

Dr. Kitran M. Colwell, Ph.D.

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Work Experience:

Diablo Valley College

Assistant Professor of Physics

Adjunct Professor of Physics

Pleasant Hill, CA

35 hrs/wk, 8/17-current

30 hrs/wk, 6/16-8/17

- Physics 110/111 - Conceptual physics and laboratory survey courses
- Physics 120 - Physics for Life Scientists: Mechanics and Thermodynamics
- Physics 129 - Introductory Physics for Engineers
- Physics 130 - Physics for Engineers and Scientists: Mechanics and Wave Motion
- Physics 230 - Physics for Engineers and Scientists: Heat and Electromagnetism

High Energy Frontier Theory Initiative (HEFTI)

Graduate Researcher - Dr. John Terning, Advisor

Davis, CA

20 hrs/wk, 4/12-6/16

- Twistor formulation of quantum electrodynamics; dyon dualities and light-by-light scattering
- Curing the Higgs mass quadratic divergence with conformal symmetry at IR fixed points
- Further interests in Calabi-Yau manifold compactification and extra-dimensions physics

University of California - Davis

Associate Instructor of Physics

Davis, CA

30 hrs/wk, 6/13-12/15

- Physics 1B: Electromagnetism and optics for non-physical science majors
- Physics 7B: Fluids, circuitry, forces and torque in a discussion/laboratory learning setting emphasis for biological science majors
- Physics 9B: Waves, acoustics, optics, fluids, and thermodynamics for physics and engineering majors
- Physics 9D: Relativity and quantum mechanics for physics and engineering majors

University of California - Davis

Teaching Assistant

Davis, CA

20 hrs/wk, 9/11-6/16

- Prepared and led discussion sessions for undergraduate classes in mechanics, electromagnetism, and modern physics (atomic, optical, nuclear)
- Led problem-solving and laboratory sessions for undergraduate classes (mechanics, electromagnetism, modern physics)

AggieMentors

Graduate Mentor - Pia van Benthem, Director

Davis, CA

15 hrs/wk, 9/12-6/14

- Mentored high school students in conducting environmentally themed research projects
- My student built a Geiger counter, measured local radiation levels, won the regional competition and placed 3rd in the national level

Bay Area Tutoring Center

Science/Math Tutor - Homayoon Koushafar, Owner

San Ramon, CA

32 hrs/wk, 8/10-7/12

- Private and group tutor sessions in preparation for standardized tests (GRE, MCAT, AP, ACT, PSAT/NMSQT, SAT, SAT II, CAHSEE, STAR, etc.) and classwork
- Help students learn how to approach problem solving and master basic concepts in physics, mathematics, chemistry, biology at K-12 and collegiate levels

Center for Theoretical Biophysics

Graduate Researcher - Dr. Olga Dudko, Advisor

La Jolla, CA

20 hrs/wk, 7/09-12/09

- Modeled diffusive barrier crossing in non-equilibrium reaction-rate theory
- Presented Kramers' theory on diffusive reaction dynamics

University of California - San Diego

La Jolla, CA

Teaching Assistant

20 hrs/wk, 9/08-9/09 & 1/10-6/10

- Prepared and led discussion sessions for undergraduate classes in mechanics, electromagnetism, and modern physics (atomic, optical, nuclear)
- Taught at UCSD tutor center and led problem-solving sessions
- Ran laboratory sessions for undergraduate classes (electromagnetism, modern physics)

Center of Integrated Nanomechanical Systems

Berkeley, CA

Undergraduate Researcher - Dr. Jeffrey Grossman, Advisor

10-20 hrs/wk, 9/07-6/08

- Created morphology optimization programs for organic photovoltaics
- Ran nano-scale Monte Carlo simulations to determine peak efficiencies

Engineering Support Research Organization

Berkeley, CA

Microlab Assistant - Dr. Marilyn Kushner, Supervisor

10-20 hrs/wk, 10/06-12/07

- Maintained ISO Class 100 environment in microfabrication laboratory
- Stocked chemicals (including hazardous/toxic), lab materials

Technical Skills

- Network administration; computer and peripheral hardware and software installation, maintenance, troubleshooting
- Windows, Macintosh, and Linux environments, command line and terminal programming
- Experience in Perl, HTML (CSS), PHP, JavaScript, LabView, L^AT_EX, Mathematica, MatLab, C++
- Experience with website design, maintenance, and implementation and online and remote databases

Education:

University of California - Davis

Davis, CA

Ph.D., Physics

2011-2016

- Dissertation: *Dualities, Helicity Amplitudes, and Little Conformal Symmetry* under Dr. John Terning
- Cumulative GPA: 3.96
- Completed coursework in quantum field theory, high energy physics, general relativity, Lie groups/algebras, supersymmetry

University of California - San Diego

La Jolla, CA

M.S., Physics

2008-2010

- Cumulative GPA: 3.87
- Completed coursework in mathematical methods, quantum mechanics, classical mechanics, electromagnetism, equilibrium/nonequilibrium statistical mechanics, quantum field theory, solid state physics, geometrical physics, group theory

University of California - Berkeley

Berkeley, CA

B.A., Physics and Mathematics

2004-2008

- Cumulative GPA: 3.75 (High Distinction in General Scholarship - *Magna cum laude*)
- Physics GPA: 3.82
- Completed undergraduate course work in multivariable calculus, linear & abstract algebra, real & complex analysis, differential geometry, mathematical logic, quantum mechanics, electromagnetism, analytical mechanics, statistical mechanics, semiconductor circuitry, advanced laboratory methods, biochemistry, paleontology, fusion science, and molecular biophysics, as well as facilitating a DeCal class on Mesozoic marine reptiles
- Recipient of Laslett, Larimer, and Pomerantz Scholarships in Physics

Other Information

- Intermediate knowledge of German
- Experience in foreign travel to Manaus, Brazil; Prague, Czech Republic; French Polynesia; London/Edinburgh, U.K.
- Entomology hobbyist with wife, Dr. Rachael Spradley
- Belonged to UC Berkeley Fencing Team

References Furnished Upon Request