

N. SANJAY REBELLO

A. Professional Preparation

Institution	Major/Area	Degree & Year
Birla Institute of Technology & Science, India	Physics	M.Sc., 1989
	Electrical & Electronics	B.E., 1989
Brown University, Providence, RI	Physics	Sc.M., 1992
	Engineering	Sc.M., 1992
Brown University, Providence, RI	Physics	Ph. D., 1995
Kansas State University, Manhattan, KS	Physics Education Research	Post-doc, 1995 – 1998

B. Appointments

2001 – Assistant Professor, Physics Department, Kansas State University.

1998 – 2001 Assistant Professor, Physics Department, Clarion University of Pennsylvania

1995 – 1998 Research Associate, Physics Education Group, Kansas State University.

1993 – 1994 Fellow, Center for the Advancement of College Teaching, Brown University.

1989 – 1995 Teaching Assistant, Physics Department, Brown University.

C. Publications

i. Five Closely Related Publications

1. “Student explorations of quantum effects in LEDs and luminescent devices,” Lawrence T. Escalada, N. Sanjay Rebello, and Dean A. Zollman, *The Physics Teacher*, Vol. 42, March 2004, pp.173-179.
2. “Quantum mechanics for everyone: Hands-on activities integrated with technology,” Dean A. Zollman, N. Sanjay Rebello, and Kirsten Hogg, *American Journal of Physics*, Vol. 70, No. 3, March 2002, pp. 252-259.
3. “Simulating the spectra of light sources,” N. Sanjay Rebello, Chandima Cumararatunge, Lawrence T. Escalada, and Dean A. Zollman, *Computers in Physics*, Vol. 12, No. 1, Jan-Feb, 1998.
4. “Computer simulation of P-N junction devices,” N. Sanjay Rebello, Chandramouli Ravipati, Dean A. Zollman, and Lawrence T. Escalada, *American Journal of Physics*, Vol. 95, No. 8, August 1997.
5. “Learning the physics of a scanning tunneling microscope (STM) using a computer program,” N. Sanjay Rebello, Konstantin Sushenko, and Dean A. Zollman, *European Journal of Physics*, Vol. 18, 1997, pp. 456-461.

ii. Five Other Significant Publications

1. “How many students does it take before we see the light,” Paula V. Engelhardt, Kara E. Gray, and N. Sanjay Rebello, *The Physics Teacher*, Vol. 42, April 2004, pp.216-221.
2. “A framework for the dynamics of student reasoning in an interview,” Salomon F. Itza-Ortiz, Alicia R. Allbaugh, Paula V. Engelhardt, Kara E. Gray, Zdeslav Hrepic, N. Sanjay Rebello and Dean A. Zollman, *Proceedings of the Annual Meeting of the National Association for Research in Science Teaching*, April 1-3, 2004, Vancouver BC.
3. “The vocabulary of introductory physics and its implications for learning physics,” Salomon F. Itza-Ortiz, N. Sanjay Rebello, Dean A. Zollman and Manuel Rodriguez-Achach, *The Physics Teacher*, Vol. 41, September 2003, pp.41-46.
4. “How to distribute your software over the Web,” N. Sanjay Rebello, *Computers in Science & Engineering*, Vol. 1, No. 6, Nov-Dec 1999.
5. “Visualizing motion in potential wells,” Pratibha Jolly, Dean Zollman, N. Sanjay Rebello and Albena Dimitrova, *American Journal of Physics*, Vol. 65, No. 11, November, 1997.

D. Synergistic Activities

Technology & models-based conceptual assessment and research on students. applications of models in physics & mathematics: (Supported by NSF.s ROLE Grant . P.I. Dean A. Zollman). Collaborated with undergraduate, graduate, post-doctoral and faculty researchers in conducting interviews to understand student reasoning, developing analytical frameworks, and designing surveys to better understand students. internal knowledge structures and how they change with instruction and context of the problem situation.

Students. mental models of real-world devices and application-based curriculum development: (Supported by NSF.s CAREER/PECASE Grant . P.I. N. Sanjay Rebello). Collaborated with and led undergraduate and graduate students and a post-doctoral research associate in conducting interviews and developing and adapting new research methodologies to understand how students make sense of everyday devices, and how this research can inform curriculum and instructional design.

Student.s transfer of learning and retention from mathematics to physics and engineering courses (Supported by NSF.s ASA Grant . P.I. Andrew G. Bennett . Dept. of Mathematics). Collaborated with graduate students and faculty in Physics, Mathematics & Engineering to develop, administer and analyze surveys instruments and interview protocols, as well as online homework data to understand how students transfer their knowledge and skills as they move through the curriculum from mathematics to physics and engineering courses.

Visual Quantum Mechanics: (Supported by NSF.s ESIE Grant . P.I. Dean A. Zollman). Collaborated with undergraduate, graduate, post-doctoral and faculty researchers in creating, testing and evaluation of curricular material consisting of computer programs, experiments, and documentation, aimed at teaching quantum physics to high school and introductory college students who do not have any background in higher level mathematics or quantum physics. These materials emphasize interactive visualization and hands-on learning in an activity-based environment where students create their own knowledge. Responsibilities included design, development and pilot-testing of the instructional materials, written materials, experiment kits and software; interacting and supporting field-testers and evaluating student understanding as they used these materials, and conducting workshops at local regional and national meetings.

E. Collaborators & Other Affiliations

i. Collaborators:

Andrew G. Bennett (Mathematics Department, Kansas State University)
Dean A. Zollman (Physics Department, Kansas State University)
Sadhana Puntambekar (Dept. of Educational Psychology, University of Wisconsin)
Doris J. Wagner (Physics Department Rensselaer Polytechnic Institute)
S. Raj Chaudhury (Physics Department, Norfolk State University)

ii. Graduate Advisors: Fred S. Shoucair and Hendrik J. Gerritsen Postdoctoral Advisor: Dean A. Zollman

iii. Thesis Advisor and Postgraduate-Scholar Sponsor:

Paula Engelhardt, Postdoctoral Research Associate, 2002 – 2004
Peter R. Fletcher, Postdoctoral Research Associate, 2004 –
Edgar Corpuz, Ph.D. candidate, 2003 –
Darryl Ozimek, M.S. 2002 – 2004
Kara E. Gray, M.S. 2003 – 2004
Charles Mamolo, M.S. candidate, 2004–