

ONLINE COURSES

# FUNDAMENTALS OF ATOMIC FORCE MICROSCOPY



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## Part 1: Fundamental Aspects of AFM

*by Ron Reifenberger, Professor of Physics, Purdue University*

Schedule: August 27-September 28

**Week 1:** Non-contact tip-surface interactions

**Week 2:** The tip in contact with the surface

**Week 3:** AFM — the instrument

**Week 4:** Force spectroscopy and contact mode scans

**Week 5:** Computer simulations of AFM experiments using VEDA

## Part 2: Dynamic AFM Methods

*by Arvind Raman, Professor of Mechanical Engineering, Purdue University*

Schedule: October 15-November 16

**Week 1:** Point mass model of dynamic AFM

**Week 2:** Analytical theory of dynamic AFM

**Week 3:** Simulating dynamic AFM using VEDA

**Week 4:** Reconstructing surface forces

**Week 5:** Dynamic AFM for electrostatics/magnetics/biology

*Registration is \$30 per five-week course, or both courses for \$50.*

## INSTRUCTORS

**RON REIFENBERGER** (pictured right) has been on the faculty at Purdue University since 1978, and he brings over 30 years' experience in teaching introductory-level and undergraduate-level physics courses. His research focus has been scanning probe microscopy since 1985. Prof. Reifenberger is the director of the Kevin G. Hall Nanometrology Laboratory in the Birck Nanotechnology Center at Purdue.

**ARVIND RAMAN** (pictured left), professor of mechanical engineering and University Faculty Scholar at Purdue, has held visiting positions at the Universidad Autónoma de Madrid, Spain; University of Oxford (Wadham College); and Darmstadt University of Technology, Germany. Prof. Raman has received the Gustus Larson Memorial Award from the ASME, the CAREER award from the National Science Foundation, and has published more than 100 journal papers. His group developed and maintains VEDA, Virtual Environment for Dynamic AFM, one of the most-used simulation tools for AFM.



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