



# SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

## Future Faces of Physics Award Proposal

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<b>Project Proposal Title</b>	Physics Roadshow
<b>Name of School</b>	Abilene Christian University
<b>SPS Chapter Number</b>	Zone 13 Chapter 0006
<b>Total Amount Requested</b>	\$500.00

### Abstract

Many kids in Texas don't know how fun physics is, but Abilene Christian University's SPS chapter is working to change that. In our annual Physics Roadshow, ACU takes to the dusty highways of West Texas in order to bring physics demos to underserved schools and get kids excited about physics.

# **Proposal Statement**

## **Overview of Proposed Project/Activity/Event**

Physics roadshow is an annual, week-long trip during which two professors and around 6 students go to elementary and middle schools to demonstrate various physics phenomena. Over the course of the trip, we go to at least one school per day and perform 1-3 shows at each school. The number of shows is entirely dependent on the size of the school, and what set-up best suits their schedule. One of the purposes of this project is to provide these demonstrations for lower income schools in west Texas.

From defying death on a bed of nails, to seemingly deflating balloons in liquid nitrogen, the roadshow is never dull. Our demonstrations try to strike a balance between entertainment and education; our young audiences love to see us “replace” a lightbulb with a glowing pickle, and their amusement is a perfect segue into explaining the basics of electricity. The kids all love to try to figure out exactly what makes each experiment work, and that is the basis for creating future physicists. Each child deserves to have the chance to get exposure to the exciting world of science, and this show is the perfect way to accomplish that. APS and the national SPS council will be directly improving the outreach to underserved areas in west Texas.

## **How Proposed Activity Promotes Physics Across Cultures**

Most of the schools we visit have never hosted a group like ours, and some of them need us to translate into our demonstrations into Spanish. We want to give as many different people groups as possible the chance to get an introduction to the field of STEM, so we purposefully target rural and lower-income schools in our Roadshow. The kids love the demonstrations we have done, and we often get invited to come back to the same schools to do the show for other classes. We believe that our chapter of SPS could stand to benefit to receive the Future Faces of Physics Award, as it would help to cover the expenses of going to these rural areas and providing a service to people in need.

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

Our SPS chapter works together to contact schools, plan the show, and optimize the route to maximize our show time at each school. The show has been well planned in the past and will continue to be well planned through the meetings that we hold to discuss the different students who will be participating, and how we will get there. We both visit schools where we have gone before and developed a relationship with, and new schools that haven't yet been reached. We tell new schools what the purpose of the show is, the schools that we have gone to, the flexibility of our schedule, and the people responsible for the event. While the students are most often from SPS, we have included people from Chemistry, Engineering, and Psychology in the past. The shows that we do are 30-60 minutes, and are around 4-8 different demos, depending on what each school we visit wants.

## **Project/Activity/Event Timeline**

By Dec. 15: Reach out to schools in West Texas about the event

By Feb. 1: Have first interest meeting about the event, and gauge interest in different areas in West Texas

By March. 1: Get confirmations from schools

By April 1: Get confirmation from the students, and book hotels

By May 15: Practice demos, and assign demos to students

May 18-22: (tentative): Roadshow

## **Activity Evaluation Plan**

We evaluate our events based on the qualitative data we receive from both the children and the teachers. We ask the kids what their favorite part of the show is so we can see which ones we should keep, and which ones we should tweak. The teachers are also a great source for telling us which parts of our presentation might be too advanced for the age group that we are presenting to. The best litmus test though is to see if we get invited to put on our show to schools again, which happens quite often. We are able to use this data to also see which shows we performed at those schools and cross reference that with the children and teachers response to get a very clear idea of which demos are best for the different age groups that we reach out to.

## **Budget Justification**

The main recurring costs for roadshow are gas, hotel rooms, and refilling demo supplies. The gas is needed to travel long distances, and we need the hotel to house the professors and students between shows that take place hundreds of miles from our campus. The basic demo equipment is owned either by the Abilene Christian University Department of Engineering and Physics or our SPS chapter, so that does not have present any additional costs. Other funding will come from our SPS chapter and our Engineering and Physics department internally. The cost listed for the hotel rooms only includes 1 night; generally, Roadshow lasts 3 or 4 nights.