

Rubin H. Landau (Short CV)

(a) Professional Preparation

Cornell University	Engineering Physics	B.S. (with Distinction), 1965
University of Illinois	Physics	M.S., 1966
University of Illinois	Physics	Ph.D., 1970
University of Pittsburgh	Subatomic Theory	Research Associate, 1970-1972
University of British Columbia	Subatomic Theory	NRC Postdoctoral Fellow, 1972-1974

(b) Appointments

2003-	Oregon State University, Professor of Physics, Emeritus (half time teaching)
1999	Oregon State University Distinguished Professor
1998	Fellow American Physical Society
1997	Inst. Nonlinear Science, Center Adv. Computational Sci., UCSD, Visitor
1991, 1992	Nuclear Theory Institute, Seattle, Fellow
1988	Melbourne & Universities, Australia, Visiting Faculty
1988	IBM Research, Yorktown Heights, Visiting Professor
1983-2003	Oregon State University, Professor of Physics
1982	Hebrew University of Jerusalem, Weitzman Institute, Visiting Scientist
1981-1982	University of Surrey, UK, Science Research Council Sr. Fellow
1978-1983	Oregon State University, Associate Professor of Physics
1977-1978	Lawrence Berkeley Laboratory, Physicist
1975-1985	Tri Universities Meson Facility, Visiting Scientist
1974-1977	Oregon State University, Assistant Professor of Physics

(c) Publications

1. *A Survey of Computational Physics*, R. H. Landau and C. C. Bordeianu, Princeton University Press, Princeton, 2008, press.princeton.edu/titles/8704.html.
2. *Computational Physics, Problem Solving with Computers, Second Edition*, R. H. Landau, M. J. Paez, and C.C. Bordeianu, Wiley-VCH, Berlin, 2007, www.wiley.com/WileyCDA/WileyTitle/productCd-3527406263.html.
3. *Resource Letter CP-2: Computational Physics*, R.H. Landau, Amer. J. of Phys., **76**, No.4-5, 296-306 (2008), scitation.aip.org/getpdf/servlet/GetPDFServlet?filetype=pdf&id=AJPIAS000076000004000296000001&idtype=cvips.
4. *What to Teach? Computational Science as an Improved Model for Science Education*, Microsoft Research Faculty Summit on *Computational Education for Scientists*, July 2008.
5. *Computational Physics: A Better Model for Physics Education?*, *Computing in Sci & Engr*, **8**, 22-30, Sept/Oct. 2006.
6. *A First Course in Scientific Computing, Symbolic, Graphic, and Numerical Modeling Using Maple, Java, Mathematica, and Fortran90*, R.H. Landau, Princeton University Press, Princeton, 2005, pup.princeton.edu/titles/7916.html; winner American Library Association's *Choice Magazine's* 2005 Outstanding Academic Titles Award; winner, DOE/Krell 2006 prize for computational science education.
7. *Computational Physics for Undergraduates, the CPUG Degree Program at Oregon State University*, R. H. Landau, *Computing in Sci & Engr*, **6**, 68-75, March/April 2004.
8. *Elements of Computational Science Education*, O. Yaser & R. Landau, *SIAM Rev*, **45**, 787-805, 2003.

9. *Future Scientific Digital Documents with MathML, XML, and SVG*, R. Landau, D. Vediner, P. Wattananakasiwich, and K. Kyle, *IEEE Computing in Sci & Engr*, **4**, 77-86, March 2002.

10. *Web-Enhanced Undergraduate Course and Book for Computational Physics*, R.H. Landau, H. Kowallik, and M. J. Paez, *Computers in Phys.*, **12**, 240-247, 1998; www.aip.org/cip/pdf/landau.pdf

(d) Synergistic Activities

From 1974-2000 Landau directed a basic research program in computational and theoretical particle physics and nuclear physics (over 80 publications) funded by the DOE and NSF. While at Oregon State University, he introduced five new undergraduate courses in Computational Physics and Science, a graduate course in Nonlinear Dynamics, and a new curriculum for graduate-level Advanced Quantum Mechanics. After gaining departmental, college, university and state approval, in 2001 Landau founded, and now directs, the B.S. Degree program in Computational Physics (CPUG). The program combines the new courses with those in the Math and CS departments to provide a multidisciplinary, research-rich approach to modern physics education. This program has received interest as a model for future physics education, and Landau regularly consults with other schools, reviews their programs, and contributes to CP development in South Africa, Colombia, Korea, Ireland and India.

Landau has been the principal author on the 1) *Survey of Computational Physics*, Princeton, 2) *A First Course in Scientific Computing*, Princeton, 3) *Computational Physics, Problem Solving with Computers*, Wiley, 4) *A Scientist's Guide to Workstations and Supercomputers*, Wiley, 5) *Quantum Mechanics II*, Wiley, and 6) a large number of educational Web tutorials. Book 2 contains an innovative CD with alternate versions of the text in other computer languages, running codes, and Maple/Mathematica tutorials. Book 3 has been adopted by over 25 schools and has been modified and extended into book 1. The courses and books strive to encourage a systemic change in higher education by transferring knowledge, outlook, and codes developed in research into the classroom, as well as integrating advances in computer science, applied mathematics and physics into multidisciplinary courses.

Landau is presently the News and Views editor for the *IEEE/AIP Computing in Science & Engineering*, and Co Editor (with S. Gottlieb) of a Taylor & Francis book series on computational physics. He also serves on the Executive Committee of the APS's Division of Computational Physics (multiple terms), where he actively promotes education and has used that position to organize and chair more than 10 education sessions at national and international conferences. He has just started to serve on the AAPT's AAPT's Technology Committee and to organize CP tutorials there. Landau has also been part of the Education Program at the SCXY conferences for over seven years, has taught or organized workshops with the Shodor Foundation, has participated in teacher outreach activities and science fair judging for the Center for Math, Science & Technology Education at SUNY, Brockport, has worked with NSF and DOE study groups developing consensus on Computational Science Curricula, and has been active with Education Outreach and Training thrust of NPACI and Engaging People in Cyber Infrastructure, and most recently, with the Microsoft Research Computational Education for Scientists Faculty summit.