

Society of Physics Students  
Penn State Chapter

March 25, 2009

Commence

Announcements

Monday was the Sigma Pi Sigma art show

Event was a great success

Grand Prize winner: Jeremy White (University of Southern Florida)

Check out the collegian article

[http://www.collegian.psu.edu/archive/2009/04/14/competition\\_unites\\_science\\_art.aspx](http://www.collegian.psu.edu/archive/2009/04/14/competition_unites_science_art.aspx)

After the meeting we are moving the art pieces to the sparks

Six Flags is a week from Friday

Leaving Thursday night and returning Friday night.

Elections are next week

Outreach

Exploration Day this Saturday

Superhero training academy

10AM-3PM in South annex in BJC

Try to arrive between 8 and 8:30AM

Free breakfast and Lunch

More details below

Summer outreach program available, see Zach Fifer for more details

Adjourn

## Exploration Day Stations and Volunteers

### 1. Levitation

Levitation is vital to many superheroes as a means of transportation and swiftly escaping one's enemies. Students will build a hovercraft out of a plastic plate, straw, and balloon, and get to view a larger version built by the SPS chapter (capable of holding human weight).

"Silver Surfer"

1. Jason Czak
2. Brandon
3. L'einelle
4. Mike Bassett

### 2. Freezing

using liquid nitrogen to freeze your enemies

"Ice (Wo)man"

1. Lee
2. Chris Carson
3. Chelsea
4. Liz

### 3. Tornado mode (rotational inertia)

Whether superheroes spin at ultra-high speeds to change costume or to destroy their enemies, becoming a tornado has benefits. Using a spinning chair and weights, students will learn about rotational inertia and discover that they can reach high speeds when the weight is concentrated in the center of the system.

"The Flash"

1. Brian Dingee
2. Jason

### 4. Radioactivity (cloud chamber)

Students will use a geiger counter to determine whether their enemies emit dangerous radioactive particles (bananas and radioactive rocks are our two sources at the moment)

"Spiderman?"

1. Matt Noll
2. Mark Foerster
3. Brian Quinn

### 5. Supersize me/ minimize me (vacuum chamber)

Through the use of a vacuum chamber, students will learn how a lack of pressure naturally expands the size of marshmallow/toothpick-superheroes, and how a return to normal pressure causes their collapse.

"Ant Man, Hulk, Hawk Girl"

1. Lee
2. Mike P
3. Dave V

### 6. Invisibility/ Interference (audio interference, mirrors)

Methods of enemy evasion will be taught. Via the use of two speakers, students will learn how interference can make them inaudible. Through mirrors, they will also learn how to create a virtual image of themselves, and deceive their enemy into believing they are in an alternate location. Total internal reflection.

"Wonder Woman, Invisible Woman"

1. Fifer
2. Jess

### 7. Seeing the unseen (EM spectrum)

What does x-ray vision really mean? Can you see heat? Students will learn about the electromagnetic spectrum through sensors and images taken in various wavelengths, and realize that even if their enemies are invisible in the optical, they could be detected in another part of the spectrum.

“Superman”

1. Mike Austin
2. Blair

8. Energy Generation (Bicycle based generator)

Students will learn how to transform mechanical energy into electrical energy through a bicycle-based electricity generator (ideally built by the SPS chapter, but also available for purchase), and will power a light bulb

“Electro, Storm, and Static”

1. Phil H
2. Mike P