

Drexel University & The Philadelphia Science Festival

Drexel University Society of Physics Students

2011 Marsh White Award - Final Report

This year, the Drexel University Society of Physics Students proposed to take part in the first annual Philadelphia Science Carnival as well as participate in additional events of the Philadelphia Science Festival held at Drexel University. The Philadelphia Science Festival was a community wide celebration held from April 15th to April 28th that focused on engaging Philadelphians of all ages and backgrounds in the excitement of the science. This year's festival began with a huge carnival on the Benjamin Franklin Parkway and continued over the next two weeks with various activities including invited lectures, debates, interactive activities and observatory nights. Our chapter was able to participate in four of the two-week festival's events

The Philadelphia Science Carnival

On Saturday, April 16th the Benjamin Franklin Parkway in downtown Philadelphia was transformed into a science wonderland, featuring over 100 free activities presented by representatives of local academic institutions, museums, and corporations. SPS hosted a booth at the carnival to showcase our "Hollywood Physics" demonstrations:



CARNIVAL EXHIBITORS / ALPHABETICAL	
The Academy of Natural Sciences: 95 Preschool Science Explorers—PNC Grow Up Great with Science	Drexel University Graduate Student Association: 102 Have a Ball—Adventures in Material Science
The Academy of Natural Sciences: 52, 53 Real Science, Real Fun	Drexel University School of Public Health: 101 Public Health—Science that Impacts You Everyday
Agora Cyber Charter School K12's Motoring On: 72 Exploring a Wacky Effect of Magnets and Electricity	Drexel University Society of Physics Students: 100 Hollywood Physics
All Aboard the BioBus! 39	Engineers' Club of Philadelphia: 12 Engineering is Fun!

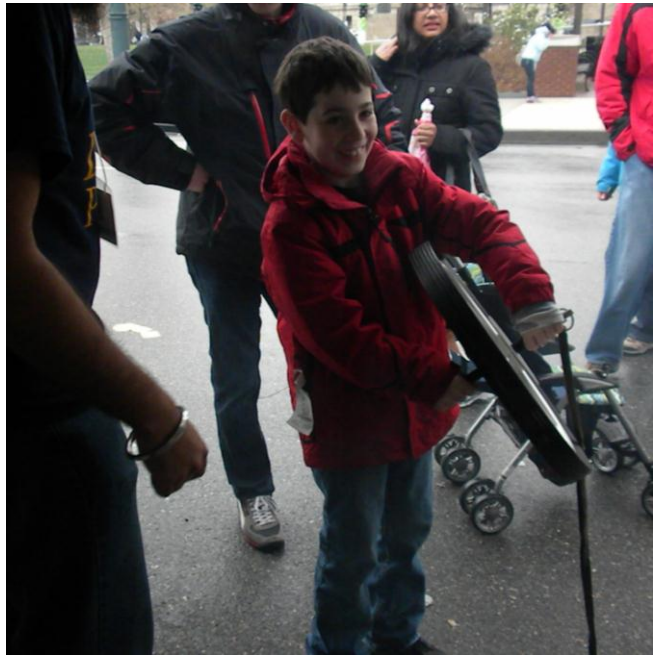
“Join the Drexel University Society of Physics Students in exploring the science behind some well-known scenes from Hollywood films. After watching a clip, with the help of hands-on demonstrations designed to highlight the physical principles seen, it will be up to you to separate myth from fact and decide how ‘good’ or ‘ad’ the science in the movie really is.”

Our booth was equipped with such demos as a Van de Graaff generator to produce static electricity, a smoke machine with air cannons to generate smoke rings, a bicycle wheel with

turntable to illustrate angular momentum, and a Gauss rifle and other small E&M demos to explain impulse and magnetic acceleration. A laptop computer was also set up with relevant movie clips to be shown as a motivation to any interested visitors. Due to the enormity of the carnival, our demo booth was designed such that visitors could briefly experience all of our activities within 5-10 minutes, but would be also able to spend additional time if they desired. Over the course of the day, nine Drexel SPS volunteers met with hundreds of science-hungry Philadelphians, mostly younger children and their parents, to use these hands-on demos to try to explain the importance and application of very simple physical concepts.

The visitors particularly enjoyed making smoke rings, and this served as a great way to attract attention to our booth. While the carnival was unfortunately rained out by the early afternoon, we estimate that we had about 500 visitors to our booth in the morning and early afternoon periods. This event was particularly notable because this was the first time Drexel SPS has been able to direct our content to adult members of the community in addition to children and young adults.







Astronomy Night

In addition to the standard monthly open houses, all of the major observatories in Philadelphia opened up for the Philadelphia Science Festival's Astronomy Night on Thursday, April 21st. Thousands of Philadelphians flocked to observe the heavens, learn about the constellations and astronomical phenomena, and to gaze at well-known objects like Saturn and the Moon in magnificent detail.

Three Drexel SPS members assisted in the open house at Drexel's Joseph R. Lynch Observatory by explaining and teaching visitors about interesting objects in the sky and by manning the telescopes. SPS members displayed and explained features of Saturn, globular clusters, and the Ring Nebula, a planetary nebula. While Philadelphia is not an ideal location for stargazing, through a telescope one may observe much of the local universe in extraordinary detail. The official guest estimate was over 300 visitors over two hours, which far exceeds the usual attendance for the monthly open houses.

High School Day at Drexel

On April 26th, Drexel University invited over 100 students from five local high schools to attend a day of science-filled activities and talks. A portion of their day at Drexel was spent with activity groups, and SPS was requested by the Dean of the College of Arts and Science to perform a "Hands-On Physics" activity with the students at one of these sessions.

The event was held in an atrium of the Bossone Research Enterprise Center at Drexel University, where seven SPS members engaged the visiting students with the same set of interactive demos used at the Philadelphia Science Carnival. We divided the visiting students, who entered in groups of about 33, between three stations that each focused on different physical concepts: one focused primarily on conservation of angular momentum, another on electricity & magnetism, and the last on optics and vortex motion.





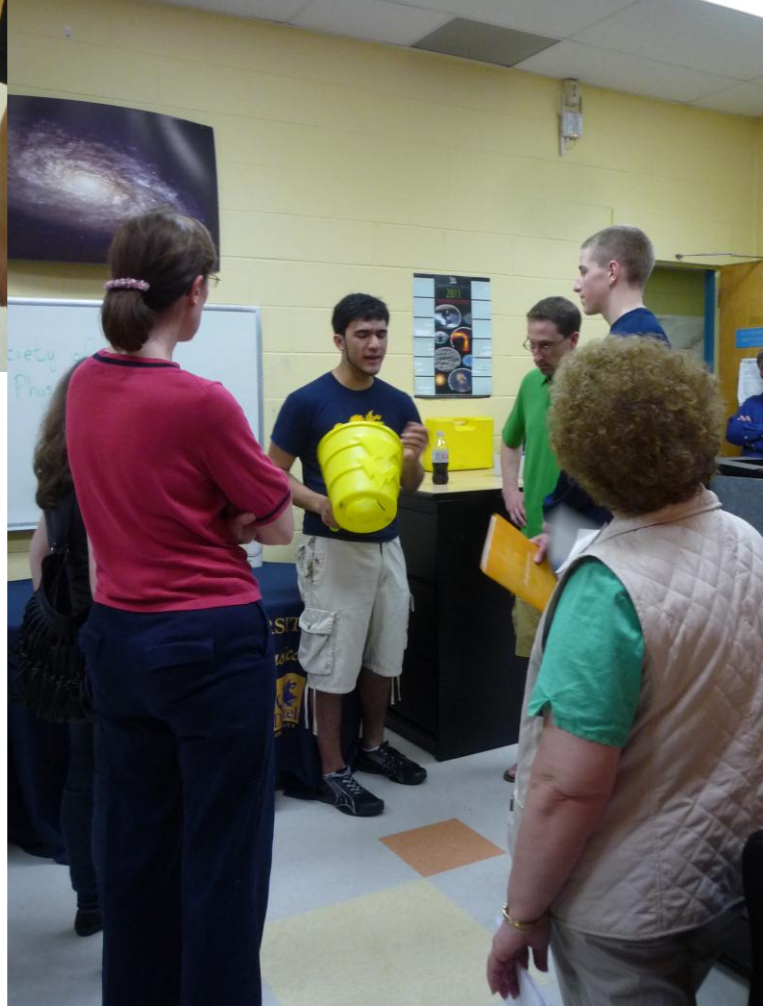
Kaczmarczik Day

Finally, on April 27th the Physics Department at Drexel University hosted its annual Kaczmarczik Day, featuring a lecture given by Dr. Tejinder S. Virdee, the project leader of the CMS experiment at the CERN supercollider in Geneva, Switzerland. This event was open to the Drexel community and to anyone in the general public interested in learning about physics. In addition, Drexel invited hundreds of high school students from the physics classes of local

schools to attend the lecture and to receive a private tour of the department's labs, facilities, and groups.

SPS has hosted a station on these tours for the past five years, and has been recognized as one of the most engaging and exciting stop each year by the visiting students. Here, we use our standard demonstration set to relate fundamental physical concepts to technologies encountered on a daily basis. For instance, we may relate the basic properties of lenses and prisms to why the sky is blue during the day and red near a sunset or demonstrate how gyroscopic effects can be used to produce an artificial horizon for aircrafts. As most of the visiting students are juniors or seniors, this is also an opportunity to discuss college or academic tracks that they might be interested in.





Final Budget

Philadelphia Science Festival Booth:	\$250.00
Convex Mirrors:	\$13.49
Petri Dishes:	\$5.99
Lead-210 Needle Source:	\$65.00
99% Isopropyl Alcohol:	\$4.00
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Purchase Total:	\$338.48
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Award Total:	-\$275.00
Supplementary Departmental Funding:	-\$63.48
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Net Total:	\$0.00