

CSAAPT Fall Meeting and ACCA Fall Lecture

Lewis University

October 24, 2009

Morning Sessions will be held in the Academic Building, Room A133.

8:30-9:00	Registration and Continental Breakfast
9:00-9:10	Welcome
9:10-10:00	Using Holograms to Teach Advanced Physical and Mathematical Concepts <i>Tung H. Jeong, Lake Forest</i> Holograms appeal to the most far reaching of all human senses – vision. By using the “seeing is believing” concept, students of all ages can be intrigued to find out how holograms “work”. The process of making a “personal” hologram further motivates the student to learn the principles involved. These principles, beside all topics in optics, include quantum phenomena, fundamental mathematics, and the process of abstract thinking. Examples will be discussed and demonstrated.
10:00-10:15	PASS ON THOSE ELECTRONS: An interactive exercise for understanding the qualitative aspects of parallel & series circuits involving resistors & capacitors. <i>Paul J. Dolan, Jr., Northeastern Illinois University</i> A new interactive exercise, that is being developed to help students understand parallel and series circuits, will be presented. During the exercise, participants (students) will serve as the circuit elements, and will pass ‘electrons’ along the circuit. The net flow of electrons along the circuit depends both on the assigned ‘values’ of the circuit elements (resistance or capacitance), and the arrangement (series or parallel) of these within the circuit. The model may not yield quantitative values, but should give a good qualitative sense of how combinations of circuit elements behave. Audience participation (as circuit elements) is REQUIRED!
10:15-10:30	Photography and Diffraction: Exploring low aperture effects in photography <i>Leah Welty-Rieger</i> While taking some low light photographs of downtown Chicago, I noticed that there was a difference in the way the street lights looked in two different pictures. In one photo there was a nice starburst effect surrounding the light and in the other the lights had a blobular halo around them. This presentation will be a demonstration of this effect as well as a discussion of what causes the starburst to occur.
10:30-10:45	Break

10:45-11:00	<p>Evaluating Collaboration in Introductory Physics Courses <i>Geraldine L. Cochran and Mel S. Sabella, Chicago State University</i></p> <p>The Physics Program at Chicago State University has been investigating ways to encourage effective collaboration in our introductory physics classes through the various course components. These classes utilize a guided inquiry approach to instruction and we often observe students engaging in peer questioning as they work through course material. Analysis of video from the laboratory portion of the course suggests that students' use of questioning may promote effective collaboration. In order to provide additional evidence that this is the case, we have begun to supplement data from the classroom with data from one-on-one interviews. In this talk we discuss how transcriptions from the classroom videos and interviews, as well as results from a survey we developed, to assess the value students place in the guided inquiry approach, will be used to guide instruction and foster better collaboration in the classroom. <i>Funding provided by New York City Alliance Bridge Program and the National Science Foundation CCLI grant DUE #0632563</i></p>
11:00-11:15	<p>Energy Analysis of a Bouncing Ball Using Logger Pro Video <i>Martha Lietz, Niles West High School</i></p> <p>For those of us frustrated with making our own videos, Logger Pro comes with some videos that students can analyze, along with the tools to analyze them. An energy analysis of one of the videos will be presented, along with ideas for classroom implementation.</p>
11:15-11:30	<p>The Physics of a Toddler's Toy <i>Ann Brandon and Debby Lojutz, Joliet West High School</i></p> <p>We will present a lab activity that allows students to discover all the Physics involved in a simple toddler's toy known as a "Push and Go".</p>
11:30-11:45	<p>Gambler's Ruin? <i>Porter Johnson, Illinois Institute of Technology</i> <i>(in collaboration with David Atkinson, State University of Groningen, NL)</i></p> <p>The classic example of the gambler's fallacy is that a long run of heads is more likely to be succeeded by a tail than by yet another head (ormany `rouges' by a `noir', rather than by yet another rouge). A variant is as follows. A gambler must make a stake of 5 euros. She can decide whether to bet on head-head, or tail-head. In the first case she wins n euros if n tosses are made until two successive heads come up, and in the second case she wins n euros if n tosses are made until the sequence tail-head, in that order, comes up. Does it make any difference which of the two wagers she favors?</p>
11:45-12:00	<p>AAPT Executive Summary <i>Gordon Ramsey, Loyola University</i></p>
12:00-12:15	<p>Take Fives <i>Scott Beutlich</i> <i>Len Weisenthal</i> <i>(open)</i></p>
12:15-1:15	<p>Lunch, Business Meeting \$10 (Faculty Dining Room)</p>
1:15-3:00	<p>Hologram Workshop (\$5) Room S214 <i>Tung H. Jeong, Lake Forest</i></p>