



## Marsh White Award Report

Project Proposal Title	Towson Physics Demo Team
Name of School	Towson University
SPS Chapter Number	7338
Project Lead (name then email address)	Zoey Warecki (zwarec1@students.towson.edu)
Additional Project Leads (two lists: names then emails)	Nathan Prins (nprins1@students.towson.edu)
SPS Chapter Advisor	Jeffrey Simpson
Total Amount Received from SPS	\$300.00
Total Amount Expended from SPS	\$300.00

### Summary of Award Activities

Towson University's SPS Demo Team successfully ran three outreach events, one off campus and two on campus. The off campus event titled "Beach Night" at Halstead Academy, MD, had over 50 families attend. The two on campus events, Saturday Morning Science: "Our Moody Sun" and "Brilliant Blunders" had over 20 families and over 300 people, respectively. We had 5-11 volunteers at each event, all from our SPS Chapter.

## Statement of Activity

### Overview of Award Activity

#### **Beach Night**

- Beach Night was a collaborative event between SPS and Halstead Academy/Pleasant Plains Elementary School hosted at Halstead Academy. There were two main parts of the event- a steel drum band playing in the gym and our outreach demos and snacks in the cafeteria. In order to keep with the Beach theme, we had demos on the physics of light and water. We had demos illustrating why the sky is blue, how light refracts, relative densities of objects in water, and coloring wheels for kids. We also had a few more optics and sound demos. (8 SPS volunteers)
  - The project accomplished a fun night of teaching children about the world they live in. Since it was aimed at elementary school students we did not know how much physics we would be able to discuss but they actually loved the demos. They were very curious about the optics ones.
  - Over 50 families from both Halstead and Pleasant Plains attended the event.
  - This project was aimed at very young students- we were mostly interested in getting them excited about science. We wanted to hold several events; each one aimed at different age groups; this one was aimed at the youngest age group. We also wanted to hold at least one event at a school as opposed to on campus.
  - In an attempt to teach the kids about the different types of waves, we wound up saying goodbye to many destroyed slinkies- it was worth it though!

#### **Saturday Science: “Our Moody Sun”**

- Saturday Science is an ongoing event at Towson University run by former NASA astronaut Don Thomas. Each Saturday Science features a guest speaker who gives two lectures- a morning and afternoon one. In between the talks there is usually an activity for the visiting families to partake in. During this Saturday Science the guest was Dr. Holly Gilbert, a NASA scientist, who gave a talk titled “Our Moody Sun” with about 200 community members at each lecture. In between her talks we had demos about space set up in a classroom. We talked to the families about what causes the seasons, how eclipses work, what the Milky Way Galaxy looks like and about other fun space facts. (5 SPS volunteers)
  - This project, though aimed at younger students (elementary and middle school students) had some interested high school students and, of course, parents.
  - About 20 families came to the activities, which was about 20% of the audience and what we were expecting based on previous Saturday Science events.

#### **Brilliant Blunders**

- Brilliant Blunders was an event that SPS held in conjunction with the Physics Department. They invited Mario Livio, an astrophysicist at Space Telescope Science Institute, to give a Friday night lecture at Towson University about his new book, “Brilliant Blunders.” Before his talk, SPS had demos set up to talk about common misconceptions in physics, astronomy, and other sciences. After the talk we led

community members to the planetarium for a show by Dr. Alex Storrs, a Towson University physics professor, and then up to the observatory. (11 SPS volunteers)

- This project had two purposes: 1. To engage with a larger range of audiences, from young kids to college students to adults and 2. To teach community members about common misconceptions in science and why science education is important. Both of these goals were achieved, although if we do this event in the future, we would like to emphasize the importance of science education.
- The event had over 300 people attend, including community members and students on campus.

### Impact Assement: How the Project/Activity/Event Promoted Interest in Physics

Our event was successful in two aspects: 1. To have fun and 2. To promote interest in physics among students and the general public. We believed that if the events were fun for everyone, audience members and volunteers, would we be able to set up an ongoing interest in outreach at our SPS. Our events were successful and have encouraged the 2014-2015 SPS to do more outreach.

- To assess the success of the “Beach Night” event, we spoke to Susie Peeling, the organizer from Halstead Academy. She was so excited by the success that she would like to hold a similar event with us this upcoming spring. After the event we discussed the success with the volunteers and we realized how surprised some of the volunteers were that many of the elementary students were interested not only the demos themselves but how we were explaining them.
- After Saturday Science we spoke with Don Thomas, and he as very grateful to the volunteers. As a big supporter of science education, he was very excited that college students were teaching younger students about space and the importance of NASA.
- To assess the success of “Brilliant Blunders” we spoke with the faculty and volunteers after the event. We found that we did not plan enough time ahead of the talk for the demos and that if we held a similar event in the future we would give more time to interact face-to-face with the community members.

### Key Metrics and Reflection

Who was the target audience of your project?	All age ranges, depending on the event
How many attendees/participants were directly impacted by your project? Please describe them.	50 families, 20 families, and 300 community members/college students.
How many students from your SPS chapter were involved in the activity, and in what capacity?	Officers were in charge of contacting people, organizing events, getting supplies, etc. Active SPS members (5-11 depending on event) volunteered for the event and helped set-up, run demos, clean-up, etc.
Was the amount of money you received from SPS sufficient to carry out the activities outlined in your proposal? Could you have used additional funding? If yes, how much would you have liked and how would the additional funding have augmented your activity?	The money we received was sufficient to carry out our events. We used SPS funds to purchase T-shirts and necessary demo equipment but we plan to use the \$300 to replace some demos, buy new materials, and to buy equipment for 2014-2015 outreach projects.
Do you anticipate repeating this project/activity/event in	Yes, we would like to do a follow-up event with Halstead

the future, or having a follow-up project/activity/event? If yes, please describe.	Academy again. We are also interested in holding a larger event off-campus in order to interact with more community members.
What new relationships did you build through this project?	We developed a relationship with Don Thomas, the organizer of Saturday Science as well as with Halstead Academy and Pleasant Plains.
If you were to do your project again, what would you do differently?	We would like to attempt to hold more off-campus events and try to reach a wider audience. If we achieved this then we could focus on the importance of science education. We would also like to work with Don Thomas again by using his network of Saturday Science to hold a bigger event on campus.

## Expenditures

We used SPS funds to purchase all necessary items before events. We are using the Marsh White Award to reimburse the SPS account. Our most expensive item was the T-Shirts. We offset the cost by selling some shirts to members but we gave the shirts to volunteers for free. Instead of buying a banner we made a poster that said "Towson Physics Demo Team" that we took to each event, which saved us money. In the future, we would like to buy snacks for everyone at the events, particularly the Saturday Science event.

### Expenditure Table

Item	Cost
T-Shirts (free to volunteers, otherwise sold to members/faculty)	\$700
3 new slinkies	\$18
Crookes Radiometer (aka Crookes Tube)	\$22
Flashlights, cups, ping pong balls, aluminum foil, bowls.	\$20
<u>Squishy circuit</u> ingredients (for future outreach)- playdough, LEDs, battery packs, motors	\$100
Total of Expenses	\$860

### Activity Photos



David Lahneman demonstrating

refraction of light through plexiglass

Nathan Prins and John Ballantine demonstrating

density of objects and surface tension of water



Kielan Wilcomb and Halstead Academy student having fun.



David Lahneman and Daniel Zile making color wheels with students.



Volunteers Jim Selway, Nathan Prins, Zoey Warecki, Emileigh Shoemaker, Viktor Polyak, Kielan Wilcomb, David Lahneman, Sahara Joshee, and Daniel Zile with Mario Livio.

Mario Livio giving invited talk.