

Jacquelyn J. Chini

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EDUCATION

Ph.D. Physics, Kansas State University, December 2010

Thesis: *Comparing Students' Learning with Physical and Virtual Manipulatives*

Advisor: N. Sanjay Rebello

B.A. Physics, Drew University, May 2006

Minors: Mathematics, Sociology

PROFESSIONAL APPOINTMENTS

2013 – Present Director of Learning Assistant Program & Lecturer, University of Central Florida
2012 – 2013 Postdoctoral Research and Teaching Associate, University of Central Florida
2011 – 2012 Visiting Assistant Professor, University of Central Florida
2010 Adjunct, Cloud County Community College

GRANTS

2014 – 2016 *Collaborative Research: Investigating Institutional Success at Overcoming Challenges in Algebra-based Studio Physics*, National Science Foundation, Jacquelyn Chini (PI), \$155,849.
2013 – 2015 *Active Learning Strategies for Algebra-based Introductory Physics at UCF*, National Science Foundation, Talat Rahman (PI), Abdelkader Kara (co-PI), Archana Dubey (co-PI), Jacquelyn Chini (co-PI) and Elena Flitsiyan (co-PI), \$199,972.
2013 – 2016 *PhysTEC Comprehensive Site*, American Physical Society, Talat Rahman (PI), Jacquelyn Chini (co-PI), Malcolm Butler (co-PI), Joshua Colwell (co-PI) and Elena Flitsiyan (co-PI), \$320,000.

AWARDS, HONORS AND FELLOWSHIPS

2014 – 2015 iSTEM Faculty Fellow, University of Central Florida
2013 Pi Beta Phi Professor
2009 – 2010 NSF GK-12 Fellowship
2006 – 2008 Timothy R. Donoghue Graduate Fellowship
2006 Novartis Award in the Sciences, Physics Department
2006 Sigma Pi Sigma (Physics Honor Society)
2006 Phi Beta Kappa (Academic Honor Society)
2005 Pi Mu Epsilon (Mathematics Honor Society)
2005 Leadership Scholarship, Society of Physics Students

SERVICE TO PROFESSION

- 2013 – Present PhysTEC Committee, developing workshops for physics and physical science teachers
- 2010 – Present Reviewer, *Physical Review Special Topics- Physics Education Research*
- 2014 – Present Reviewer, *The Physics Teacher*
- 2012 – 2013 Local Organizing Committee, Southeast Conference for Undergraduate Women in Physics

RESEARCH EXPERIENCE

Investigating Success of Algebra-based Studio Physics

University of Central Florida, 2014 – Present

Developing surveys to measure student characteristics; observing studio instruction; interviewing faculty, teaching assistants and students.

Investigating Professional Development of Teaching and Learning Assistants

University of Central Florida, 2012 – Present

Analyzed teaching assistants' implementation of laboratory curriculum; studied learning assistants' development of questioning skills with TLE TeachLivE™ at UCF teaching simulation.

Implementing Research-based Instructional Strategies

University of Central Florida, 2011 – Present

Led pre- and post-test assessments of all introductory physics courses; designed Learning Assistant Program based on the University of Colorado, Boulder model; developed worksheets for mini-studios; assessed graduate teaching assistants' implementation of redesigned labs; investigated student experience in traditional and reformed courses; presented results both locally and at national meetings.

Investigating Students' Learning with Physical and Virtual Manipulatives,

Kansas State University, 2007 - 2010

In collaboration with a group at the University of Wisconsin, designed and executed a mixed methods research project on what students learned from performing experiments with physical and virtual equipment; conducted and analyzed interviews; conducted and analyzed in class implementations in traditional and reformed introductory physics laboratories; disseminated results.

Exploring Student Understanding of Everyday Electrical Devices,

Kansas State University, 2005 - 2010

Designed and executed a qualitative research project on undergraduate students' attitudes and conceptions about everyday electrical devices; conducted and analyzed interviews; disseminated results.

Redesigning Introductory Physics Laboratory,

Drew University, 2004 - 2005

Adapted research-based pedagogical strategies (e.g. *Tutorials in Physics*) to redesign an introductory physics lab on optics and conducted a survey on students' reactions to the new lab; Designed an advanced high school level lab on geometrical optics and holography for use in the New Jersey Governor's School of the Sciences.

TEACHING EXPERIENCE

Studio-mode Introductory Physics Instructor, University of Central Florida, 2012 – Present

Instructor of record for an integrated studio-mode calculus-based course for a class of 99 students; advised a graduate teaching assistant and undergraduate learning assistant.

Mini-studio Introductory Physics Developer and Instructor, University of Central Florida, 2011 – Present

Designed and led integrated conceptual, mathematical and experimental exercises for an algebra-based introductory physics course; Instructed multiple 32 student sections; Disseminated materials to other instructors.

Learning Assistant Seminar Developer and Instructor, University of Central Florida, 2012 – Present
Designed and led physics pedagogy seminar for students serving as Learning Assistants in physics courses; Topics include models of learning, effective learning strategies and effective teaching strategies.

Graduate Teaching Assistant Seminar Developer and Instructor, University of Central Florida, 2014
Adapted Learning Assistant Seminar model for graduate teaching assistants, including over 50% international students.

Introductory Physics Instructor, University of Central Florida, 2011
Instructor of record for a traditional calculus-based course for a class of 90 with three associated recitation sections; advised two teaching assistants.

Introductory Physics Instructor, Cloud County Community College, 2010
Instructor of record for a new algebra-based physics course for 6 students with associated laboratory.

GK-12 Fellow, Physics and Chemistry, Junction City High School, 2009 – 2010
Designed and led lessons for high school physics and chemistry classes, with a focus on inquiry, evidence-based reasoning, and novel content. (e.g. Atomic spectra in the context of UPC labels; Learning about lasers through kinesthetic activities and simulations); assisted classroom teacher with regular class activities.

Lead Studio Laboratory Instructor, Physics Department, Kansas State University, 2007- 2009
Taught integrated laboratory problem-solving sessions for a class of 40 students in a calculus-based physics course for future engineers, with focus on collaborative work; prepared and graded quizzes, supervised a TA, conducted large review sessions before exams.

Secondary Studio Laboratory Instructor, Physics Department, Kansas State University, 2007
Assisted lead instructor in integrated laboratory and problem-solving sessions for a class of 40 students in a calculus-based physics course; graded homework and labs.

Teaching Assistant, Physics Department, Drew University, 2004-2006
Led introductory physics tutoring sessions; assisted students with observational astronomy assignments; assisted in joint algebra- and calculus-based physics lab of about 20 students; assisted in sophomore/junior-level and advanced high school level electronics labs.

PUBLICATIONS AND CONFERENCE ACTIVITY

Refereed Journal Articles

1. “Exploration of Factors that Affect the Comparative Effectiveness of Physical and Virtual Manipulatives in an Undergraduate Laboratory,” Jacquelyn J. Chini, Adrian Madsen, Elizabeth Gire, N. Sanjay Rebello and Sadhana Puntambekar, *Physical Review Special Topics Physics Education Research* 8, 010113 (2012), <http://link.aps.org/doi/10.1103/PhysRevSTPER.8.010113>.

Invited Talks

1. “One Size Fits All? Tailoring Course Transformations for Students and Instructors,” Jacquelyn J. Chini, Rowan University, March 6, 2015.
2. “Choose Your Own Adventure: Studio Physics Courses at UCF,” Jacquelyn J. Chini, National Science Teachers Association Area Conference, Orlando, FL, November 6-8, 2014.
3. Regional Learning Assistant Workshop, Miami, FL, March 23 – 25, 2014.
4. “Research-based Course Reforms in Introductory Physics at UCF,” Jacquelyn J. Chini, The 13th International Conference on Molecule-based Magnets, Orlando, FL, October 7-11, 2012.

Refereed Conference Proceedings

1. “Comparing Traditional and Studio Courses through Gains and Losses,” Jacquelyn J. Chini and Jarrad W. T. Pond, *Proceedings of the 2014 Physics Education Research Conference*, July 30-31, 2014, Minneapolis, MN.

2. "Expectancy Violation in Traditional and Studio-mode Introductory Physics Courses," Jacquelyn J. Chini, Jon D. H. Gaffney and Ahlam Al-Rawi, *Proceedings of the 2013 Physics Education Research Conference*, July 17-18, 2013, Portland, OR.
3. "Using Expectancy Violation to Investigate Student Dissatisfaction in Studio Physics," Jon D. H. Gaffney, Amy L. Housley Gaffney and Jacquelyn J. Chini, *Proceedings of the 2013 Physics Education Research Conference*, July 17-18, 2013, Portland, OR.
4. "Alignment of TAs' Beliefs with Practice and Student Perceptions," Jacquelyn J. Chini and Ahlam Al-Rawi, *Proceedings of the 2012 Physics Education Research Conference*, August 1-2, 2012, Philadelphia, PA.
5. "What Do Students Learn about Work in Physical and Virtual Experiments with Inclined Planes?," Jacquelyn J. Chini, Adrian Madsen, N. Sanjay Rebello and Sadhana Puntambekar, *Proceedings of the 2011 Physics Education Research Conference*, August 3-4, 2011, Omaha, NE.
6. "Introductory College Students' Views on the Usefulness, Value for Learning and Trustworthiness of Physical and Virtual Manipulatives," Jacquelyn J. Chini, Adrian Carmichael, Elizabeth Gire, N. Sanjay Rebello and Sadhana Puntambekar, *Annual Meeting of the American Educational Research Association*, April 8-12, 2011, New Orleans, LA.
7. "Comparing Benefits of Hypertext Exploration versus Virtual Experimentation on Students' Analysis of Physical Experiments," Jacquelyn J. Chini, Adrian Carmichael, Elizabeth Gire, N. Sanjay Rebello and Sadhana Puntambekar, *Proceedings of the 2011 National Association for Research in Science Teaching Annual Meeting*, April 3-6, 2011, Orlando, FL.
8. "Effects of a Prior Virtual Experience on Students' Interpretations of Real Data," Jacquelyn J. Chini, Adrian Carmichael, Elizabeth Gire, N. Sanjay Rebello and Sadhana Puntambekar, *Proceedings of the 2010 Physics Education Research Conference*, July 21-22, 2010, Portland, OR.
9. "Comparing Students' Performance and Reasoning with Physical and Virtual Manipulatives to Learn About Pulleys," Jacquelyn J. Chini, Amy Rouinfar, Adrian Carmichael, Sadhana Puntambekar and N. Sanjay Rebello, accepted for publication in *Proceedings of the Annual Meeting of the National Association for Research in Science Teaching*, March 20-24, 2010, Philadelphia, PA.
10. "The Effects of Physical and Virtual Manipulatives on Students' Conceptual Learning About Pulleys," Elizabeth Gire, Adrian Carmichael, Jacquelyn J. Chini, Amy Rouinfar, N. Sanjay and Sadhana Puntambekar, accepted for publication for *International Conference of the Learning Science*, June 29 - July 2, 2010, Chicago, IL.
11. "Comparing the Effects of Physical and Virtual Experimentation Sequence on Students' Understanding of Mechanics," Adrian Carmichael, Jacquelyn J. Chini, N. Sanjay Rebello and Sadhana Puntambekar, accepted for publication for *Annual Meeting of the American Educational Research Association*, April 30 – May 4, 2010, Denver, CO.
12. "Investigating Change and Consistency in Introductory College Students' Understanding About Pulleys," Amy Rouinfar, Jacquelyn J. Chini, Adrian Carmichael, Sadhana Puntambekar and N. Sanjay Rebello, accepted for publication in *Proceedings of the Annual Meeting of the National Association for Research in Science Teaching*, March 20-24, 2010, Philadelphia, PA.
13. "Qualitative Analysis of the Effects of Sequence of Physical and Virtual Activities on Student Conceptual Understanding in Mechanics," Adrian Carmichael, Jacquelyn J. Chini, Sadhana Puntambekar and N. Sanjay Rebello, accepted for publication in *Proceedings of the Annual Meeting of the National Association for Research in Science Teaching*, March 20-24, 2010, Philadelphia, PA.
14. "Does the Teaching/Learning Interview Provide an Accurate Snapshot of Classroom Learning?," Jacquelyn J. Chini, Adrian Carmichael, N. Sanjay Rebello and Sadhana Puntambekar, *Proceedings of the 2009 Physics Education Research Conference*, July 29-30, 2009, Ann Arbor, MI.
15. "Future Elementary School Teachers Integrating Hypertext with Hands-on Experiments in a Design-based Context," Jacquelyn J. Chini, N. Sanjay Rebello and Sadhana Puntambekar, *Proceedings of the Annual Meeting of the National Association for Research in Science Teaching*, April 17-21, 2009, Garden Grove, CA

16. "Comparing the Effects of Simulations and Hands on Activities on Student Learning," Adrian Carmichael, Jacquelyn J. Chini, N. Sanjay Rebello and Sadhana Puntambekar, *Proceedings of the 2009 Physics Education Research Conference*, July 29-30, 2009, Ann Arbor, MI.
17. "Students' Understanding of Inclined Planes Using the CoMPASS Curriculum," Jacquelyn J. Chini, N. Sanjay Rebello and Sadhana Puntambekar, *Proceedings of the 2008 Physics Education Research Conference*, July 23-24, 2008, Edmonton, Canada.
18. "Dynamic Transfer in the Context of an Electric Blender," Jacquelyn J. Haynicz and N. Sanjay Rebello, *Proceedings of the Annual Meeting of the National Association for Research in Science Teaching*, March 30- April 2, 2008, Baltimore, MD.
19. "Students' Ideas of a Blender and Perceptions of Scaffolding Activities," Jacquelyn J. Haynicz and N. Sanjay Rebello, *Proceedings of the 2007 Physics Education Research Conference*, August 1-2, 2007, Greensboro, NC.
20. "College Students' Ideas About Some Everyday Electrical Devices," Jacquelyn J. Haynicz, Peter Fletcher and N. Sanjay Rebello, *Proceedings of the Annual Meeting of the National Association for Research in Science Teaching*, April 3-6, 2006, San Francisco, CA.

Invited Workshops

1. STEM Education Workshop, White House College Opportunity Initiative, October 1, 2014, Florida International University, Miami, FL.

Conference Talks and Posters

1. "Student Characteristics Influencing Success in Studio Physics: First Steps," Jacquelyn J. Chini and Jarrad W. T. Pond, *American Association of Physics Teachers Summer Conference*, Minneapolis, MN, July 26 - 30, 2014.
2. "Implementing PER-based Tutorials in the Second-semester Algebra-based Lecture-supported Mini-studio," Jarrad W. T. Pond, Archana Dubey, Jacquelyn J. Chini and Talat S. Rahman, *American Association of Physics Teachers Summer Conference*, Minneapolis, MN, July 26 - 30, 2014.
3. "'Is This Real Life?'" Mixed Reality Training for Learning Assistants," Jacquelyn J. Chini, Kevin H. Thomas, Malcolm Butler and Talat S. Rahman, *American Association of Physics Teachers Summer Conference*, Minneapolis, MN, July 26 - 30, 2014.
4. "'Is This Real Life?'" Mixed Reality Training for Learning Assistants," Jacquelyn J. Chini, Kevin H. Thomas, Malcolm Butler and Talat S. Rahman, *Physics Teacher Education Coalition Conference*, Austin, TX, May 19-20, 2014.
5. "PhysTEC Comprehensive Site at UCF: Early Snapshots," Talat S. Rahman, Jacquelyn J. Chini, and Kevin H. Thomas, *Physics Teacher Education Coalition Conference*, Austin, TX, May 19-20, 2014.
6. "Who is Teaching High School Physics in Central Florida?," Jacquelyn J. Chini, Kevin H. Thomas, Malcolm Butler and Talat S. Rahman, *American Association of Physics Teachers Winter Conference*, Orlando, FL, January 4 - 7, 2014.
7. "Implementing PER-based Materials in the Introductory Algebra-based Lecture-supported Mini-studio," Jarrad W. T. Pond, Jacquelyn J. Chini and Talat S. Rahman, *American Association of Physics Teachers Winter Conference*, Orlando, FL, January 4 - 7, 2014.
8. "Lecture Supported Mini-Studio Approach to Algebra-based Physics: First Steps," Jacquelyn J. Chini and Talat S. Rahman, *Summer Meeting of the American Association of Physics Teachers*, July 13 - 17, 2013, Portland, OR.
9. "Assessment of Effectiveness of Studio-Mode Instruction in Algebra-based Physics Courses," Archana Dubey and Jacquelyn J. Chini, *Winter Meeting of the American Association of Physics Teachers*, January 5 - 9, 2013, New Orleans, LA.
10. "What Are Our Goals? TAs' Views About Introductory Laboratories," Jacquelyn J. Chini and Ahlam Al-Rawi, *Summer Meeting of the American Association of Physics Teachers*, July 28 - August 1, 2012, Philadelphia, PA.

11. "Studying Students' Problem Solving Skills in Algebra-based Introductory Physics Courses," Archana Dubey and Jacquelyn J. Chini, *Summer Meeting of the American Association of Physics Teachers*, July 28 – August 1, 2012, Philadelphia, PA.
12. "Assessing the Algebra-based Electricity and Magnetism Studio: First Steps," Jacquelyn J. Chini and Archana Dubey, *Summer Meeting of the American Association of Physics Teachers*, July 30 – August 3, 2011, Omaha, NE.
13. "How Physical and Virtual Experiments Influence Students' Understanding of Pulleys," Jacquelyn J. Chini, Elizabeth Gire, Adrian Carmichael, N. Sanjay Rebello and Sadhana Puntambekar, *Summer Meeting of the American Association of Physics Teachers*, July 17 – 23, 2010, Portland, OR.
14. "Effects of Temporal Order of Physical and Virtual Activities," Adrian Carmichael, Jacquelyn J. Chini, Elizabeth Gire, N. Sanjay Rebello and Sadhana Puntambekar, *Summer Meeting of the American Association of Physics Teachers*, July 17 – 23, 2010, Portland, OR.
15. "When Would Students Use Physical or Virtual Data?," Jacquelyn J. Chini, Adrian Carmichael, Elizabeth Gire, N. Sanjay Rebello and Sadhana Puntambekar, *Summer Meeting of the American Association of Physics Teachers*, July 17 – 23, 2010, Portland, OR.
16. "Students' Views of Data Collected from Physical and Virtual Manipulatives," Jacquelyn J. Chini, Elizabeth Gire, Adrian Carmichael, N. Sanjay Rebello and Sadhana Puntambekar, *Winter Meeting of the American Association of Physics Teachers*, February 13-17, 2010, Washington, D.C.
17. "Students' Views of Physical and Virtual Experiments with Pulleys," Jacquelyn J. Chini, Elizabeth Gire, Adrian Carmichael, N. Sanjay Rebello and Sadhana Puntambekar, *Winter Meeting of the American Association of Physics Teachers*, February 13-17, 2010, Washington, D.C.
18. "Exploring the Benefits of Physical and Virtual Manipulatives in Simple Machines," Jacquelyn J. Chini, Adrian Carmichael and N. Sanjay Rebello, *Fall Meeting of the Arkansas-Oklahoma-Kansas Section of the American Association of Physics Teachers*, October 9-10, 2009, Manhattan, KS.
19. "Interview vs. Classroom: How Do the Data Compare?," Jacquelyn J. Chini, Adrian Carmichael, N. Sanjay Rebello and Sadhana Puntambekar, *Summer Meeting of the American Association of Physics Teachers*, July 25-29, 2009, Ann Arbor, MI.
20. "Can Simulations Replace Hands-on Experiments in Mechanics, Too?," Jacquelyn J. Chini, Adrian Carmichael, N. Sanjay Rebello and Sadhana Puntambekar, *Summer Meeting of the American Association of Physics Teachers*, July 25-29, 2009, Ann Arbor, MI.
21. "Effectiveness of Hands-on Experiments vs. Computer Simulations in Mechanics," Adrian Carmichael, Jacquelyn J. Chini, N. Sanjay Rebello and Sadhana Puntambekar, *Summer Meeting of the American Association of Physics Teachers*, July 25-29, 2009, Ann Arbor, MI.
22. "How Does Classroom or Interview Room Affect Research Data?," Contributed Poster, Adrian Carmichael, Jacquelyn J. Chini, N. Sanjay Rebello and Sadhana Puntambekar, *Summer Meeting of the American Association of Physics Teachers*, July 25-29, 2009, Ann Arbor, MI.
23. "Students' Ideas of Force-Distance Tradeoff in an Inclined Plane," Jacquelyn J. Chini, N. Sanjay Rebello and Sadhana Puntambekar, *Summer Meeting of the American Association of Physics Teachers*, April 19-23, 2008, Edmonton, Canada.
24. "Teaching Electromagnetic Motors in Context: Students' Views," Jacquelyn J. Haynicz and N. Sanjay Rebello, *Fall Meeting of the Arkansas-Oklahoma-Kansas Section of the American Association of Physics Teachers*, October 19-20, 2007, Conway, AR.
25. "Students' Ideas of a Blender and Perceptions of Scaffolding Activities," Jacquelyn J. Haynicz and N. Sanjay Rebello, *Physics Education Research Conference*, August 1-2, 2007, Greensboro, NC.
26. "Facilitating Student Understanding of Motors in an Everyday Context," Jacquelyn J. Haynicz and N. Sanjay Rebello, *Summer Meeting of the American Association of Physics Teachers*, July 28- August 1, 2007, Greensboro, NC.
27. "Probing and Improving Students' Understanding of Common Electrical Devices," Jacquelyn J. Haynicz and N. Sanjay Rebello, *Fall Meeting of the Arkansas-Oklahoma-Kansas Section of the American Association of Physics Teachers*, October 27-28, 2006, Emporia, KS.

Campus Talks

1. "Questioning Techniques," Jacquelyn J. Chini, University of Central Florida EXCEL Graduate Teaching Assistant Training, August 14, 2014.
2. "Fostering Leadership and Communication Skills through the Learning Assistant Program," Jacquelyn J. Chini, Faculty Center Winter Conference, December 11 – 13, 2013.
3. "Using Whiteboards in Introductory Physics Recitations," Jacquelyn J. Chini, Faculty Center Winter Conference, December 12 – 14, 2013.

DEPARTMENT/UNIVERSITY SERVICE

Physics Assessment Committee, Chair, 2014 – Present
Physics Undergraduate Curriculum Committee, 2013 – Present
Physics Outreach Committee, 2013 - 2014
Physics Pedagogy Seminar leader, 2012- Present
Discipline-based Education Reading Group co-leader, 2012- Present
National Science Olympiad Judge, 2012
Physics Education Research Faculty Search Committee, 2010
Graduate Physics Students Association, Co-President, 2009-2010
Middle School Science Fair Judge, 2010
Graduate Physics Students Association, Secretary, 2008-2009
Graduate Student Selection Committee, Physics Department, 2007-2008
Girls Reaching Our World (GROW) Workshop Assistant, 2005, 2007, 2009
Associate Zone Counselor of Zone 3, Society of Physics Students, 2005-2006
President, Society of Physics Students, Drew University, 2005-2006
Editor, 'Dilated Times' Physics Department Newsletter, 2004-2005

PROFESSIONAL ASSOCIATIONS

American Association of Physics Teachers
National Association for Research in Science Teaching
Society of Physics Students

STUDENTS ADVISED

Graduate Students

Jarrad Pond (2013 – Present)
Matthew Wilcox (2014 – Present)

Undergraduate Students

Alexa LaMotte (2013 – 2014)
Westley James (2014 – Present)
Stefan Engelhardt (2014 – Present)
Caleb Kasprzyk (2015 – Present)