PROGRAM GUIDE

the accelerating universe of

PHYSICS EDUCATION

AAPT 2007
SUMMER MEETING
JULY 28 - AUGUST 1

AAPT GREENSBORO 2007

orative course with the Physics Department of the Univ. of Zacatecas, Zacatecas, Mexico in January 2007. Participating Samford students registered in a course titled "Physics Education Experience". This program was originally designed with the Physics Department of The Univ. of Havana, Havana Cuba as a direct result of recommendations from the 8th meeting of the Inter-American Conference on Physics Education, Havana Cuba, 2003. Travel to Cuba was restricted for a program of this type in 2004 and an alternate collaboration was established in Mexico. This program was organized and funded and allowed four Samford undergraduates to work in Zacatecas for two weeks of computer-instrumented physics experiments in collaboration with peer undergraduate Mexican students. Details of the results of this project including schedule, structure, funding and experiences will be described during this talk.

DL09: 4:20 PM Physics Is Fun

Rafal Jakubowski, Szkolna 31, Ostrow Wielkopolski, 0048 62 734 74 18, festiwal@osw.pl

Grzegorz Karwasz

The program we designed "Physics is Fun" proposes a new approach to teaching physics, and science divulgation, in general. Objectives of the program were obtained by identifying fun and clever objects that illustrate laws of physics and examples of applications of those laws. We presented to a broad public audience a series of exhibitions in five European Union Countries: Slovenia, Italy, Germany, France and Poland. We produced virtual versions of these exhibits in the form of CDs and on websites. The project produced objects and descriptions at two levels: Physics of everyday objects that also could capture the interest and imagination of those using them most of these were table-top gadgets and toys. These objects were used to show laws of Mechanics, Thermodynamics, Electricity and Optics. Walking though Modern Physics we identify and comment on some achievements, but even more we are able to ask students and adults to focus and imagine open problems in contemporary Physics. The focus of this presentation will be to review the CD Physics and toys showing all our work in this European Union funded Project Physics is fun.

DL10: 4:30 PM International Year of Physics Activities in Central and South American Countries

Patsy Ann Johnson, Slippery Rock Univ. of Pennsylvania, 724-738-2317, patsy.johnson@sru.edu

Margarete Allen

Many Central and South American countries encouraged public awareness about and enthusiasm for physics as part of celebrations of the International Year of Physics in 2005. Some of these activities were reported at the 2006 Inter-American Conference on Physics Education held in Costa Rica. Posters, brochures, and other products produced for the International Year of Physics were displayed at the conference. What was learned at the Costa Rica conference and elsewhere about these efforts will be shared in this oral presentation.

Session DM: Laboratory Improvement: NSF-CCLI Projects

Sponsor: Committee on Laboratories
Location: Auditorium I
Date: Tuesday, July 31
Time: 3–3:40 PM

Presider: Greg Puskar, West Virginia Univ., 703-292-4630, gpuskar@mix.wvu.edu

DM01: 3 PM An Overview of Physics Activity in the NSF-CCLI Program

Invited *– Duncan McBride, National Science Foundation, 703-292-4630, dmcbride@nsf.gov*

The NSF Course, Curriculum, and Laboratory Improvement (CCLI) program makes grants for development of undergraduate courses, labs, and curricula. Projects range from small grants to try out interesting ideas that might be important to others, to comprehensive projects that can affect how physics is taught everywhere. I will talk about the CCLI program, its current directions, and some areas that may change. I will also give an overview of current physics projects that will provide an introduction to the papers that follow in the session.

DM02: 3:30 PM Improving Intermediate Optics for Greater Conceptual Understanding *

Mark F. Masters, IPFW, 260-481-6153, masters@ipfw.edu

Timothy T. Grove

We are in the second round of improvements and revisions of our intermediate optics course and laboratory curriculum. Our in-class approach utilizes directed derivations and interactive engagement approaches that require the students to apply the physics through challenging questions. The optics requirement must be challenging to both students who have just completed a two semester introductory physics sequence and to senior physics majors as well. We will describe the approach we adopted (a concentration on geometrical optics, detailed direction at the beginning of a laboratory session with diminishing direction as the semester progresses). We present details of our approach and results of our initial trials.

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Session DN: Physics Olympics as Student Outreach

Co-Sponsors: Committee on Apparatus, Committee on Science Education for the Public
Location: Oak B-C
Date: Tuesday, July 31
Time: 3–5 PM

Presider: Stephen Irons, Yale Univ., 203-432-3664, stephen.irons@yale.edu

DN01: 3 PM Yale Physics Olympics, 10 Years of Student Outreach

Poster – Stephen H. Irons, Yale Univ., 203-432-3664, stephen.irons@yale.edu

Since 1997, Yale has conducted an outreach program for local high school physics students. Taking the form of an Olympics with five distinct events plus a Fermi quiz, 50 teams (of four students each) from many different schools compete to perform an experiment, solve a problem or complete a task. Event prizes are awarded, and there is also a prize for best overall performance. Our Olympics has expanded to include a demo show, a tour of Yale's Wright Nuclear Structure Laboratory and a teachers' activity room. We have found this event an excellent way to generate excitement within the high school physics community, as well as raise the profile of the physics department within the university and the city at large. I will present details on how we run our Olympics and give some tips and advice on how to organize a successful event.

DN02: 3 PM The Evolution of Northern Illinois Univ.'s Physics Olympics Outreach

Poster – Patricia A. Sievert, Northern Illinois Univ., 815-753-6418, sievert@physics.niu.edu

Northern Illinois Univ.'s Physics Olympics has evolved over the past four years. I'll share what has worked and what has not worked for us. Our Physics Olympics have included quiz bowls, department tours, demo shows, bridge building, Rube Goldberg style competitions, Pringles mailing challenges and of course the on-site hands-on challenges. www.physics.niu.edu/frontier.

DN03: 3 PM The Richmond Physics Olympics

Poster – Emory F. Bunn, Univ. of Richmond, 804-287-6486, ebunn@richmond.edu

Cornelius Beausang, Ovidiu Lipan, Matthew Trawick, Mirela Fetea

To stimulate interest in physics among high school students and to provide support for physics teachers in the region, the Univ. of Richmond has hosted the Richmond Physics Olympics Competition