



Faculty

Katrin Schenk, *Associate Professor of Physics* B.S., University of California at Los Angeles; M.S., Ph.D., Cornell University

Dr. Schenk's research focuses on understanding the underlying dynamics of animal behavior and how such knowledge of informs us about the effects of disease processes and environmental and/or genetic perturbations. Her research makes use of real behavioral data taken by collaborators in the fields of psychiatry, physiology, neurology, neuroscience and medicine and her main plans involve long-term collaborations with experimentalists in the fields of geriatrics, psychiatry, and physiology.

"Effects of maternal or paternal bisphenol A exposure on offspring behavior" with Erin P. Harris, Emilie F. Rissman, *Hormones and Behavior*, 101, May 2018.

"Extended, continuous measures of functional status in community dwelling persons with Alzheimer's and related dementia: Infrastructure, performance, tradeoffs, preliminary data, and promise" with George Netscher, Julien Jacquemot, Michael Schaffer, Galen Shen, Tamara L. Braley, Katherine L. Possin, Bruce L. Miller, Alexandre M. Bayen, Stephen J. Bonasera, *Journal of Neuroscience Methods*, 300, 15 April 2018

Peter Sheldon, *Chair of the Physics Department, Professor of Physics*, B.A., Amherst College;
M.A., Ph.D., University of Massachusetts

Dr. Sheldon's research net is wide: he is by education a low-temperature physicist, but has picked up the fields of ultrafast laser spectroscopy and physics education research in the last ten years. He has published in all of these fields.

Quantitative Skills and Analysis in AP Physics 1 and 2 Investigations, Peter Sheldon, College Board (New York 2015).

"Changing Students' Perceptions of Scientists: Ideas for Classroom Teachers," Peter Sheldon, Tatiana Gilstrap, Peggy Schimmoeller, *Journal of Virginia Science Education* 5, 1 (Spring/Summer 2013).

Along with Kacey Meaker '08, Dr. Sheldon is writing a book that will appeal to a popular audience or an introductory physics class, on the physics of roller coasters

Sarah Sojka, *Assistant Professor of Environmental Science and Physics*, B.A., Eckerd College;
M.S., Ph.D., University of Virginia

Dr. Sojka focuses on rainwater harvesting systems designed to collect the rain that falls on the roof of a building and then used for irrigation, toilets, and other uses. Her primary interest is how rainwater harvesting can be used to reduce stormwater runoff and protect coastal systems.

"Life cycle assessment of a commercial rainwater harvesting system compared with a municipal water supply system," with Santosh R. Ghimire, John M. Johnston-Wesley W. Ingwersen, *Journal of Cleaner Production*, 151, 10 May 2017

Sustainable Water Management in Urban Environments in Modern Urban Rainwater Harvesting Systems: Design, Case Studies, and Impacts with Younos, Tamim; Crawford, David, 2016. Springer Science & Business Media B.V

What Do Physicists DO?

Physics seeks to explain the natural world with a comprehensive set of fundamental laws. It teaches you how to describe the universe mathematically. A physics major earned in the context of a liberal arts education prepares you for a wide variety of careers. The training you receive in analytical reasoning prepares you well for medicine, engineering, law, and business.

Randolph's Academic Offerings

Bachelor of Science Degree in Physics
Bachelor of Science Degree in Engineering Physics
Bachelor of Arts Degree in Physics
Minor in Physics
Teacher Licensure with an emphasis in Physics

Engineering

Randolph College has entered into agreements with several schools of engineering to offer a dual degree program. In these programs, the student will complete a three-year degree in physics at Randolph College, and then a two-year degree in engineering at the associated school. This is a very flexible and powerful program. FMI: contact the program director, Peter Sheldon at pseldon@randolphcollege.edu and/or visit randolphcollege.edu/academics/majors/engineering/.

STEM Scholarships and A SUPER Program

Two grants totaling \$1,600,000 from the National Science Foundation (NSF)'s Scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) program allow Randolph College to make college more accessible for physical science and math majors.

The scholarship program, "Step-Up to Physical Science and Engineering at Randolph College (SUPER)," builds on Randolph's SUPER College

Transition Program, a two-week, intensive, three-credit course that begins before first-years arrive on campus. The cost includes three credits, room, board, field trip costs, and supplies, and all students accepted into the program receive scholarships to cover this cost.

FMI: randolphcollege.edu/research/stem-scholarships/

Physicists explore the fundamental properties and laws that govern space, time, energy, and matter. Some physicists study theoretical areas, such as the fundamental properties of atoms and molecules and the evolution of the universe. Others design and perform experiments with sophisticated equipment such as particle accelerators, electron microscopes, and lasers. Many apply their knowledge of physics to practical objectives, such as developing advanced materials and medical equipment.

Physicists typically do the following:

Develop scientific theories and models that attempt to explain the properties of the natural world, such as the force of gravity or the formation of sub-atomic particles

- Plan and conduct scientific experiments and studies to test theories and discover properties of matter and energy
- Write proposals and apply for funding to conduct research
- Perform complex mathematical calculations to analyze physical and astronomical data, such as data that may indicate the existence of planets in distant solar systems or new properties of materials
- Design new scientific equipment, such as telescopes and lasers
- Develop computer software to analyze and model data
- Write scientific papers that may be published in scholarly journals
- Present research findings at scientific conferences and lectures

Physicists held about 17,900 jobs in 2016.

The largest employers of physicists were as follows:

30% perform scientific research and development services
22% work with colleges, universities, and professional schools; state, local, and private
19% are employed by Federal governments
8% in hospitals; state, local, and private
4% work with ambulatory healthcare services

2017 Median Pay \$117,220 per year or \$61. per hour
U.S. Bureau of Labor Statistics <https://www.bls.gov/ooh>