Retention Committee Chair, 1998-1999
- Technology Advisory Committee, 1993-1995 and 2003-2004
- Student Activities Association Faculty Advisor, 1996-1998

Lecturer, University of California, Davis, Physics Department, 1990-1993 (student evaluations available on request)

- Instructor for algebra-based introductory physics courses for non-majors
- Member of the Curriculum Evaluation Committee, University of California, Davis, 1991
  Project Title: *Revision of the Introductory Physics Course Based on a Reassessment of the Standard Content*

Teaching Assistant, University of California, Davis, Physics Department, 1982-1990 (student evaluations available on request)

- Supervised laboratory sections for introductory physics and electronics courses
- Graded examinations for introductory physics courses
- Graded homework for a graduate quantum mechanics course and an introductory electronics course

Teaching Assistant and Departmental Tutor, California State University, Fresno, Physics Department, 1980-1982

- Supervised laboratory sections for introductory physics courses (Spring Semester 1982)
- Assisted students as a Physics Department tutor

RESEARCH EXPERIENCE

Theoretical/Computational Condensed Matter Physics

Postdoctoral Researcher, University of California, Davis, Physics Department, 1990-1992
Graduate Research Assistant, University of California, Davis, Physics Department, 1988-1990

- Extensive experience with the FORTRAN programming language and the Cray, Sun, Vax, Unix, Macintosh, and IBM computer operating systems
- Developed and tested computer code that incorporates a modified Car-Parrinello molecular dynamics technique into the self-consistent pseudopotential method
- Investigated the electronic properties of a variety of novel solids including: *nipi*-doped silicon-germanium superlattices, possible metastable structures of beryllium hydride under high pressure, and the Zintl-phase compound $Ca_{14}GaAs_{11}$

Experimental Condensed Matter Physics

Graduate Research Assistant, University of California, Davis, Physics Department, 1983-1988

- Experienced with the use, design, and improvement of several infrared and far-infrared interferometers
- Performed and analyzed optical properties measurements at and below room temperature on a variety of ferroelectric materials
- Developed and implemented software for real-time experimental control, data acquisition, and analysis
- Interfaced a microcomputer to a far-infrared interferometer

PUBLICATIONS

1) **R.F. Gallup**, P. Graves, J. Jadrich, G.J.R. Spooner, and T.E. Weideman, "Conceptual Problems in Mechanics," copyright of the Regents of the University of California, 1992.
2) **R.F. Gallup**, C.Y. Fong, and S.M. Kauzlarich, "The Bonding Properties of $Ca_{14}GaAs_{11}$: A Compound Containing Discrete $GaAs_4$ Tetrahedra and a Hypervalent As_3 Polyatomic Unit," *Inorganic Chemistry* **31**, 115(1992).
3) C.Y. Fong, J.S. Nelson, L.A. Hemstreet, **R.F. Gallup**, L.L. Chang, and L. Esaki, "Resonant Tunneling in Coupled Quantum Dots," *Physical Review B* **46**, 9538(1992).
4) C.Y. Fong, **R.F. Gallup**, J.S. Nelson, L.L. Chang, and L. Esaki, "Application of the Kohn-Sham Formalism to Quantum Dots with Realistic Dimensions and Constrictions," *Superlattices and Microstructures* **11**, 399(1992).
5) **R.F. Gallup**, C.Y. Fong, A.K. McMahan, and C. Mailhiot, "Electronic, Structural, and Mechanical Properties of Possible Metastable Phases of Beryllium Hydride," *High Pressure Research* **6**, 291(1991).
6) C.Y. Fong, **R.F. Gallup**, and J.S. Nelson, "Electronic Properties of Si-doped n-doped-intrinsic-p-doped-intrinsic (*nipi*) Structures in GaAs," *SPIE* **1361**, 479(1991).
7) **R.F. Gallup** and C.Y. Fong, "Electronic Properties of *nipi* Structures in Elemental Silicon/Germanium Strained-Layer Superlattices," *Physical Review B* **41**, 5104(1990).
8) C.Y. Fong, **R.F. Gallup**, L. Esaki, and L.L. Chang, "The Electronic Properties of the Miniband and the Effect of External Electric Fields in Superlattices," *Superlattices and Microstructures* **7**, 147(1990).
9) **R.F. Gallup** and L.B. Coleman, "Vibrational Spectra and the Ferroelectric Phase Transition of Colemanite," *Physics and Chemistry of Minerals* **17**, 271(1990).
10) L.H. Yang, **R.F. Gallup**, C.Y. Fong, and J.S. Nelson, "Electronic Properties of Micro-*nipi* Structures in Silicon," *Physical Review B* **39**, 3795(1989).
11) **R.F. Gallup**, T.G. Fiske, L.K. Anderson, and L.B. Coleman, "Increasing the High Frequency Limit of a Commercial Far-Infrared Interferometer," *Infrared Physics* **27**, 257(1987).

PROFESSIONAL AFFILIATIONS

The American Association of Physics Teachers

PERSONAL INTERESTS

Astronomy, cosmology, history, geology, paleontology, archeology, meteorology, oceanography, Baroque music, ancient Greek, sailing, and hiking

REFERENCES

Dr. Ross Peterson-Veatch
Vice President for Academic Affairs
Southwestern College
100 North College Street
Winfield KS 67156-2499
(620) 229-6090
ross.peterson-veatch@sckans.edu

Dr. Tamara McEwen
Natural Science and Mathematics Division Chair
Southwestern College
100 North College Street
Winfield KS 67156-2499
(620) 229-6191
tamara.mcewen@sckans.edu

Dr. Michael Tessmer
Chemistry Department
Southwestern College
100 North College Street
Winfield KS 67156-2499
(620) 229-6369
michael.tessmer@sckans.edu

Professor Michelle Boucher
Southwestern College
100 North College Street
Winfield KS 67156-2499
(620) 229-6332
michelle.boucher@sckans.edu