School Name: Colorado School of Mines (Mines)

Part 1: Chapter interactions and participations in SPS National and Regional Programs

- **Future Faces of Physics Award:**
  - Our chapter applied for the Future Faces of Physics award for 2017-2018, but did not receive the award this year. Regardless, we did organize a Future Faces of Physics outreach event at a high school that we saw would benefit highly from an event that encourages historically under-represented groups to participate in the physics community.

- **Conference for Undergraduate Women in Physics:**
  - 11 members travelled to Arizona State University to attend the 2018 CUWiP meeting. This gave them the chance to see poster presentations given by students from other colleges and to learn about different fields of physics they might be interested in. They were also taught about imposter syndrome and were able to attend several networking events to help women expand their knowledge and influence. One of the Mines attendees was also able to give a poster presentation of her own at the conference. This conference provided a very beneficial experience for those who attended since the Mines student body is only about 30% women.

- **Sigma Pi Sigma:**
  - The CSM chapter of Sigma Pi Sigma applied for and won the Sigma Pi Sigma Chapter Project Award. The award money was used to kick off a community lecture series about physics topics like quantum entanglement and gravitational waves. These were non-technical lectures given by speakers from the Mines physics department.
Funding Our Activities:

- Part of our chapter’s funding comes from our university’s Board of Student Organizations (BSO) as well as the physics department. We received around $9,400 this year, with $2,500 going towards paying for our members to attend PhysCon in 2019.
- Fundraising is the other main source of funding for our chapter. Our main fundraisers this year were as follows:
  - **Pi a Prof**: For several weeks leading up to the week of Pi Day, we placed donation buckets in the classrooms of participating professors and allowed students to donate money to see a certain professor be hit in the face with a pie. If a professor’s bucket collected at least $50 by the target date, we “Pi”-ed that prof in front of their students in honor of Pi Day. We raised enough money to pie all three of our selected professors.
  - **Selling Meyer Hall Bricks**: Following the demolition of the old physics building on campus, Meyer Hall, we were able to collect some bricks from the building. We laser engraved these bricks with a commemorative inscription and offered them to alumni and students in return for a donation. We set these donations aside in preparation for sending some of our members to attend the next PhysCon.
  - **Haunted Physics Lab**: During our Halloween Haunted Physics Lab event, parents and other members of the community who attended the event were able to donate toward our future outreach endeavors.

SPS Movie Nights:

- Throughout the school year, our Vice President of Inreach and Social Chair periodically organized movie nights where movies like “Thor: Rangarok” were shown and snacks were provided. These movie nights were good for socialization and for stress-relief when classes got more difficult.

Trip to the movies:

- The VP of Inreach also organized an evening where a group of about 13 SPS members traveled to a theater to watch Black Panther. We had a mix of older and new members on this trip, which made it a good chance to interact with those who were new to SPS and include them in our community.
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- **Physics Field Session:**
  - All Mines students must go through a class called Field Session. For the physics department, it is a 6-week course during the summer, typically between sophomore and junior year. Our SPS chapter uses Field Session as an opportunity to enrich the experience of the involved students and advertise to younger students all of the great things they can do as a member of SPS. For the 2018 Field Session, we are hosting three barbecues for the Field Session students, teaching assistants, and professors. We will be networking with students who have not yet experienced SPS and showing off some of our demos. To complement the free food for field session students, we also set up several lawn games so they can enjoy the good weather as a group.
  - For last year’s field session, we organized several meetings during lunch breaks with food and speakers. We set up a movie night and a hike for the field session students as well.

- **Lunch with potential faculty:**
  - When the physics department was considering candidates for faculty positions within the department, SPS and Sigma Pi Sigma officers had the chance to go to lunch with each of the candidates. This allowed those who went to the lunches to represent the rest of the physics students in the process of selecting new faculty by interacting with the candidates and giving feedback to the department.

- **Physics Department Barbecue:**
  - Each year, SPS hosts an end-of-the-year barbecue for the physics department. This 2018 barbecue was the first time in multiple years that we were able to make food ourselves instead of ordering food because of the renovations of the new building. The incoming officers who had been recently elected organized the event and served cheese burgers, bratwurst, and veggie burgers to around 200 people. Those who attended included current students and faculty, but also physics alumni and their guests. By requesting RSVP’s from alumni, we were also able to compile a list of physics alumni interested in receiving news from our chapter or even coming to speak to our members. We plan to continue to update this list each year.
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- **Snacks for Physics Lounge:**
  - This year our chapter’s officers decided to help stock the brand-new physics student lounge with snacks and coffee. The student lounge and connected computer lab is where many physics students from all grade levels at Mines spend a large portion of their time outside of classes. We recognized that many people who spend late nights in this space working on their coursework and other projects would appreciate having food readily available to them, so we bought the initial batch of snacks and asked for a donation of at least 25 cents for each item. After the initial batch, we have been able to sustain the food and coffee supply using only what is donated and have received very positive feedback from other students. Maintaining these snacks has been a good way to promote SPS within the physics department.

- **Celebration of Mines:**
  - This is an annual fair that Mines holds where students can explore the many clubs that the school offers. We had a booth where some of our members volunteered to show off a couple eye-catching demos (like our non-Newtonian “Oobleck” fluid) and interacted with passing students. We collected a list of emails from interested students that we added to our mailing list so they could receive information and news about our club.

- **CoorsTek Building Opening:**
  - SPS members volunteered to help with the grand opening of the new Mines physics building, CoorsTek. The building was opened to donors and later to the general public to tour the building. Our volunteers handed out information packets and discussed with visitors the benefits the new facility would bring for student academic endeavors, SPS, and other student organizations.
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- **Solar Eclipse Viewing:**
  - For the 2017 solar eclipse, many people traveled to areas that would see a total eclipse. However, many people chose to stay in Colorado to watch a partial eclipse. Mines decided to make an event of viewing the eclipse and invited students and community members. SPS, along with the Astronomy Club, organized a solar eclipse viewing on one of Mines’ intramural fields. Members of SPS, the Astronomy Club, and several other organizations volunteered to distribute solar eclipse glasses and set up telescopes and other viewing devices for interested students and faculty to better view the solar event. We also collected donations for an organization that was important to one of our faculty members, Children’s Tumor Foundation, in exchange for a pair of solar eclipse glasses. We asked for donations of at least $5 per pair and were able to raise over $600.

- **Senior Banquet:**
  - SPS hosted the inaugural senior banquet this year to honor those graduating at any point in 2018 with an undergraduate degree in physics. The event featured catered food as well as a slideshow of all graduating seniors with pictures and their plans after graduation. The event also featured the Department Awards hosted by the Physics Department and customized “Most Likely To” awards from SPS. The event was run by the SPS President and VP Inreach, and was well attended with more than half the senior class attending and a significant number of faculty as well. This was planned with the anticipation of becoming an annual event, and, with the success seen in the inaugural banquet, that seems likely. Additionally, in order to maintain a connection with new alumni, we collected alumni information cards.

- **Newton Cup:**
  - Each year, the CSM SPS chapter and Math Club face off in a competition called the Newton Cup. For this fourth annual Newton Cup, the Math Club chose a trivia challenge and, for the fourth year in a row, SPS came out victorious.

- **Mines Engineering Days Cardboard Boat Race:**
  - The CSM Engineering Days (E-Days) is one of our school’s biggest events each year. There are a wide variety of events and activities that take place over the span of a few
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days, some of which are meant for student organizations to participate in. One such activity is the cardboard boat race down Clear Creek near the campus. A group of our members were brave enough to get together and build a boat to compete. The challenge is that the boat must be made from just cardboard and duct tape and must be capable of carrying at least three people down the river. Our team didn't win this year, but we are patiently awaiting another chance next year.

• Michio Kaku President’s Distinguished Lecture:
  o Mines hosts an annual lecture series called the President’s Distinguished Lecture Series. The 2017 lecture was given by theoretical physicist Michio Kaku. A group of SPS members volunteered to help at the event and some of the SPS and Sigma Pi Sigma officers were able to meet with him, be part of a discussion with him, and get his signature. We had a poster signed that we hung in our new club space and another that we sent to the SPS national office.

• Negotiation Seminar:
  o SPS held a negotiation seminar for women that was sponsored by APS. We saw between 15 and 20 people throughout the seminar. Furthermore, it was filmed for the Trefney Institute and will be available to the Mines community next year.

• UO Master’s Industrial Internship Program:
  o We organized a visit from Lynde Ritzow of the University of Oregon to discuss their Master’s Industrial Internship Program. This program trains students in how to succeed in the industrial research laboratory and be effective in interviews. This visit is an example of how our chapter tries to accommodate the many career paths our members can follow.

• Member of the Year:
  o This year we implemented a “Member of the Year” award for a member of our chapter who exemplified certain values throughout the year. To qualify, they must be in good standing with the chapter, they must have attended at least both of our biggest outreach events for the year (Haunted Physics Lab and Future Faces of Physics, both discussed in Part 4) and they must have participated in at least 75% of the year’s weekly meetings. Anyone, whether it be an officer, advisor, or other member, is open to
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nominate someone in the chapter for the award. This year we had several qualified candidates, so the decision was very difficult and came down to an officer vote.

- **Collaboration with SWiP:**
  - We partnered with the Society of Women in Physics for our Halloween community outreach event, Haunted Physics Lab. Since SWiP is a smaller and newer organization within the physics department, SPS has helped to foster its continued growth by partnering with SWiP members for events like HPL and by advertising SWiP activities and fundraisers.

- **Promoting SPS Membership:**
  - Attracting new members and retaining our current members is an important goal for us. We promote membership by sending out announcements to the whole campus about our club and what it does at the start of each semester.
  - We also make announcements for our meetings within the physics department, such as in the introductory physics classes.
  - CSM campus-wide outreach programs, like Celebration of Mines, are additional important tools for promotion as they attract a large portion of the student body and are chances for student organizations to talk with interested students face-to-face.
  - Food and entertaining demos at SPS-sponsored events help to attract further membership and participation.
  - SPS-sponsored social events - activities meant to just be fun escapes from rigorous academics - are very beneficial as they allow current members and new/potential members to converse and form a closer community with one another. Those who are new to SPS are more likely to return if they feel involved and included with members who are already familiar with each other.
  - We offer opportunities to widen one’s academic and professional networks by encouraging networking between students and faculty at events and meetings. We also invite faculty speakers and speakers who represent a variety of career paths to present and talk with our members at weekly meetings.
  - Similar to the previous point, we promote the academic and career benefits of the national SPS membership. This can particularly appeal to our members who are searching for internship and scholarship resources. This year, we offered the group rate if members signed up with us by the end of the first month of classes. This allowed about 30 students to each save nearly $5 thereby making the national opportunities more accessible to our members.
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- **Weekly Meetings:**
  - This SPS chapter holds a meeting each week, which the officers use as a chance to update members with in-person announcements about upcoming events that the chapter intends to participate in or is organizing. These announcements can also include other news or chapter business that needs attending to. Members are encouraged to give their thoughts and ideas during this time if desired. After the short announcement portion, the remainder of most meetings are devoted to presentations given by speakers as organized by the VP of Inreach. These are typically faculty speakers or academia/industry speakers, though they are not limited to only these. Presentations this year included physics professors sharing their life stories with us, exploring graduate school options, a talk about the many facets of research within the field of quantum mechanics, and much more. Since our members are specifically pursuing an engineering physics degree, we aim for a balance between academic speakers and speakers from industry to reflect our members’ wide variety of career interests.

- **Sigma Pi Sigma:**
  - The CSM chapter of Sigma Pi Sigma hosted quarterly meetings with its members to share chapter news and discuss upcoming events. These meetings encouraged participation in other social outings and helped gather volunteers to help run various events that the club hosted. At the end of the spring semester we hosted our annual induction ceremony to invite our new members into the club and to allow new and old members to get to know one another.
  - One regular event that was hosted by Sigma Pi Sigma was a series of pre-colloquium talks. These supplemented the department-run weekly colloquiums by bringing either the speaker or another expert in the topic to give a brief talk in the thirty minutes before the colloquium. These served to make the colloquium information more easily understandable to people who did not have much prior knowledge on the topic, especially undergraduate students.
  - Sigma Pi Sigma also hosted a guest lecture on active learning, as well as a lecture (with the help of SPS) on the discovery of neutron star mergers following the LIGO announcement in October. Both had high attendance, and were supported financially by the physics department.
  - Additionally the Sigma chapter hosted Mathematica and LaTeX help sessions, primarily for juniors in physics but open to the entire campus community, in order to fill a gap in learning from some of the students. The goal of these help sessions was to teach students how to use these programs and the benefits of using them. These were run by student volunteers from the club.
Part 3: Chapter’s interactions with professional physics community outside of the college/university

- **Ashley Piccone (Class of 2018):**
  - Presented at CUWiP 2018 at Arizona State University
  - “Upgrading the Arecibo Potassium Lidar Receiver for Meridional Wind Measurements”
  - This REU project is focused on the set up of a semi steerable telescope that will allow the measurement of meridional wind in the mesosphere (80-105 km) with Arecibo Observatory’s potassium resonance lidar. Using LabVIEW, the frames from the CCD camera can be analyzed to identify the most intense pixel in the image (and therefore the brightest point in the laser beam or stars) by plotting average pixel values per row and column and locating the peaks of these plots. The location of this pixel can then be plotted, determining the jitter in the laser and position within the field of view of the telescope.

- **George Smith (Class of 2019):**
  - Research with CSM professor Meenakshi Singh
  - “Nano-Scale Hybrid Materials for Magnetocaloric Refrigeration”
  - Co-Authors: George Smith (CSM), Logan Sutton (of Colorado State University), Kellen Malone (CSM), Kirsten Blagg (CSM), and Meenakshi Singh (CSM)
  - Magnetocaloric Refrigeration (MR) is based on the interplay of entropy and energy in magnetic materials to lower temperature. Theoretically, MR is more energy efficient, portable and cleaner than traditional refrigeration techniques. Previous implementations of MR have several limitations. We propose the use of nano-scale hybrid materials to overcome these obstacles.

- **Steven Clark (Class of 2018):**
  - Research with Professor Andrew Baker of Rutgers University, begun in Rutgers Physics REU
  - “Track Reconstruction and the Proton Radius Puzzle”
  - This research was based around reconstructing particle tracks in muon proton scattering experiments. The GenFit track fitting package was utilized initially, though it proved to have its limitations. A method using Hough transforms was developed that could be used for both polar and non-polar detectors. In the future, intersection points will need to be calculated and then tracks can be drawn.

- **Matthew Martin (Class of 2018):**
  - Research with Professor Kyle Leach at Mines
  - Presented research at APS 4 Corners Meeting, Gulf Coast Undergraduate Research Symposium at Rice University, and Department of Nuclear Physics APS Meeting
“Systematic Study of Weak Decay Rates in Extreme Astrophysical Environments”
This research focuses on using evaluated nuclear and atomic experimental data to calculate the effects of extreme conditions including radiation and ionization on the stability of weak decay.
Mitchell Elementary Math and Science Night:
- Our chapter was invited to participate in the 11th annual Math and Science Night at Mitchell Elementary, an elementary school near the Mines campus. A small group of SPS members participated as volunteers, bringing some demos along to show to the kids. The event is intended as an opportunity to celebrate a love for math and science with elementary school students and their families. It was a great chance for our members to engage with kids who enjoy math and science through physics demos that allowed the kids to ask questions and explore some exciting physics concepts.

Multi-Messenger Astronomy Lecture:
- We held an event where a member of the physics department faculty, Dr. Fred Sarazin, gave a lecture that was open to the community. Dr. Sarazin is an experimental nuclear and astroparticle physicist and his presentation was focused largely on the neutron star merger detected by LIGO in 2017 and on gravitational waves and the future of multi-messenger astronomy. We had a large turnout for the talk as we were able to nearly fill the 150 person lecture hall it was held in. The CSM president personally invited every high school science teacher within two miles of the campus via email and Sigma Pi Sigma printed and hung flyers around Golden.

Haunted Physics Lab:
- Currently, our biggest outreach event for the Fall semester is Haunted Physics Lab. It takes place near Halloween and is, as the name suggests, Halloween themed. Haunted Physics Lab is an on-campus outreach event open to the community and targeted towards younger kids. We advertise heavily on campus and by emailing lists of contacts within the community off campus leading up to the day of the event. Parents are encouraged to bring their children to enjoy fun physics demos, and some candy. The 2017 Haunted Physics Lab took place in the Mines student center.
- SPS partnered with members of SWiP in making this event happen. Volunteers from SPS and SWiP set up tables for a wide variety of demos sorted into general physics categories (Electricity, Magnetism, Optics, Vacuums, etc.) and visitors could roam freely to explore the different stations and their demos.
Periodically, at regular time intervals, the stations would stop their activities and we hosted “shows” where our members showed off larger-scale demonstrations to the crowd. Most of these demos are unique to our Haunted Physics Lab event as we save them just for this event. Some examples are a large bed of nails where we smash a cinder block placed on top of someone and a smoke “cannon” and fog machine used to shoot rings of smoke. We try to include audience participation and Q&A times in these shows to boost engagement from the kids.

Each year, we receive feedback from parents saying that their kids loved the event and even some that say they try to come each year. Many of those who attend are faculty, not just from the physics department, who enjoy bringing their children. Many community members who attend are new and the event was recommended to them by another parent or colleague.
Future Faces of Physics:

- The main outreach event in the Spring semester is Future Faces of Physics. We were not granted the Future Faces of Physics Award this year, but our event was still successful. For our 2018 FFOP event, we travelled to Gateway High school in Aurora, Colorado. This high school was farther away from the CSM campus than schools we have travelled to in the past, but the science teachers there were very eager to have us come to their school again. Additionally, we decided that their students could benefit highly from our FFOP
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event as many come from demographics that are historically under-represented in the scientific community.

- 22 SPS volunteers participated in packing most of our demos, driving to Gateway High School, and presenting the demos to groups of students over the course of the full school day. Members showed up on campus at 5:30 AM and didn’t get back until at least 3:30 PM. We set up stations on the auditorium stage, each with a different category of demos, and the high school students went from station to station answering questions on a custom-made worksheet and exploring each area of physics.
- We aimed for the experience to be both fun and educational for the students with a mix of entertaining and hands-on demos. We also found opportunities to talk with students about college and about their career interests to promote going to college and potentially making a career out of their interest in science.
- We found that many of the high school students, and their teachers, really enjoyed themselves throughout the day. The science teachers appreciated that we were able to provide a worth-while experience to their students, including their ESL classes.
- Our chapter plans to continue to bring this event to nearby under-privileged high schools in future years so we can continue to do our part in encouraging young students’ passions for science.
Volunteers Bryce Frazee and Zachary Parrott at FFOP electricity station

All of the SPS volunteers posing after the 2018 FFOP event

Gateway High School students watching can crush demo

Exploring our new Chlandi plate demo

Showing off interference patterns created by an interferometer
Sigma Pi Sigma:

- With the Sigma Chapter Project Award, our chapter was able to kick-off a Community Lecture Series on various physics topics. These talks were given by professors at Mines on high-level topics like quantum entanglement and gravitational waves, but geared towards the understanding of someone who has only taken high school physics. These talks were held at the local high school, and advertised extensively to physics teachers in the school district and to residents of the Golden community. Attendance at each of the lectures was upwards of 50 people, including high school students, college students, and other members of the community. Feedback from attendees of these lectures was overwhelmingly positive, and these will be continued next year.
Part 5: How chapter strives to further the SPS purpose and mission

- **Who we are as a chapter:**
  - While Colorado School of Mines is a smaller university with just over 6000 graduate and undergraduate students, the Physics department is steadily growing. As such, our SPS chapter aims to promote this growth and to help ensure that physics majors at Mines have a quality experience both academically and beyond. We want to preserve the close community within the department, even as the department grows. One of our continuing goals is to encourage members to participate in both inreach and outreach since we value both networking opportunities and service to the community.

- **Meeting Unique Needs:**
  - We provide opportunities for our physics majors to grow their network with each other and with professors through the social activities and outreach events that we coordinate. This includes the talks that we arrange for weekly meetings, the department barbecue, movie nights, Haunted Physics Lab, faculty lectures, etc.
  - We have been working on organizing activities between our chapter and other SPS chapters so we can network with physics majors from other universities and potentially broaden the sense of physics community that our chapter has. We have had events in the past (hiking with the Boulder chapter and laser tag with the Metro State University chapter) and are hoping to have at least one event per semester (ice skating, movies, etc).
  - SPS allows CSM physics students to connect with the campus community as well as the off-campus community, particularly through our main outreach events (HPL and FFOP). Our members are passionate about physics and enjoy being able to spread that passion beyond our own small community. For example, HPL is a chance for us to share the enthusiasm that physics can bring with local children and it is something that many kids and parents (including some faculty) look forward to each year.
  - Our chapter prides itself on being a place where physics students can not only develop a community, but can develop professionally. We do our best to arrange a variety of talks for our weekly meetings, to help our members gain important connections and information for their future careers. Since the Engineering Physics uniquely combines both physics and engineering elements, we accommodate options not just in academics but within other professions too.
  - SPS has also spearheaded a department-wide effort to reconnect with alumni and to allow them to interact with our students. We will continue this endeavor, particularly though events like the department barbecue and senior banquet. By ensuring that these are maintained as annual events, we hope to keep our connections up-to-date.
Using technology:

- OrgSync has been the primary website for most student organizations at Mines to keep track of members and contact them all from one place. However, this website will no longer be used and will be replaced. We intend to transition to the replacement website, but have also started to use Facebook to remind members about upcoming events. We will also be obtaining a new website that can be accessed through the CSM physics department website.

- Our incoming VP of Public Relations is working on increasing our social media presence as a way to more effectively keep members up to date and advertise for SPS-hosted events. These will help our chapter connect better with alumni as well. This will entail posting more consistently on Facebook and finding ways to adapt other platforms to reach our goals. GroupMe, for example, will be used to keep our members updated.

- As discussed previously, we have started collecting contact information from alumni and have created a database of alumni information so we can build more connections in industry and other professions. Using these connections, we can continue to provide opportunities for our members.

Future Goals:

- The incoming officers have many ideas and ambitions for the future of the CSM chapter of SPS and hope to contribute to its future success. Ideas from other members will also be highly encouraged throughout the following year.

- We want to develop our outreach further by participating in more local science events, such as science nights, and organizing new outreach events of our own. To support these endeavors, we intend to increase our demo repertoire. Our members have given suggestions for demos they would like to see be added, so we will use these as a starting point.

- More inreach events would be beneficial for our members. Our goal is to find new ways to maintain our community while ensuring that new members feel included in it. We know that our members can be very busy between classes and homework, so our officers should ask for input from the rest of the chapter. For example, we had a person who wanted to start an SPS Dungeons & Dragons campaign this year. We would particularly like to encourage activities that members explicitly express interest in.

- In addition, we look forward to working more with the other physics clubs and with student organizations outside of physics. We intend to reach out to other organizations, such as AIAA and Astronomy Club, to potentially plan professional and/or social events with them.

- Over the coming years, we are looking forward to finding ways to develop our new physics building to better fit the needs of physics majors. We want to make sure that it is a place where physics students want to be. We have been talking with professors and faculty about ways to do this and hope to implement some of these things in the near
future. This includes displaying chapter demos and projects created by students in digital electronics courses in the SPS club space.

- Already we have hung posters in the SPS club space and around the physics building that discuss important physics discoveries and advertise national physics conferences. By sponsoring such endeavors, our chapter can showcase everything that SPS does to the many people who walk through the building each day. This way we can increase our organization’s visibility to physics majors and others alike.
The Blake Lilly Prize, named after the late Blake Lilly and given in his honor, recognizes SPS chapters and individuals who make a genuine effort to positively influence the attitudes of school children and the general public about physics. For example, many chapters perform something like a "Physics Circus," conduct classroom demonstrations, offer tutoring services for grades K-12, or assist with school science fairs. The Blake Lilly Prize is an opportunity to be publicly recognized for these types of physics outreach efforts. More details about the Blake Lilly Prize are available at: https://www.spsnational.org/awards/blake-lilly

If you wish to nominate an event your chapter or an individual from your chapter coordinated during the 2017-18 academic year for the Blake Lilly Prize, please detail the activity below.

<table>
<thead>
<tr>
<th>Name of activity</th>
<th>Haunted Physics Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description of activity</strong></td>
<td>A Halloween-themed outreach event offering attendees a wide variety of physics demonstrations to watch and explore. The demonstrations are split into stations around the event venue allowing attendees to roam as they please. SPS volunteers run each station, discussing the demos and answering questions. SPS volunteers also run periodic “shows” where bigger demos are shown to the audience and audience participation is encouraged.</td>
</tr>
<tr>
<td><strong>Targeted areas of impact</strong></td>
<td>Targeted primarily towards children of elementary school age</td>
</tr>
<tr>
<td><strong>Number of Attendees</strong></td>
<td>250-300</td>
</tr>
<tr>
<td><strong>SPS Provided volunteers</strong></td>
<td></td>
</tr>
<tr>
<td>Student</td>
<td>25-30</td>
</tr>
<tr>
<td>Non-Student</td>
<td>0</td>
</tr>
<tr>
<td><strong>Estimate of hours to implement activity</strong></td>
<td>15-20</td>
</tr>
<tr>
<td><strong>Individual Name (leave blank if this is a chapter application)</strong></td>
<td></td>
</tr>
</tbody>
</table>

How is this activity different than what you have done before?
Haunted Physics Lab is unlike our other outreach activities because it is primarily geared toward younger children from the local community and the Mines community. It is hosted on the Mines campus as compared to at an elementary or high school. Typically, our outreach events are done for a specific school’s children, so HPL is meant to be more open. We advertise heavily for the event around campus and to contacts at local schools. HPL is a chance for our chapter to give back to these communities, providing an experience that both children and parents enjoy and want to return to each year. It also features demonstrations that we save specifically for HPL, like the bed of nails and smoke cannon. As with FFOP, we make use of most of our array of demos.
How did you assess the impact your activity had on the community?

We listen to feedback from the children, parents, Mines faculty, and other attendees to assess the impact of our activity. This feedback has been very positive. Many people tell us that their children love coming to the event and that they enjoy bringing them each year. This year we were also approached by a parent about the possibility of holding an outreach event at their child’s school. We try to tailor the demos we use in the event toward encouraging children’s excitement for science and helping them practice the scientific method. From the feedback we receive, we can see that we are providing a valuable experience to members of the local community.