



# SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

## Future Faces of Physics Award Proposal

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Project Proposal Title	The Signs of Physics
Name of School	University of Central Arkansas
SPS Chapter Number	1059
Total Amount Requested	\$300.00

### Abstract

The Society of Physics Students at the University of Central Arkansas is dedicated to bringing members of underrepresented groups into the physics community. With the assistance of SPS National, we plan to work with certified American Sign Language linguists at our university to deliver an engaging physics demonstration show to the students of the Arkansas School for the Deaf.

# Proposal Statement

## Overview of Proposed Project/Activity/Event

- Brief description –
  - Our chapter has an active demo committee headed by our vice president, Catie Mason. This committee's goal is to engage elementary and middle school students in science. They resolve to make science more approachable and seek to explain the underlying scientific processes of every-day activities.
  - Elementary and middle school students in the Conway area take field trips to UCA to visit us in Lewis Science Center. The activities include a show in the planetarium conducted by Dr. Scott Austin, and participation in a demo show conducted by members of our SPS chapter. The demo show is a fast-paced, fun, and interactive experience for the students. They are encouraged to make predictions about what may happen in a particular situation; after the demonstration is over, we focus on *why* something happened.
  - The demo committee will work with certified American Sign Language (ASL) linguists at UCA to develop an age appropriate science demonstration for the students of the Arkansas School for the Deaf in Little Rock.
- Goals of the project –
  - People who are deaf are among the most underrepresented minority groups in the field of physics. The members of SPS at UCA maintain that *everyone* should be exposed to physics; the next great discovery or paradigm shift could potentially come from a minority group and we feel that it is our responsibility as members of the scientific community to reach out to those people. If awarded the funds, our demo committee will be able to develop a show targeted for the students of the Arkansas School for the Deaf. Even after the project is completed, we will have a template with which to conduct future shows, as well as providing the guidelines to other science outreach programs in order to expedite the movement.
- Intended audience –
  - As previously stated, our audience will be the students and staff of the Arkansas School for the deaf. Our goals are to get the students interested in learning about science and to get the staff interested in teaching science.
- Background and motivation –
  - Our chapter has been involved in science outreach for quite a while. It is a staple of our program and one of the things we are best known for. This project builds on our experience with demo shows and outreach, and is an opportunity for our chapter to take its first step in the direction of minority outreach. Our chapter is well positioned both geographically (32 miles away) and in terms of experience; we will be able to make modifications to our current demo script to fit the audience in order to deliver an effective experience.

## How Proposed Activity Promotes Physics Across Cultures

“The goal of the Future Faces of Physics Award is to promote the recruitment and retention of people from groups historically underrepresented in physics.” – SPS National

One of the most underrepresented groups of the scientific community is the deaf and hearing impaired. Any exclusion of a minority group to the scientific community is a hindrance to the progress needed to keep the field dynamic and interesting. Therefore, the members of the Society of Physics Students at the University of Central Arkansas are dedicated to the spread of science exposure and to the outreach to underrepresented minority groups. We like to think of the world of science as a community. In a community, members actively seek to improve the status quo by diversifying their sources of input. These sources must include *all* members of society in order for constructive thought to effectively occur.

Our project, under the heading of Future Faces of Physics through SPS National, will bridge the gap between the hearing impaired and the scientific community.

There have already been some steps taken by others to accomplish this goal. Over one hundred new physics and engineering terms and definitions have been developed by British Sign Language in order to ensure that hearing difficulties do not deter students from those subjects.<sup>1</sup> In addition, professor Jerry McCoy of the University of Tulsa, is working with undergraduates to develop a program to help overcome the barriers of teaching hearing impaired students about physics.

We plan to utilize the insights of people who have taken an initiative in tackling this problem to formulate a program which can be replicated by other science outreach organizations around the country. With funding from the Future Faces of Physics Award, our chapter will be able to reach out to a major learning institution for the hearing impaired. By reaching out to them, we will be encouraging both students and faculty of the Arkansas School for the Deaf to become engaged in science education and careers.

<sup>1</sup> [More than 100 new signs for deaf physics students](http://www.iop.org/news/12/june/page_56379.html), Institute of Physics, Retrieved from: [http://www.iop.org/news/12/june/page\\_56379.html](http://www.iop.org/news/12/june/page_56379.html)

## Plan for Carrying Out Proposed Project/Activity/Event

- Personnel –
  - Our demo committee chairwoman and vice president, Catie Mason, will be in charge of planning the event.
  - Its progress will be monitored by the demo committee. The training and script will be developed with the assistance of the ASL linguist and with the consultation of University of Tulsa professor, Jerry McCoy.
- Marketing –
  - The project will be marketed through the Arkansas School for the Deaf. We will work with them to promote the event within the school and, in addition, to any members of the target audience living in the area. The program could also be marketed through SPS National for replication and use of other chapters around the country.
- SPS member participation –
  - We will have about ten members participating in the project; this number represents the demo committee plus a few members to conduct the logistics of the program.
- Expertise –
  - Our demo committee has a great deal of experience in conducting effective and age appropriate demo shows that are both educational and entertaining. Modifying our current demo script to fit the outlined audience should run very smoothly with the help of some of UCA's ASL linguists.

## Project/Activity/Event Timeline

- Event – Late February (date to be finalized with Arkansas School for the Deaf)
- Day before event – Put together and pack finalized demo items
- February 1<sup>st</sup> – Finalize script
- January 18<sup>th</sup> – All demo committee members trained on modified script
- January 10<sup>th</sup> - 11<sup>th</sup> – Work with ASL linguist to create initial script
- January 5<sup>th</sup> - 9<sup>th</sup> – Consult with Jerry McCoy
- December 20<sup>th</sup> - event date – Program marketing and PR
- December 19<sup>th</sup> – Finalize date with Arkansas School for the Deaf
- December 18<sup>th</sup> – Announce the outcome of the award and begin initial logistics planning

## Activity Evaluation Plan

Keeping accurate records of the results of the program will allow us to measure the effectiveness of the project and will provide feedback. With this feedback, we can develop the program further and improve upon areas that may need attention.

In order to keep track of, and measure our success, we will be sure to maintain accurate records of the whole process including attendance numbers and key points of each event on the timeline. In addition, we will utilize a post-demo survey to gauge the effectiveness of our show. We will also provide the students who are interested in pursuing a science education or career with an opportunity to request more information about how to become involved.

We would also like to get a great deal of feedback from the staff at the Arkansas School for the Deaf; they can provide constructive criticism for our program which will allow us to easily make the necessary changes needed to optimize the show.

## Budget Justification

- Fuel –
  - We will be taking two vehicles to the Arkansas School for the deaf (a pickup truck to carry all demos and some crew, and a sedan to carry the rest of the crew); between the two vehicles, we will average 25 miles per gallon. Using a fuel cost of \$3 per gallon and a driving distance of 75 miles round trip (times 2 vehicles), we get a cost of \$0.12 per mile times 150 miles to get a total cost of \$18.
- Target audience specific demos/maintenance of current demos –
  - A substantial portion of our current demo script revolves around properties of sound which is not effective to our target audience. In order to maintain the same level of quality that is standard with our demo program, we will need to develop and build some new demos that are more appropriate for our audience.
  - In addition to this, some of our current demos are in need of some repair. The money to make these demos more effective will come out of this portion of the budget as well.
- T-Shirts for demonstrators
  - A staple of any effective demonstration team is a uniform; uniforms show professionalism and provide a link between the team members from which to build confidence and comfort. All of these facts culminate into the ability of our demo team to perform at maximum potential.
- Lunch for volunteers –
  - As a thank-you to those who volunteered their time to put on the demo show, we will have a group meal after the demonstration to unwind and debrief.