



SIGMA PI SIGMA

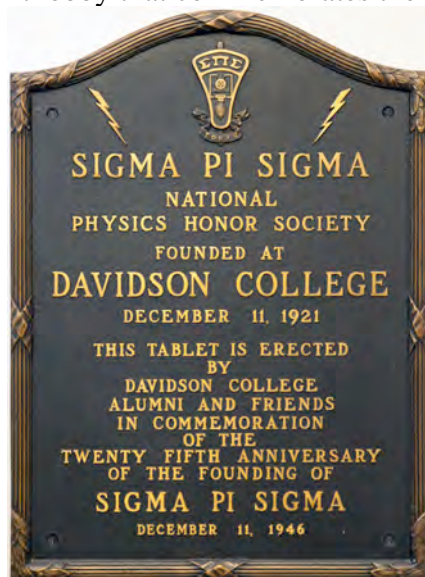
The physics honor society

Sigma Pi Sigma Chapter Project Award Final Report

<i>Project Title</i>	The Return of Key #26 to the Alpha Chapter of Sigma Pi Sigma
<i>Name of School</i>	Davidson College
<i>Sigma Pi Sigma Chapter Number</i>	001
<i>Total Amount Awarded</i>	\$500
<i>Project Leader</i>	Phillip Wall

Summary of Award Activity

In April of 2013, the 26th Sigma Pi Sigma key awarded to William Mebane at Davidson College in 1923 was found and returned to the national office of Sigma Pi Sigma. This Sigma Pi Sigma Chapter Project Award funded the return of this key to the Alpha Chapter at Davidson College in an expansion of the spring Sigma Pi Sigma induction ceremony. The annual departmental picnic followed the ceremony and served as a fun social gathering for visiting alumni and friends. Guests, including Dr. Toni Sauncy, students, faculty, and alumni, enjoyed a barbeque dinner and the famous ping-pong ball cannon demonstration as entertainment! Now that the key has been returned to Davidson, plans are underway for a permanent and prominent display of the key and the soon to be published *Radiations* article about the key. The new key return display will be next to the existing plaque in the physics department lobby that commemorates the 25th anniversary of Sigma Pi Sigma.



Statement of Activity

Overview of Award Activity

At the end of every spring semester, our Chapter hosts a Sigma Pi Sigma induction ceremony followed by a picnic for the entire department at the home of one of the faculty members. This project sought to integrate a very unique opportunity with these existing events. In April of 2013, an old Sigma Pi Sigma key was returned to the SPS national office that had been found lost in the woods. This key was traced to Davidson College, as it belonged to former math professor William Mebane. Mebane was the 26th member of the Davidson Chapter of Sigma Pi Sigma and therefore was the 26th overall member of Sigma Pi Sigma. This project's goal was to incorporate a special key return ceremony into our induction ceremony followed by our departmental picnic. Invitations were sent to the son and grandson of Professor Mebane, approximately 200 nearby Davidson College physics and Sigma Pi Sigma alumni, and Dr. Toni Sauncy to attend the ceremony and picnic. While Professor Mebane's son and grandson were not able to attend, three Davidson alumni and Dr. Sauncy were able to attend.

The ceremony itself was well attended by Davidson students and faculty. The main lecture hall in the Dana science building where the ceremony occurred was filled to its capacity of 50 people. The ceremony began with two student talks regarding their independent research projects. These talks were followed by our induction ceremony, where six new members were inducted. Finally, a presentation detailing the return of key #26 was given and the historical implications were detailed. It was initially planned to have a formal "returning" of the key at the end of this presentation by having Dr. Sauncy handing the oldest Sigma Pi Sigma key to the newest Sigma Pi Sigma inductee Grace Watt '15. However, Dr. Sauncy's flight from Baltimore was delayed due to inclement weather, forcing her to miss the ceremony. So the formal key return had to wait until the departmental picnic, where Dr. Sauncy finally arrived after a long plane ride and heavy Charlotte traffic.

The picnic was also heavily attended. Almost all current and prospective physics majors attended along with all physics faculty and their families. The picnic was held at the farm of Dr. Wolfgang Christian, the chair of the physics department. There was a barbeque dinner for guests as well as games (such as ladder golf) for entertainment. The highlight for entertainment at the picnic had to be the ping-pong ball cannon demonstration. This is a demonstration where a large industrial bucket is filled with a couple inches of water. Then, an empty one or two liter plastic bottle is filled with crushed dried ice. Some water is added to the bottle to increase the rate of gas production. Then the bottle is capped and thrown into the large bucket. Lastly, hundreds of ping-pong balls are added to the bucket and you wait for a big boom (the pressure builds in the bottle until it explodes)! The results are satisfying as you could imagine. The picnic was a fun event where the official return of key #26 took place. It also gave students a chance to interact with physics alumni and Dr. Sauncy. Both the ceremony and picnic sought to increase student awareness of both the history of Davidson's Chapter of Sigma Pi Sigma and Sigma Pi Sigma as an honor society.

Overall, this project achieved its goals in reconnecting with over 200 alumni via email and increasing student awareness of the history and significance of Sigma Pi Sigma. The project also sought to educate the entire Davidson College community about Sigma Pi Sigma being founded at Davidson. This was accomplished through the extensive article written about the Key Return for the Davidson College website that can be found here: <http://www.davidson.edu/news/news-stories/140501-long-lost-honor-society-key-returned-in-shroud-of-mystery>.

Four Sigma Pi Sigma members were active in planning for the events: Jessie Barrick '14, Ashley Finger '14, Chris Trennepohl '14, and Phillip Wall '14. Also, Society of Physics Students Faculty Advisor Dr. Mario Belloni was instrumental in organizing the logistics of the ceremony. Other members of the physics faculty helped in purchasing food for the picnic. Also, several members of the Society of Physics Students helped in preparing for the picnic entertainment. Henry Martin '14 is the resident dry ice loader for the ping-pong ball

cannon demonstration. The Society of Physics Students tried to acquire a helicopter drone from ITS capable of carrying a Go-Pro camera for an aerial view of the picnic and ping-pong ball cannon. However, the group that had rented the drone prior to our group crashed it the day before the event, preventing us from being able to use it. Aside from this and Dr. Sauncy's flight delay, the preparation and the execution of the event went smoothly as expected.

Impact Assessment: How the Project/Activity/Event Met the Purpose of the Award

The project met numerous purposes of the award. This project's main goal was to raise awareness of Sigma Pi Sigma in the Davidson College community, which was achieved through both the key return ceremony and the departmental picnic. This project also was successful in connecting alumni with all current Sigma Pi Sigma members by inviting all 200 nearby alumni to the events. While only three alumni ended up attending, a foundation of communication was established between the alumni and the physics department for possible future alumni related events. Regardless, current students were able to connect with alumni to see for themselves what is possible with a physics degree from Davidson.

This project allowed us to create a special key return ceremony, which made the induction ceremony distinct from any other physics seminar and any other induction ceremony for that matter. There was a greater emphasis on the history of Sigma Pi Sigma and also Davidson's direct role in the founding of Sigma Pi Sigma. This was in conjunction with the story of key #26. Therefore, the emphasis of Davidson's Chapter of Sigma Pi Sigma being the Alpha Chapter along with the return of key #26 produced a unique event for the physics community at Davidson.

Also, physics t-shirts were designed and sold among the physics community in Davidson. Therefore, to commemorate this project, alumni were given the option to buy a t-shirt in the invitation. Also, t-shirts were given to the Mebanes and to Dr. Sauncy as souvenirs. This distribution of t-shirts for this project can serve as a foundation for fundraisers in the future.

We hope that prospective and current young physics majors will be inspired to become members of Sigma Pi Sigma themselves as a result of this project. The two student speakers at the ceremony also served to advertise the research opportunities at Davidson for physics students as well as to showcase the work being done by students to alumni.

Overall, this project fulfilled numerous of the stated purposes for the award.

Key Metrics and Reflection

Who was the target audience of your project?	Davidson College Community – specifically physics students and alumni
How many attendees/participants were directly impacted by your project? Please describe them (for example “3 alumni” or “10 physics majors”).	3 alumni and 40 current/potential physics majors ~200 recent alumni were contacted and invited; as part of the invitation recent alumni were also asked to update their contact information
How many students from your ΣΠΣ chapter were involved in the activity, and in what capacity?	6 students actively prepared for the events. Every member (12 students) of Sigma Pi Sigma attended both events
Was the amount of money you received from ΣΠΣ 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 received was sufficient to carry the additional activities for our events. Additional funding would have been used for more advertising and more entertainment at the picnic.
Do you anticipate repeating this project/activity/event in the future, or having a follow-up project/activity/event? If yes, please describe.	We will repeat our annual induction ceremony and departmental picnic. Given the uniqueness of the return of key #26, we doubt another opportunity like this will present itself in the future.
What new relationships did you build through this project?	New relationships were built between the physics department and the Mebane family. Also, Dr. Toni Sauncy was able to see our Chapter and meet our students. The connection between the alumni and the physics department was revived as a result of this project.
If you were to do your project again, what would you do differently?	Do a bit more advertisement on campus to stress the importance of the key return as an event for Davidson College.

Expenditures

The costs covered by the award included all of the food needed for the picnic and a frame that will be purchased for presenting the article that is being written about the event in the Radiations magazine. Also, materials for the ping-pong ball cannon were needed such as dry ice and ping-pong balls. There will also be a shadow box purchased for the key to be displayed along with the article in the lobby of Dana science building where the physics department is located. Also, there was the cost of the three shirts given to the Mebane family and Dr. Sauncy.

Expenditure Table

Item	Cost
Covered by SPS:	
Food provided at picnic	\$300
Frame for the Radiations article	\$200
Covered by Society of Physics Students SGA account:	
Materials for ping-pong ball cannon	\$50
Shadow Box for returned key	\$300
3 T-shirts for the Mebanes and Dr. Sauncy	\$50
Total of Expenses	\$900

Activity Photos



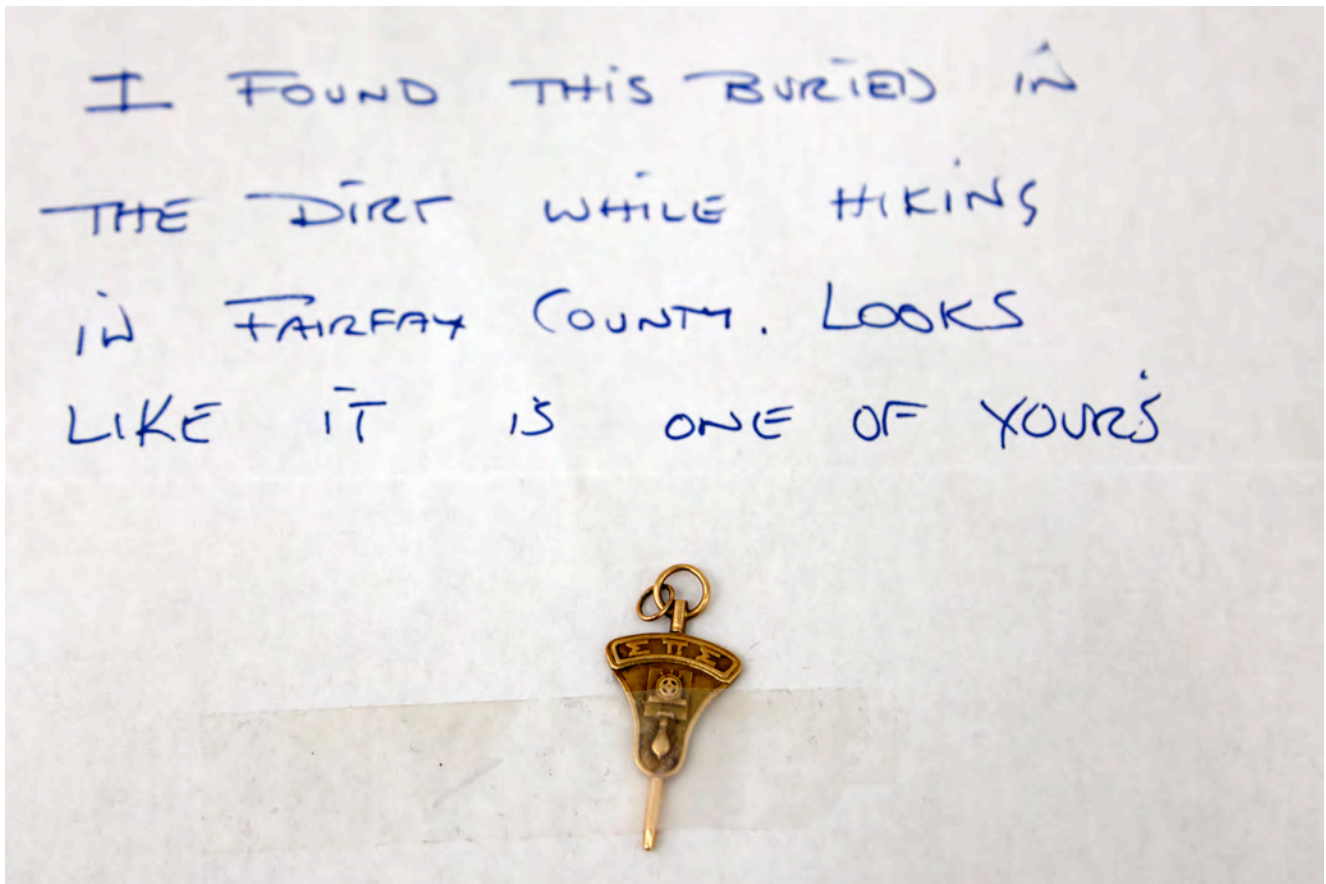
The latest six inductees into Sigma Pi Sigma: (l-r) Grace Watt '15, Jacob Simmonds '15, Collin Malone '15, Kelly Myers '14, Sarah Friedensen '15. Photo credit: Bill Giduz



National Sigma Pi Sigma director Dr. Toni Sauncy presents Prof. Mebane's key to the newest Sigma Pi Sigma member, Grace Watt '15. Photo credit: Mario Belloni



The back side of the key identifies it as belonging to member #26, Davidson's late math and physics professor W.N. Mebane '18. Photo credit: Sigma Pi Sigma National.



The original note sent to National SPS with the attached key. Photo credit: Mario Belloni

FRONT



BACK

fisica الفيزياء **fimilca** ফিফিলা **fizikë**
 физика **fizika** पदार्थविद्या FYSIKK физика
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DAVIDSON COLLEGE PHYSICS 2011
 eðlisfræði **FISIC** 物理学 *φυσική* φυσική
 φυσική **fysiikka** ფიზიკა *physique* 물리학
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 ഭൗതിക *fizicā* இயற்பியல் **FIZIKA** ფიზიკა
 физика **fizika** vật lý *פיזיקה* **fisiksi**

2014 Davidson College Physics T-shirt design. Photo credit: Ashley Finger '14



Students begin to set up the ping-pong cannon demonstration at the physics picnic. Photo credit: Mario Belloni



Students Phillip Wall '14 (left) and Henry Martin '14 (right) prepare the ping-pong ball cannon! Photo credit: Mario Belloni



Henry Martin '14 getting ready to cap the bottle filled with dry ice for the ping-pong ball cannon. Photo credit: Mario Belloni

Special Thanks

This event would not have been possible without the gracious return of Dr. William Mebane's key by the Mebane family. We especially thank William N. Mebane III and William N. Mebane IV for their interest in returning the key to Davidson.

We also thank the National Director of Sigma Pi Sigma, Dr. Toni Sauncy, for her attendance and participation.

Event Committee

Phillip Wall [SPS President]
Mario Belloni [SPS Advisor]
Larry Cain [Sigma Pi Sigma Advisor]
Wolfgang Christian [Department Chair]

Volunteers

Davidson College SPS
Davidson College Sigma Pi Sigma

Contributors

Sigma Pi Sigma Chapter Award
Davidson College SPS
Davidson College Physics Department

Induction and Key Return Ceremony



Davidson College 2014

Welcome

Welcome to the 2014 Sigma Pi Sigma Induction and Key Return Ceremony.

Sigma Pi Sigma Induction

Today we are inducting 6 new members into the Davidson Chapter of Sigma Pi Sigma. These new members will be the Chapter's 453rd through 458th members.

Key Return

We are also celebrating the return of Key#26, the 26th key awarded to a member of the national physics honor society, (Sigma Pi Sigma).

April 2, 2013, the Sigma Pi Sigma National Office received a letter with no return address. Inside was a handwritten note:

I found this buried in the dirt while hiking in Fairfax County [VA]. Looks like it is one of yours.

The key was given to Dr. William Mebane, Jr, on Dec. 17, 1923 as the 26th member of Sigma Pi Sigma.

About Sigma Pi Sigma

Founded in 1921 at Davidson College, Sigma Pi Sigma is a member honor society of the Association of College Honor Societies. The society has 75,000 historical members. Election to Sigma Pi Sigma is a lifetime membership.

Event Schedule



Program (Dana 146)

4:00-4:05 PM	Welcome
4:05-4:15 PM	Student Talk: Phillip Wall
4:15-4:35 PM	Sigma Pi Sigma Inductions
4:35-4:45 PM	Student Talk: Steven Keller
4:45-5:00 PM	Key Return Ceremony

Picnic (Dr. Christian's Farm)

5:30 PM	Gather at Dr. Christian's Farm
6:00 PM	Dinner

Student Talk Titles and Abstracts

Phillip Wall, *Dual Energy X-ray Imaging with Digitome®*. Dual energy x-ray imaging is a versatile tool in medicine and nondestructive testing for image enhancement and material decomposition. This talk will show the capabilities of this technique applied to a non-monochromatic x-ray source and how it integrates with Digitome®.

Steven Keller, *Weld Defect Identification and Image Reconstruction Methods*. In this talk we describe the identification and measurement of defects in the welding joints between steel plates. Using Digitome® we can measure all dimensions of a welding defect better than a standard radiograph.

The program for the induction and key return ceremony. The first image is the front and the back of the program and the following image is the inside of the program. These were distributed to attendants of the event.

Credit: Mario Belloni