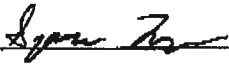



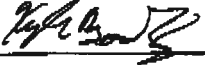
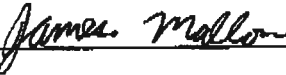
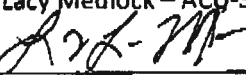


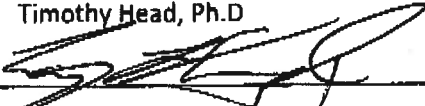
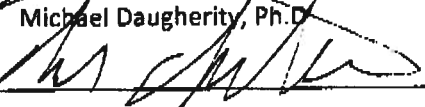
Laser Interferometer Gravitational-wave Observatory (LIGO) public outreach videos

Abilene Christian University, Abilene TX

Chapter officers and principle proposers:

- 1. Spenser Lynn – ACU-SPS President, Proposer  
X 
- 2. Andrew Miller – ACU-SPS Vice-President, Proposer  
X 
- 3. Andrew Boles – ACU-SPS Treasurer  
X 
- 4. Elizabeth Carlisle – ACU-SPS Secretary, Proposer  
X 
- 5. Kyle Bowling – ACU-SPS Chaplain  
X 
- 6. James Mallon – ACU-SPS Freshman Representative  
X 
- 7. Lacy Medlock – ACU-SPS Historian  
X 

Faculty Advisors:

- 1. Timothy Head, Ph.D  
X 
- 2. Michael Daugherty, Ph.D  
X 

Total amount requested: \$155.71

Application submitted on November 30, 2012

Federal Tax ID: 45-3717558

### Abstract

The LIGO collaboration is in need of public outreach projects to better communicate the collaboration's goals and mission. The ACU-SPS chapter has previously assisted with this need by making a short video that explained special relativity to a general audience. We now seek to expand upon past efforts and create a new video that will explain General Relativity.

### Statement of activity and budget

The ACU chapter plans on writing, filming, producing, and editing a new video for the LIGO collaboration which will explain the concepts of General Relativity to the public. Previously, six ACU students created a video on Special Relativity for the LIGO collaboration as part of a General Relativity course project which can be viewed on the ACU-SPS website (<https://sites.google.com/a/acu.edu/spsacu/home>). Our SPS chapter now plans on taking the project a step further by moving into General Relativity.

There currently exist two ideas for video. The first would explain how mass interacts with space-time to create a warped path in which other objects may follow. We would explain these geodesics in a qualitative fashion using computer simulations, physical demonstrations, and verbal reasoning. The second idea would explain how objects begin to move along these geodesics once they have been created. As was the case with the special relativity video, all writing, acting, filming, and editing will be performed by ACU-SPS members.

To carry out this project, the writing team will create a script during the winter break and present its product for review at the start of the spring semester. After approval, filming will commence with the goal of having all dialogue and acting scenes completed by the end of February. With the help of the computer animation team, all animations and simulations will be finished by March 30<sup>th</sup>. The director and editors will then complete the editing process and present the finished project for review by April 30<sup>th</sup>.

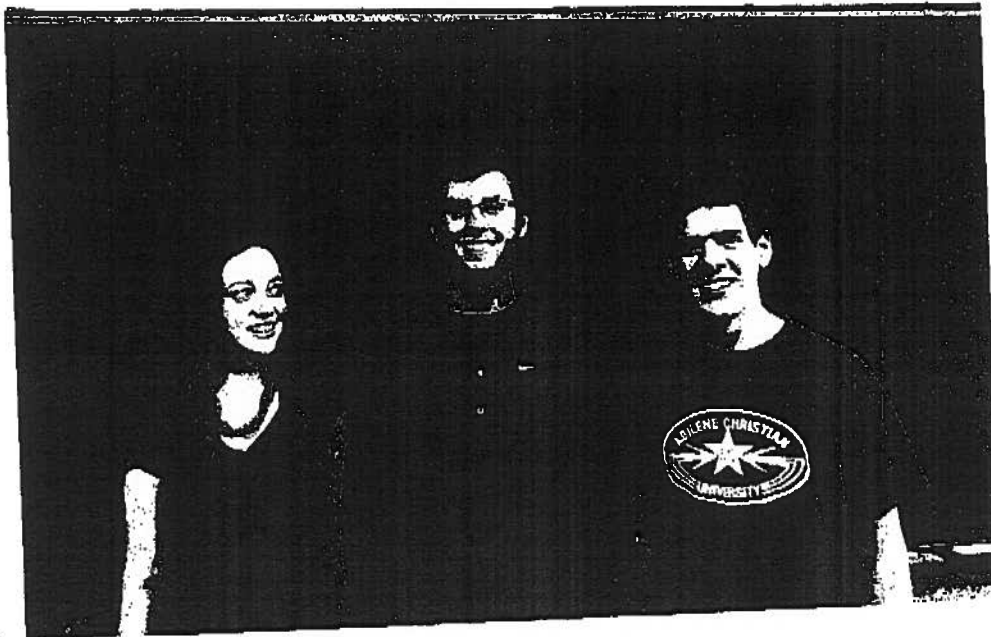
Public outreach is an important part of our SPS chapter. We conduct a fall and spring Science Café in an effort to take physics to the masses as well as travel to local elementary schools to perform our Physics Road Show. We see this project as contributing to our goal of spreading interest in physics in a way which is both interesting and educational.

The budget requested is to purchase a rubber sheet and ball for a demonstration of warped space-time and to purchase a wig, moustache, and sweater for an Albert Einstein costume. Our local SPS chapter will provide funds for additional resources.

#### Line Item Budget:

1. 36"x36" Neoprene rubber sheet x 2: \$15.37 per sheet
2. Bowling ball: \$49.99
3. Einstein wig and moustache: \$14.99
4. Sweater: \$29.99
5. Shipping costs: \$30.00

**Principle Proposers**



**Left to Right: Elizabeth Carlisle, Spenser Lynn, Andrew Miller**