

XIMENA CLARA CUICATL CID

xcid@uta.edu

(817) 272-2443

Department of Physics

University of Texas at Arlington

EDUCATION

University of Texas at Arlington, Arlington, Tx
Ph.D. in Physics, *in progress (ABD)* (Aug. 2007 – Present)

University of Texas at Arlington, Arlington, Tx
Master's in Physics (Non-Thesis) (May 2010)

Florida Institute of Technology, Melbourne, Fl
No Degree Awarded (Transferred Universities) (Aug. 2006 – Aug 2007)

University of California at Berkeley, Berkeley, Ca
Bachelors in Astrophysics (May 2005)

RESEARCH

University of Texas at Arlington
Physics Education Research under Dr. Ramon Lopez (Aug. 2007 – Present)

My research focuses on visual spatial cognitive abilities and how they correlate with success in physics and space sciences. Physics and Space Sciences are highly spatial in nature and trying to imagine a system in your mind, manipulate that system, and then solve a problem can lead to an increase in cognitive load where the student is unable to correctly solve the problem. We collect data via assessments (ex. Force Concept Inventory, Mental Rotation Test, Paper Folding Test, etc.) as well as through interviews.

Florida Institute of Technology
Physics Education Research under Dr. Ramon Lopez (Aug. 2006 – Aug. 2007)

We conducted experiments with undergraduates in an interdisciplinary science course, lower division and upper division undergraduate physics courses, and summer REU physics students. We explored how students interpret color when used as a third dimension.

Research Internship under Dr. Ramon Lopez (June 2005 – Aug. 2005)

I was given an introduction to Physics Education Research while using visualizations of current systems in the magnetotail during substorms. I expanded a study in which students were asked to identify the direction of the induced magnetic fields from field-

align currents during substorm events. The experiment compared how different visuals aided or hindered student comprehension of the system.

University of California at Berkeley, Space Science Laboratories (SSL)

Undergraduate Research under Dr. Janet Luhmann

(Aug. 2003 – Dec. 2004)

Our group focused on solar energetic particles (SEPs) from coronal mass ejections (CME) and solar flares. I collected satellite data from the ACE spacecraft repository. I was working on identify the origin of SEPs during solar events. We were interested in multiple events that were generated from the same active solar region as it progressed across the solar disk. A CME is almost always accompanied with a solar flare event. We asked whether the heavy protons and ions were generated in the solar corona during a CME or from the surface of the sun during the solar flare event.

TEACHING

University of Texas at Arlington

Courses Taught

SCIE 3301: Physical Science - Physics (Physics for Teachers in College of Education)

(Spring 2010; Fall 2010)

Courses are between 30 and 35 students each semester. My duties include lecture preparation, homework preparation and grading, exam preparation and grading, and office hours. I require my students to turn in note cards after each lecture with a question about the lecture material, lab material, homework material, or something related to physics that they find interesting. At the beginning of the following lecture, I answer a small subset of questions from the note cards. I find that this helps the students get comfortable with asking questions in class. I also require my students to attend at least two office hours for two reasons:

1. To get to know them on a more personal level
2. To get them used to attending office hours, especially for other courses they are taking

PHYS 1445: Introductory Astronomy (For non-majors in Department of Physics)

(Fall 2009)

Courses are between 60 and 100 students every semester. My duties include lecture preparation, homework preparation and grading, exam preparation and grading, and office hours. I require my students to turn in note cards after each lecture with a question about the lecture material, lab material, homework material, or something related to physics that they find interesting. At the beginning of the following lecture, I answer a small subset of questions from the note cards. I find that this helps the students get comfortable with asking questions in class. I also require my students to attend at least two office hour for reasons stated above.

Substitute Instructor

PHYS 1445: Introductory Astronomy (When needed) (Summer 2009 – Present)

Instructor provides lecture notes and my duties are simply to go through lectures while the instructor is out and answer any questions that students might have.

Graduate Student Mentor (Aug. 2006 – Present)

The environment of our research lab is such that more experienced graduate students mentor new graduate students and undergraduate students. I have been responsible for training and teaching new students about the space physics environment relevant to our lab's research focus. I have led sessions on career development, specifically on the use of statistics in research and how to use PowerPoint to create talks and posters. I have led sessions on how to create an efficient presentation, in terms of content and structure. I have been in charge of our writing circles, where we review publications and learn how to critique and write scientifically. I have been available for tutoring in physics courses. I have been in charge of leading graduate school informational nights for our undergraduates as well as for the Society of Physics Students (SPS).

University of California at Berkeley

Undergraduate Student Assistant (UGA) with the Professional Development Program (PDP)

MATH 32: Pre-Calculus (Fall 2003; Fall 2004)

My duties were to assist the graduate student instructor during the lab sessions. I held my own office hours, graded homework, and created review sessions. I was also required to help train new UGAs.

Teaching Assistant for the Early Academic Outreach Program's (EAOP) Pre-College Academy (PCA)

- Calculus (Summer 2004)
- Geometry (Summer 2003)

My duties were to assist the instructor with course material. I held my own office hours, created review sessions, proctored exams, and helped grade exams and homework.

PEER-REVIEWED PUBLICATIONS

- Cid, X. C. and Lopez, R. E., The Impact of Stereo Display on Student Understanding of Phases of the Moon, *Astronomy Education Review*, v. 9(1), 010105, 10.3847/AER2009044, 2010

- Cid, X. C., Lopez, R. E., and Lazarus, S. M., Issues Regarding Student Interpretation of Color as a Third Dimension on Graphical Representations, *Journal of Geoscience Education*, v. 57(5), p. 372, 2009

CONFERENCES

Invited Talks

- **Purdue University Colloquium** (Sept. 2010)
Science Education Colloquium
Title: Visual Cognition and Spatial Ability in Physics and Space Sciences
Author(s): Ximena Cid
Location: West Lafayette, IN

Talks

- **American Association of Physics Teachers (AAPT)** (Jan. 2011)
Annual winter National Conference
Title: Visual Cognition and Spatial Ability in Physics and Other STEM Fields
Author(s): Ximena Cid and Ramon Lopez
Location: Jacksonville, FL
- **Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)** (Oct. 2010)
Annual SACNAS Conference
Title: Investigations in the Impact of Visual Cognition and Spatial Ability on Student Comprehension in Physics and Space Science
Author(s): Ximena Cid and Ramon Lopez
Location: Anaheim, CA
- **Spatial Cognition 2010** (Aug. 2010)
Biennial meeting
Title: Investigations in the Impact of Visual Cognition and Spatial Ability on Student Comprehension in Physics and Space Science
Author(s): Ximena Cid and Ramon Lopez
Location: Mt. Hood, OR
- **American Physical Society (APS)/American Association of Physics Teachers (AAPT)** (Feb. 2010)
National APS/AAPT joint meeting
Title: The Impact of Stereo Display on Student Understanding of Phases of the Moon
Author(s): Ximena Cid and Ramon Lopez
Location: Washington D.C.
- **Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)** (Oct. 2009)
Annual SACNAS conference
Title: Comparison of the effect of 2-D vs. 3-D on student comprehension in a lab on phases of the moon

- Author(s): Ximena Cid and Ramon Lopez
Location: Dallas, TX
- **American Physical Society (APS)/ American Association of Physics Teachers (AAPT)** (Apr. 2009)
Semiannual Texas section APS/AAPT meeting
Title: Comparison of the effect of 2-D vs. 3-D on student comprehension in a lab on phases of the moon
Author(s): Ximena Cid and Ramon Lopez
Location: Tarleton State University, Stephenville, TX
 - **Annual Celebration of Excellence by Students (ACES)** (Mar. 2009)
Talk to the UT Arlington community
Title: Comparison of the effect of 2-D vs. 3-D on student comprehension in a lab on phases of the moon
Author(s): Ximena Cid and Ramon Lopez
Location: UT Arlington, Arlington, TX
 - **Annual Celebration of Excellence by Students (ACES)** (Mar. 2008)
UT Arlington community
Title: Comparison of Four Methods for Teaching Phases of the Moon
Author(s): Ximena Cid, Brianna Upton, and Ramon Lopez
Location: UT Arlington, Arlington, TX
 - **American Physical Society (APS)/American Association of Physics Teachers (AAPT)** (Mar. 2008)
Semiannual Texas section APS/AAPT meeting
Talk: Comparison of Four Methods for Teaching Phases of the Moon
Author(s): Brianna Upton, Ximena Cid, and Ramon Lopez
Location: Corpus Christi, TX

Posters

- **Transforming Research in Undergraduate STEM Education (TRUSE)** (Jun. 2010)
First biennial meeting
Title: Investigations in the Impact of Visual Cognition and Spatial Ability on Student Comprehension in Physics and Space Science
Author(s): Ximena Cid and Ramon Lopez
Location: University of Maine, Orono, ME
- **Gordon Research Conference: Physics Research and Education** (Jun. 2010)
Biennial meeting
Title: Investigations in the Impact of Visual Cognition and Spatial Ability on Student Comprehension in Physics and Space Science
Author(s): Ximena Cid and Ramon Lopez
Location: Mount Holyoke College, South Hadley, MA
- **American Geophysical Union (AGU)** (Dec. 2009)
Annual Fall AGU meeting
Title: The Impact of Stereo Display on Student Understanding of Phases of the Moon

- Author(s): Ximena Cid and Ramon Lopez
Location: San Francisco, CA
- **Science Learning Center (SLC) Annual Meeting** (Oct. 2008)
SLC Annual Meeting
Title: Current Research in Student Interpretations of Visual representations in Physics and Geophysics
Author(s): Ramon Lopez and Ximena Cid
Location: Crystal City, Washington D.C.
 - **Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)** (Oct. 2008)
Annual SACNAS conference
Title: The Use of Color as a Third Dimension on Maps
Author(s): Ximena Cid, Ramon Lopez, and Steven Lazarus
Location: Salt Lake City, UT
 - **Research Day** (Oct. 2008)
UT Arlington Scientific Community
Title: Physics Education Research at UTA
Author(s): Ximena Cid and Ramon Lopez
Location: UT Arlington, Arlington, TX
 - **American Physical Society (APS)/ American Association of Physics Teachers (AAPT)** (Oct. 2007)
Semiannual Texas section APS/AAPT meeting
Title: The Use of Color as a Third Dimension on Maps
Author(s): Ximena Cid, Ramon Lopez, and Steven Lazarus
Location: Texas A&M, College Station, TX
 - **American Geophysical Union (AGU)** (Dec. 2007)
Annual Fall AGU meeting
Title: The Use of Color as a Third Dimension on Maps
Author(s): Ximena Cid, Ramon Lopez, and Steven Lazarus
Location: San Francisco, CA

AWARDS

- **GAANN Graduate Fellowship, UT Arlington** (Aug. 2009 – Present)
- **STEM Graduate Fellowship, UT Arlington** (Aug. 2007 – Present)
- **American Physical Society (APS)** (Oct. 2007)
Student Presentation Award: Poster Presentation at the joint meeting for Texas Section of American Physical Society (TSAPS), National Society of Hispanic Physicists (NSHP), National Society of Black Physicists (NSBP), and American Association of Physics Teachers (AAPT) held at Texas A&M in College Station
Title: The Use of Color as a Third Dimension on Maps
Author(s): Ximena Cid, Ramon Lopez, and Steven Lazarus
Location: Texas A&M, College Station, TX
- **Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)** (Oct. 2004)
Award of Excellence for Undergraduate Research at annual SACNAS Conference

Title: Solar Energetic Particles: Heavy Ions
Author(s): Ximena Cid and Janet Luhmann
Location: Austin, TX

COMMITTEES AND COMMUNITY SERVICE

University of Texas at Arlington

Physics Graduate Student Council

(2009 – Present)

- Liaison between Faculty and Graduate students
- Organize monthly potlucks (graduate students only)
- Organize occasional social events for graduate students
- Organize women's luncheons for women in department (Faculty, Staff, Students)

Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)

Chapter Committee Member

(Summer 2009; Summer 2010)

- Review annual chapter reports for eligibility for outstanding chapter awards
- Vote on chapters to be awarded

Space Science Outreach and Research (SSOAR) Berkeley, CA

Instructor/Program Lead

(May 2003 – Aug. 2004)

- Created curriculum for high school semester and summer program
- Lectured on the advantages and disadvantages of human exploration in space during high school summer school programs
- Co-Created undergraduate research program entitled Student Initiative for Undergraduate Research (SIFUR) –*was not yet implemented when I left*

SOCIETY MEMBERSHIPS

- **American Association of Physics Teachers (AAPT)** **(2006 – Present)**
- **American Geophysical Union (AGU)** **(2004 – Present)**
- **American Physical Society (APS)** **(2006 – Present)**
- **Society for the Advancement of Chicanos and Native Americans in Science (SACNAS)** **(2004 – Present)**