

**Adelphi University**

**1 South Avenue, Garden City, NY**

**Department of Physics**

**SPS Chapter # 0020, Zone 2**

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Treasurer-Monika Mohacsi

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## Part I: Our chapter's interaction with the Adelphi community

The club had biweekly meetings throughout the year, with officer meetings in the off weeks. We also participated in several major events on and off campus. Some of the meetings and events are described here.

### *Laser Tag Night:*

With the success of Laser Tag Night last year, we decided to organize the event again this fall. The event was open to the whole campus to promote our involvement with the wider campus community. We organized the event at QZar, a gaming center nearby. We rented the whole place for the night so that we could accommodate many participants. Along with the laser tag games, the students also enjoyed access to arcade games and other activities at the event. We used this event not only to open ourselves to the Adelphi Community but also to raise funds to promote similar events in the future. We did so by charging a minimal fee for tickets to the event.



Students playing arcade games during Laser Tag Night.

### ***Screening of the talk “A Universe from Nothing” by Dr. Lawrence Krauss:***

This fall, we screened the video “A Universe from Nothing” by Dr. Lawrence Krauss as part of our goal to get our campus community interested in the study of our universe and physics in general. The event was attended by students from different academic background and all of them enjoyed talk. In the future, we hope to organize to organize similar event to get more people interested and curious about the universe we live in.

### ***Talks by members about Summer Research Experience:***

We invited some of our members who were involved in various summer research programs to give a small talk on their experience and on the research they conducted during the summer. Justin Dove talked about his summer research experience at MIT. Binayak Kandel talked about his experience of working at NIST as an SPS intern. He also talked about the importance of research experience to students and the opportunities available to students from SPS and other institutions.

### ***Alumni Night Panel Dinner:***

We invited several physics graduates from our department to share their experiences of life after Adelphi and how they were using their physics background in their careers. Some of the alums were graduate students in physics; some were engineers or enrolled in engineering programs while some were teachers. So our members got to interact and

get suggestion from them about possible career paths and life beyond Adelphi in general. The event was very well attended by current students, faculty, and some prospective students.



Alums taking questions from students

### ***Paper Plane and Paper Tower Competition:***

Since we had favorable attendance to these events last year, we decided to open our year with these events so that the new students could immediately get involved. All the students actively participated in the competition using all their knowledge and creativity to design their paper planes and/or structures to hold stacks of books (only a paper sheet and masking tape was made available to each group). Everyone enjoyed the event and there was healthy competition between our students. We were very pleased with the active participation of our students.



Club members constructing paper planes.

### ***Physics Jeopardy:***

As our last meeting of the year we organized a Physics Jeopardy competition with the kit we received from SPS. The students had their physics knowledge tested in a fun way and they had a very good time. We look to make this event a regular in the future and try use the kit we received for other events as well.

### ***Brian Greene talk, “String Theory, Dark Energy, and the Multiverse”***

As part of the Society of Physics Students Zone 2 Annual meeting we organized a keynote talk by Dr. Brian Greene. This talk was open to the Adelphi community and we pushed for a large crowd from within campus by advertising well in advance of the event. We were rewarded with a large number of attendants. Most of the attendants were very pleased with the talk and many of them got a chance to ask questions to Dr.



Greene. Later on there was also a book signing event in which many of them participated. More information about this event is given later in this report.

## **Part 2: Our chapter's Interaction with professional physics community outside Adelphi**

The alumni night event describe above was a key event interacting with the professional community beyond Adelphi. Others will be described here.

### ***Columbia Trip:***

Adelphi University has a joint degree engineering program with Columbia University. Some of the physics club members are in it or are considering it. In order to help these students make up their mind about their future, the physics club schedules a trip to Columbia University and meets the admissions staff. After meeting with the admission staff, some of the Adelphi alumni attending Columbia usually give a tour of the campus



Students at Columbia University for 3-2 program information session.

and help our club member with any other type of doubt that may arise.

### *Hosting the SPS Zone 2 Annual Meeting:*

Adelphi University hosted this years' Zone 2 meeting here at our Garden City Campus, NY on March 2<sup>nd</sup> and 3<sup>rd</sup>, 2012. We had several attendees from St. John's University, Ithaca College, Columbia University, SUNY Albany and a large group from Cornell University. The two day event was kicked off with registration and then with various activities including Physics Jeopardy or "Physpardy" (won by a group from Cornell University), Egg-drop competition and poster presentation (both won by students from St. John's University).



Students presenting their research to the audience in the poster contest



Students participating in construction of egg drop apparatuses.

These competitions were followed by dinner and then keynote talk by Dr. Brian Greene titled “String Theory, Dark Energy, and the Multiverse”. We had an attendance of more than 400 which included college students, high school students and the public. The talk was followed by a book signing event at which most of Dr. Greene’s bestselling books were at the offering.



Officers of Adelphi University Physics Club, Adelphi Physics Club Advisor and SPS Zone Councilor Sean J. Bentley, and keynote speaker Dr. Brian Greene.

The second of the event was kick started with light breakfast and then to the Cradle of Aviation Museum nearby. Students had the opportunity to learn firsthand the history of aviation leading up to the space age. One of most famous exhibit at the museum was an original Lunar Module, LM-13, was intended for the Apollo 18 mission that was eventually cancelled.

After the museum trip, we had talks from two more guest speakers. The first guest speaker Elna Nagasako, who received a Ph.D. in Optics from the University of Rochester and a M.D. from Washington University School of Medicine, gave an informative, relatable, and exciting talk entitled “Protecting the Health of the Sickest and Most Vulnerable Patients: How Physicists Can Help Medicine in an Era of Health



Reform”, in which Dr. Nagasako informed students of the wealth of opportunities available in the fields of physics and medicine.



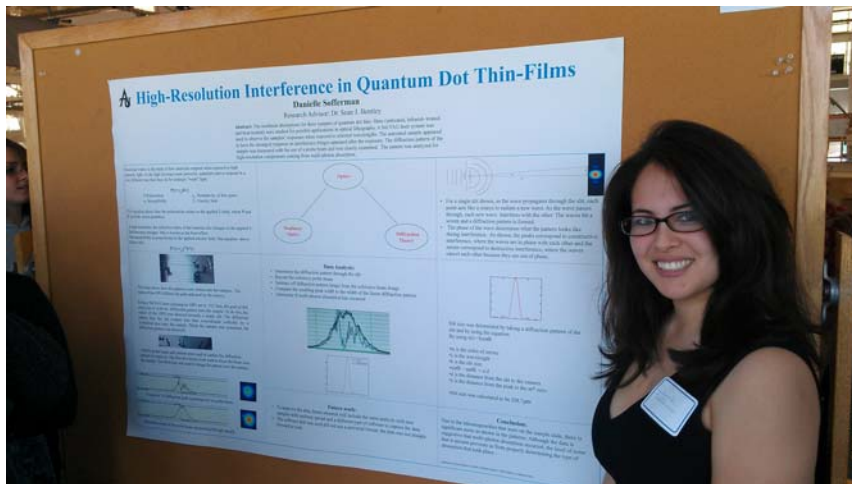
The Zone 2 Conference attendees on a guided tour of Cradle of Aviation Museum.

We concluded the event with talk from Dr. Thomas Olsen, the Assistant Director of SPS and Sigma Pi Sigma, the physics honor society. He gave a presentation entitled “SPS, Physics, and You”, providing us all with information on the great opportunities, scholarships and awards available, trying to get us more involved with the national office.

The entire event was very successful. We had good participation and in all 60 registered attendees from various colleges and even high school students attended the event. We are sure all of them had a good time connecting with students from various schools by participating in various activities. We are really appreciative of the help we got from SPS in terms of funding and other support materials for this event. We hope to participate in future Zone meetings and National Conferences.

## Research Presentations by Club Members

Several club members made research presentations this year. Some presented posters at the Zone Meeting we hosted, and others presented poster or gave talks at the Adelphi Research Conference. The club president is preparing his research on quantum entanglement which he presented at the research conference (and which was also the basis for his Honor's thesis) for publication to be submitted soon.



Club member Danielle Sofferman presents her research at AURC.

## Part 3: Our chapter's interactions with SPS National and participation in SPS National Programs

### Future Faces of Physics Award

We applied for and received a Future Faces of Physics award. Our award was used to support our Lab for Kids outreach program. The details of this project will be described in the Part 4 of this report.

### ***National SPS Leadership Roles***

Our chapter Advisor, Dr. Sean Bentley, is currently serving as Zone 2 Councilor.

Our club President Justin Dove served as Associate Zone 2 Councilor.

Our club Treasurer (and incoming President) Monika Mohacsi ran for Associate Zone 2 Councilor for next year, but was not elected.

### ***Other National SPS Programs/Awards Applied For***

We nominated our chapter Advisor, Dr. Sean Bentley, for this year's "*Outstanding Chapter Advisor*".

Club Treasurer Monika Mohacsi applied for the *SPS Leadership Scholarship* and club Secretary John Huber applied for the *Future Teacher Scholarship* (results pending).

## **Part 4: Our chapter's interactions with the off-campus public community**

### ***Lab for Kids:***

We hosted this annual event on Friday, April 20, 2012 by hosting 35 high school students from Westbury high school and engaging them various entertaining activities in order to arouse their interest in pursuing a career related to the field of physics and

science in general. Most of the students we hosted came from underrepresented minority groups and low-income backgrounds.

The students were first given a tour of the campus and then they were divided into groups and led to different stations, where our members briefly explored an interesting topic in physics and then engaged them in interactive and hands-on experiments concerning the topic. Among the various topics we covered, the students seemed to have enjoyed “Electricity/Magnetism”, in which the students learnt about the “Van de Graff Generator” and “Circuits” in which students built some simple circuits with LED’s. The students also got to learn about “Spectroscopy” and “Projectile Motion and Momentum”.



John Huber, secretary of Physics Club, watches as his students look through spectroscopes at the spectral lines of various gases.

Apart from the hands-on experiments, students were also led to one of the research labs by our club advisor Dr. Sean Bentley where he explained the experiments he was conducting and other interesting research areas in physics. Throughout the day, our members and our advisor answered questions from the students regarding college and career in physics and helped them with helpful resources and information.

Finally, all the students were served pizza and soda for lunch. We used some of the funds we received from *Society of Physics Students Future Faces of Physics Award* for this event. A detailed report of this event has been already submitted as required by SPS.



Sajan Shrestha, vice president, and Bill Miller, member, help the students construct and analyze their circuits.

Our outreach program helped introduce the field of physics to a group of minority students, since they have not been shown the various opportunities that they have available to them. We hope to have shown them that we can be a resource to them and help guide them to go after those opportunities, especially in the various fields of physics, and assist them along the way to success.

### ***Brian Greene talk, “String Theory, Dark Energy, and the Multiverse”***

As mentioned earlier, the talk by Dr. Greene was open to general public and we were quite happy to see a good attendance from this group. People from different professional background and age groups attended the talk which goes to show that people are very curious about science and exploration.



## **Part 5: Our chapter's other efforts to further the SPS Purpose and**

### **Mission**

We feel that everything our club does directly furthers the SPS Purpose and Mission, as reflected through the wide array of our activities described in the previous four sections.

Here we will describe a few things not mentioned above, though.

#### ***Adding a unique dynamic to the broad spectrum of what SPS is all about***

We have a club with a very broad away of members in all ways, probably more than many other chapters. In addition to students looking at more traditional career goals from physics such as engineering, physics graduate programs, and high school teaching, we also have members who are planning to become architects, medical doctors, and economists among others. We also have students from diverse backgrounds, and a quite high percentage of female members. We perform regular outreach to low-income, high-minority high schools. We want to promote the idea of physics for everyone, and as a route to anything.

#### ***Forming a community of learners***

We have a very close department. We are one of the only departments on campus to have our own computer lab, and it is right in the main physics office complex, so we all go to that lab to study (and even just hang out, have lunch, etc), with the professors just feet away (and sometimes they'll join us). There is also a conference room right there that we also use. Even though Adelphi is a heavily commuter school, and our department is no different, we tend to spend morning till night working together in the department.

### *Use of technology*

Our chapter has a twitter account to announce meetings and activities. We also maintain a page on OrgSync which keeps track of member information, meeting minutes, and other key information. The video mentioned earlier that we viewed was watched via the internet, and we regularly watch physics-related online videos.

### *Meeting the unique needs of the students, department, and school*

Our chapter has many students in the 3-2 engineering program with Columbia University, which is why we arrange the informational trip there each year. As we have many commuter students in our club, we work to have meetings at a time convenient for those who have long commutes. We also help the department at recruitment events (open houses, accepted students days, etc).

### *Developing student leaders in the chapter*

Our chapter focuses heavily on leadership, as can be seen in previous sections. One club member was actually the president of Adelphi's Omnicron Delta Kappa (leadership society) chapter this year. Our club treasurer (and now to be president) Monika Mohacsi was named the Female Emerging Student Leader of the Year by the Center for Student Involvement, and was also recognized as an Emerging Leader by ODK. Our club was named Student Organization of the Month by CSI this March, and the Brian Greene lecture was named Educational Event of the Year by CSI. We have officer meetings each week that we do not have regular meetings, and the officers interact regularly with the Student Government Association and CSI. We always try to get at least one freshman officer, to increase continuity in officers from year to year and have someone who can develop and grow within the club.

## Final part: Sigma Pi Sigma activity report

### *Inductions:*

The Sigma Pi Sigma honor society induction ceremony was held on May 2, 2012 along with the end-of-year graduation dinner. Six new members were inducted into Sigma Pi Sigma this year by our chapter. Professor William Happer of Princeton University was the guest keynote speaker for the ceremony. Awards were also given out to outstanding graduating seniors. The ceremony and dinner was attended by over 80 students, their families and friends, faculty, staff, and administration.



Club member Binayak Kandel receiving an outstanding graduating senior award from the Dean.