

**Call for papers and posters  
2010 Fall Meeting**

**New York State Section of the  
American Association of Physics Teachers**



Syracuse University  
Department of Physics  
201 Physics Building  
Syracuse, NY 13244  
October 8 - 9, 2010

Welcome Fellow Physicists!

On behalf of the Executive Board of the [NYS Section AAPT](#), and your host for this meeting, I would like to encourage you to join physics colleagues from across the United States and Mexico for a weekend of learning, sharing, and experiencing hands-on physics. Our program invites teachers at all levels – high school, two and four year college and university, to contribute a paper or present a poster, or simply to enjoy the invited and contributed talks.

We'll start on Friday evening with registration beginning at 6:00. The registration fee is \$30, and that includes lunch. Parking is free on campus. You can park right next to the Physics Building in Lot Q1. Head up to the 2<sup>nd</sup> floor of the Physics Building and find Fitz and Drenchko. Will they ever take care of you!

The fun begins with a Physics Lecture Demonstration Show at 7:00 in Stolkin Auditorium performed by your meeting host, Sam Sampere. Our keynote speaker will take over at 8:30. Tom Greenslade, master of so much that we cannot list it all, will give his public address. If you do not know Tom, he writes a popular column in the Physics Teacher describing antique physics teaching apparatus. Both the demo show and talk are free and open to the public. Please encourage your family, friends, and students to come. Let's fill up the auditorium!

You may be wondering how can we top that...? Easy, following Tom's talk, we'll gather up for an ice cream social. Bring your SPS students and we can all sit (or stand) around and chat while we enjoy a refreshing treat.

We have a full slate on Saturday. If you are just arriving, you can meet Fitz and Drenchko at 8:30 for registration. You'll still be charged \$30. Dr. Joseph Zawicki will start us off at 9:00 with a review of the June 2010 Physics Regents Exam. Dr. Alan Van Heuvelen from the Department of Physics and Astronomy at Rutgers University will describe some methods that help students develop better qualitative reasoning abilities and problem solving strategies.

**Lodging:** We have a special conference rate (\$118/night single, \$128/night double occupancy) at the Sheraton Syracuse University Hotel and Conference Center under AAPT. The hotel is walking distance to the conference. Please reserve rooms by 9/30/09. Unused rooms will be released. Contact them at 315-475-3000.

Other nearby hotels include the Genesee Grande Hotel (315-476-4212), Hampton Inn on 7<sup>th</sup> North Street (315-457-9900), and Quality Inn on Collamer Rd. (315- 432-9333). There are numerous hotels of all price points in each of these three areas.

### Friday October 8

- |             |   |
|-------------|---|
| 5:30 – 6:45 | Registration  |
| 7:00 – 7:30 | Physics Demonstration Show  |
| 7:30 – 8:30 | Tom Greenslade - <i>A Physicist Looks at Early Photography</i> (Open to public) |
| 8:30 - ?    | Ice cream social  |

## Saturday October 9

- 7:45 – 8:30 Registration
- 8:30 – 9:00 Joe Zawicki – *Analysis of the June 2009 NYS Physics Regents Exam*
- 9:00 – 10:00 Tom Greenslade - *The Adventure of the Reluctant Collector*
- 10:00 – 10:45 Vendor area, poster session, coffee break
- 10:45 – 11:45 Bruce Mason *Physics classes and ComPADRE, where you "borrow" from the best*
- 11:45 – 1:30 Lunch, vendors, posters, business meeting
- 1:30 – 2:30 Genaro Zavala – *Assessing conceptions in physics education*
- 2:30 – 3:30 Contributed talks (15 minutes each)
- 3:30 – 3:45 Concluding remarks



## Friday Public Lecture

### Tom Greenslade

Department of Physics, Kenyon College

**Title:** A Physicist Looks at Early Photography

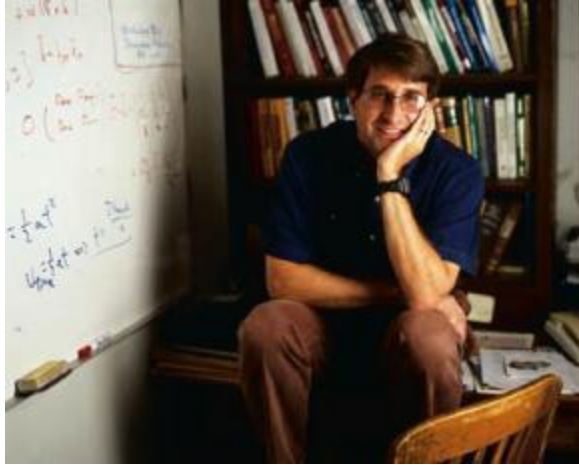
**Abstract:** I came to Kenyon College in 1964 and soon learned that I was the successor to Prof. Hamilton Smith, who invented the Tintype photographic process in 1856.

Following in the footsteps of Charles Wheatstone and Oliver Wendell Holmes, I started to make black and white stereoscopic cards. And then I was given a collection of Daguerreotypes and had to find out why a mirrored surface could duplicate nature. This talk tells about my adventures with nineteenth century photography.

## Saturday Morning NYSS-AAPT Lecture

**Title:** The Adventure of the Reluctant Collector

**Abstract:** The apparatus collection of a physics department can be modeled by a long, smooth shelf, completely filled with apparatus. When a new piece is added, the entire collection is shoved down the shelf, and the oldest piece falls into ...? Very often it is the dumpster, but for over 600 items, the Greenslade Old Apparatus Removals Company has been there to rescue it. I will talk about the museum wing that we added onto our 1850s house several years ago, and about some of the delightful pieces of apparatus from the 1850-1950 era that now live there.



**Bruce Mason**  
ComPADRE Director  
University of Oklahoma

**Title:** Physics classes and ComPADRE, where you "borrow" from the best

**Abstract:** Your efforts to improve your classes and better engage your students can be both time consuming and daunting. It makes sense to jump-start these efforts by building on the results and resources created by experts from around the world. Why repeat their mistakes when there are

plenty more for you to make yourself? ComPADRE, a collaboration of the AAPT, APS, AIP, and AAS and a part of the NSF National STEM Digital Library, can help physics teachers at all levels adopt and adapt world class learning resources by using the web to gather, organize, host, and serve these tools. This talk will show how to build a topical mini-collection to use with students in a typical physics class, and then share it with the world. There will also be a discussion of the many activities of the ComPADRE project in support of physics and astronomy education.

ComPADRE has received support from the National Science Foundation through several grants including DUE-0226129, DUE-0532798, and DUE-0937836.



**Genaro Zavala**  
Physics Education Research and Innovation Group  
Department of Physics, Tecnológico de Monterrey

**Title:** Assessing instruction in physics courses

**Abstract:** A great deal of research in physics education research is devoted to alternative conceptions of students. It is very important then to have a good instrument to assess what they think. There are many tools that are

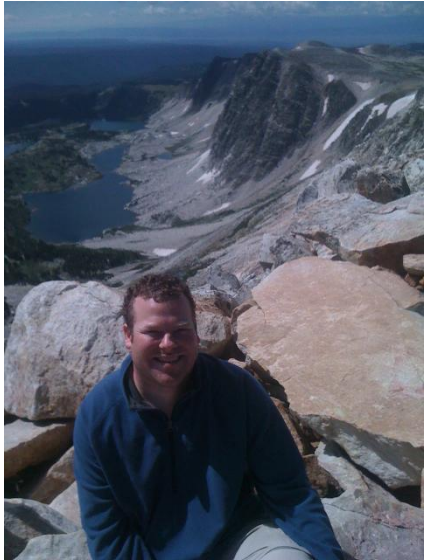
actually very good as a series of carefully designed open-ended questions in which students must write their reasoning, or an interview in which, following a protocol, the interviewer can fully understand the reasoning of each student. However, these tools are not designed for a large number of students or to standardize assessment. If one wants to assess students' reasoning on a large scale or wants to have a standard test, multiple-choice questions (MCQ) are an instrument of choice. As with many other tools, if MCQ are carefully designed, they could form a powerful instrument to understand how students think. To analyze the data resulting from multiple-choice questions, there are several techniques available. In this talk I will focus on an analysis technique and a strategy to assess physics instruction. I will present ways to report results given by MCQ tests that can be used either with one instructor in a small institution or with a great number of instructors in a large institution.



Information:

L. Bao & E. Redish. "Concentration analysis: A quantitative assessment of student states," Phys. Educ. Res., Am. J. Phys. Suppl . 69, S42- S53 (2001).

R. Hake. "Interactive engagement vs. traditional methods: a six-thousand student survey of mechanics test data for introductory physics." Am. J. Phys. 66, 64-74 (1998).



**Duncan Brown**

Department of Physics, Syracuse University

**Title:** Gravitational-wave Astronomy with the Laser Interferometer Gravitational-wave Observatory

**Abstract:** Almost all of our knowledge of astronomy and astrophysics comes from observing the Universe with electromagnetic waves. Gravitational waves are one of the most remarkable predictions of Einstein's theory of General Relativity. These waves are "ripples" in the curvature of spacetime which carry information about the changing gravitational fields of distant objects. Gravitational-waves are analogous to electromagnetic waves, but because the coupling between gravity and matter is so much weaker than the coupling between light and matter, it is very difficult to generate

detectable gravitational waves. To generate waves strong enough to be detectable with current technology needs extremely dense, massive objects, such as black holes and neutron stars, moving at speeds close to the speed of light. The first detection of gravitational-wave observations will open a new window on the Universe and establish the field of gravitational-wave astronomy. The U.S. Laser Interferometer Gravitational-wave Observatory (LIGO) and its French-Italian counterpart Virgo are presently searching for gravitational waves. In this talk, I will give an overview of gravitational-wave sources, the status of the observatories and the results obtained by LIGO so far.

**Meeting Host:** Syracuse University Department of Physics,  
College of Arts and Sciences

**Meeting organizers:** Sam Sampere (smsamper@syr.edu), John Fitzgibbons (jdfitzgi@physics.syr.edu) and Joe Drenchko.

Special thanks to our vendors...

The logo for IPASYS, featuring the word "IPASYS" in a bold, blue, sans-serif font with a registered trademark symbol. The letters are slightly tilted and have a white outline.A banner for American 3B Scientific. It includes a "CHANGE COUNTRY:" dropdown menu set to "U.S.A.", a "TRANSLATE PAGE TO:" dropdown menu set to "SPANISH", the company name "American 3B Scientific" in large blue letters, and the phone number "1-888-3B-MODELS(326-6335) | +1 770 492-9111". The 3B logo is on the right.The logo for CENCO, featuring the word "CENCO" in large red letters, "PHYSICS" in smaller white letters below it, and "from Sargent-Welch" in white text to the right.The logo for NADA SCIENTIFIC, featuring the word "NADA" in large white letters on a blue background, with "SCIENTIFIC" in smaller white letters below it.The logo for TEACHSPIN, featuring the word "TEACHSPIN" in large yellow letters on a blue background, with "Instruments Designed For Teaching" in white text below it. A sine wave graphic is on the right. Contact information is on the left: "Tri-Main Center Suite 409 2495 Main Street Buffalo, NY 14214 716-885-4701".

## Quad 1 Lot Directions (Lot Q1)

**North** - Interstate 81 south to exit 18. Get in center lane and continue on to Adams Street. Make a left onto Adams Street and proceed to Irving Avenue. Make a right on Irving Avenue and proceed to Waverly Avenue. Make a left onto Waverly Avenue and proceed to S. Crouse Avenue. Make a right onto S. Crouse Avenue and proceed to the parking booth. Continue past University Place; proceed up the hill and into the lot.

**South** - Interstate 81 north to exit 18. Merge into the right hand lane and continue on to Adams Street. Make a right onto Adams Street and proceed to Irving Avenue. Make a right on Irving Avenue and proceed to Waverly Avenue. Make a left onto Waverly Avenue and proceed to S. Crouse Avenue. Make a right onto S. Crouse Avenue and proceed to the parking booth. Continue past University Place; proceed up the hill and into the lot.

**East** - Interstate 90 to exit 36 Interstate 81 South. Take Interstate 81 South to exit 18. Get in center lane and continue on to Adams Street. Make a left onto Adams Street and proceed to Irving Avenue. Make a right on Irving Avenue and proceed to Waverly Avenue. Make a left onto Waverly Avenue and proceed to S. Crouse Avenue. Make a right onto S. Crouse Avenue and proceed to the parking booth. Continue past University Place; proceed up the hill and into the lot. ***From Interstate 690** west to exit 13 Townsend Street. Turn left on South Townsend Street to Adams Street. Make a left onto Adams Street, and proceed under Interstate 81 to Irving Avenue. Make a right onto Irving Avenue and proceed to Waverly Avenue. Make a left onto Waverly Avenue and proceed to S. Crouse Avenue. Make a right onto S. Crouse Avenue and proceed to the parking booth. Continue past University Place; proceed up the hill and into the lot.*

**West** - Interstate 90 or Interstate 690 to Interstate 81 south to exit 18. Get in center lane and continue on to Adams Street. Make a left onto Adams Street and proceed to Irving Avenue. Make a right on Irving Avenue and proceed to Waverly Avenue. Make a left onto Waverly Avenue and proceed to S. Crouse Avenue. Make a right onto S. Crouse Avenue and proceed to the parking booth. Continue past University Place; proceed up the hill and into the lot.

# **Meeting Registration Form**

Name: \_\_\_\_\_

Institution: \_\_\_\_\_

Address: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

## **Please circle**

HS teacher            2 year college faculty    4 year college faculty

University faculty            college or univ. staff

HS student            college or univ. student

Please return by mail, e-mail, or fax by 9/30/2010 to:

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Syracuse University  
Department of Physics  
201 Physics Building  
Syracuse, NY 13244  
315-443-9103 (fax)  
smsamper@syr.edu