

AAPT Conference Summer 2005

Parallel Coverage by
Ron Proctor & Michael Malmrose

Side A

Ron Proctor, Weber State University SPS

I first became interested in Physics while taking an introductory astronomy course. The course deepened my love of astronomy and exposed me to some physical problem solving tools. I was hooked and soon switched my major. After some adjustment I found a niche for my skill set and I now work as the Production Director for Ott Planetarium at Weber State University. My undergraduate work will eventually boil down to a Bachelor of Integrated Studies (BIS) degree; incorporating Physics, Art, and Communication. This course of study will (hopefully) lead to a career in scientific visualization or graduate work in science journalism.

As an undergraduate about to begin my (first) senior year, I was excited for this opportunity to report on the AAPT Summer 2005 Conference for SPS. This being my first large academic conference, I expected the proceedings to be somewhat dry. In retrospect I cannot justify this expectation, as most of the physics teachers I know are lively, fun, engaging people. The AAPT participants I met did not disappoint.

My colleague and I enjoyed two days at the conference, taking-in poster sessions, exhibits and presentations. My favorite part was a little block of three paper presentations. The first, by J. Ronald Galli involved Time Dilation and Length Contraction only a light clock. Galli's presentation conveyed the concepts of Time Dilation and Length Contraction in a very effective and condensed fashion.

The second presentation of the series was by DJ Wagner of Grove City College. She discussed her research, Filling the Void: Teaching about Semiconductors and Semiconductor Devices. I did not expect her talk to be especially important to me, as I have little to do with semiconductors, but I was surprised at the relevance of her presentation to my upcoming research project, The Effectiveness of Scientific Visualization Techniques: Teaching the Lunar Cycle. I found the discussion of her research methods to be quite useful. In particular, I was impressed with her characterization and organization of the student responses both

Side B

Michael Malmrose, Weber State University SPS

In the seventh grade, my science teacher Mr. Jenkins, a biologist, assigned each of his students to watch at least 1 hour of science related programming a week and write a list of 10 things that we learned from the program. It was while completing the assignment that I discovered an ancient set of videocassettes at my local library named Cosmos narrated by the late Carl Sagan. I had always been interested in space and checked out a couple of the tapes and went about my assignment. After viewing the first episode, I devoured the other 12 over the next couple of weeks. Sagan's enthusiasm was contagious and I soon read every book of his that I could get my hands on. Later on in High School, I was reading Stephen Hawking when I should have been paying attention to my English teacher. This early exposure, and my success in a general education physics course my first semester in college, guided my decision to major in physics.

Like my colleague, I am an undergraduate about to embark on the first of two "senior" years at Weber State University in Ogden, UT. I was thrilled when asked to report on the AAPT summer conference. Unlike Ron, this is my second conference; I was fortunate enough to present a poster (as a group of five students) at the June 2004 AAS meeting in Denver. However, since I did not present anything at this conference, I was free to wander and try out various demos, instead of standing by my poster, begging people to ask me a question. I even was able to ride a makeshift hover craft made from a leaf-blower and a couple of sewn together pieces of fabric. Ron and I were also quite impressed at the soda and ice cream kept cold in our dreadfully hot Utah summer, by dry ice pellets. We also met fellow SPS members at the University of Utah who were in charge of selling T-Shirts and laser pens commemorating the event.

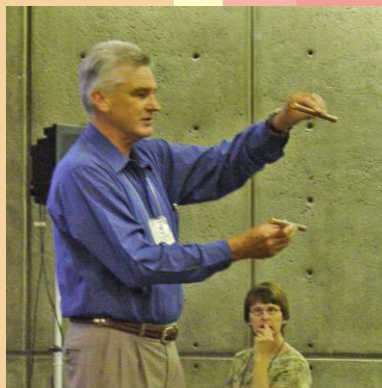
Like Ron I also very much enjoyed a three talk session given Tuesday afternoon. Weber State's own J. Ronald Galli on the topic of Time Dilation and Length Contraction using only one horizontally oriented, moving clock gave the first talk. It was cool to see somebody I have taken a class from come up with the same ideas of special relativity, without using trains and



Mike Riding a Leaf-Blower Powered Hovercraft



Ron takes notes during a presentation



J. Ronald Galli demonstrates Light Clock models

in the pre and post instruction phases. Her presentation encouraged me and got me thinking about how I will present my own research when the time comes.

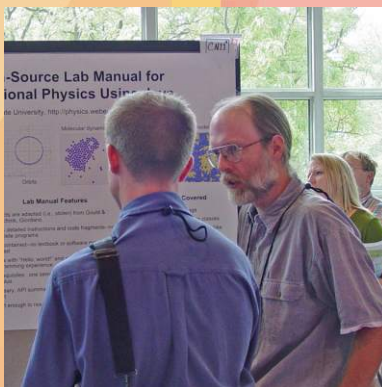
The third presentation was by Harry Manos of Los Angeles City College. He discussed Auroral Photography. The presenter was a first time aurora photographer who, with the help of a young man in Alaska, developed some considerable skill and technique. The images he displayed were brilliant and beautiful. Since seeing the aurora myself in 2001, I have always felt drawn toward its mystery. This enigmatic light in the sky can tell us much about the Earth's upper atmosphere, magnetosphere, and the Sun-Earth environment. (One of my favorite demonstrations at the our planetarium is the Classroom Aurora built by John Sohl. Our apparatus simulates the aurora by evacuating a cylindrical chamber and running 5,000 volts across the expanse. The result is a beautiful red glow that can be manipulated with a magnet). Manos' presentation inspired me to develop my photography skills and to always keep a camera and tripod in my vehicle, just in case.

During our visit to the conference, Mike and I had the opportunity to speak with many exhibitors and presenters. I really appreciated the opportunity to review and evaluate so many different ideas.

The diversity of the conference was a pleasant surprise. Even knowing that Physics is such a broad subject, I could not have imagined so much variety. There really was something for everybody. I thoroughly enjoyed the time I spent at this conference and I look forward to my next.



Harry Manos discussing Auroral Photography



Dan Schroeder presented one of the many excellent posters

firecrackers It really helps to have another thought experiment to think about when I wrestle with the difficult concepts of space and time. After his talk, Dr. Galli was kind enough to show these two blooming young physicists his patented "Galli Cat", a wire model that seeks to explain why cats always land on their feet. The Galli Cat has a series of springs along it's spine that when flexed create a small torque so that when released, the cat simply rolls over and lands on its feet naturally. This explanation is much simpler and elegant than the explanation given by many physics books.

We were also treated to a talk discussing the finer points of photographing the Aurora Borealis. You cannot take exposures for much more than about 30 seconds, because the aurora is in constant motion and you will not get a very good picture. This was a fitting talk because the next AAPT meeting will take place in Alaska next January.

I am very grateful to have been able to attend a conference where actual scientific research was presented, it was a great reminder of what I am dedicating so much time and effort to learning abstract concepts and very difficult math. One of my teachers has compared science to a giant house of which each of us are responsible for laying our own individual brick. At these conferences, we proudly display our brick to the world for anybody to take their best shot at. Many times our brick does not fit and needs modification before it is usable, other times it needs to be discarded completely. Regardless, we have made an important contribution to the advancement of human knowledge. I will end with the words of another one of my childhood discoveries, Bill Nye the Science guy: "Science Rules!"