



SIGMA PI SIGMA

The physics honor society

Sigma Pi Sigma Chapter Project Award Proposal

Project Proposal Title	Science for Humanity
Name of School	St. John's University Jamaica, NY
Sigma Pi Sigma Chapter Number	303
Total Amount Requested	\$496.00

Abstract

The St. John's University Chapter of Sigma Pi Sigma will be hosting our 8th annual induction ceremony in Spring 2018. We will be inviting local scientists, St. John's University physics alumni, current students and faculty, and local high school students to discuss the places where we can collaborate as physicists to address the challenges facing humanity.

To promote a sense of community and Team spirit the ceremony will begin with a friendly team competition. Our guests will be divided into 5-8 teams, comprised of a mix of faculty, alumni, and students. This year's project involves the application of basic engineering. Specifically, Teams will be challenged to build the tallest model "Leaning Tower of Pisa" with the maximum "lean". After the teams become acquainted they will brainstorm to develop an approach. Construction is restricted to the materials provided. Part of the challenge is related to these materials: 10 pieces of spaghetti, 3 marshmallows, and 8 in. of tape. Teams will have 30 minutes to build their towers. Construction will continue during the subsequent ceremony, in the background our towers will be standing tall. Prior to the meal the towers will be judged and prizes announced.

We intend to invite a cross section of local scientists and alumni speakers. These Speakers will describe the role of Physics in their careers, how they dealt with the transition from undergraduate to career or graduate studies, and their contributions toward the bettering of humanity. The induction ceremony allows us to showcase our vibrant Sigma Pi Sigma students, support and encourage our graduating seniors to confidently take their next steps in further study or careers. Additionally, we seek to encourage, inspire, and welcome our high school students to Physics and STEM community. The SPS Chapter Award will be used to cover expenses related to: Leaning Tower of Pisa activity and prizes, souvenirs for alumni, and the ceremony dinner.

Overview of Proposed Project

The overarching theme of our Proposed Project is The St. John's Physics Community Lending a Helping Hand: physics students helping younger students within St. John's and within our local communities, graduating seniors encouraging and helping each other to gain graduate school positions, as well as a Physics Community working together to find meaningful ways to assist regions of the world devastated by natural calamity.

The St. John's University chapter of Society of Physics has become a vibrant student organization in the past seven years as a result of the strong efforts by its members and help from the school's caring faculty. The Sigma Pi Sigma Chapter was also recently revived and has inducted a total of 56 physics undergraduates in the past six years. In addition to encouraging the study of physics and honoring those with outstanding academic achievements, our SPS and Sigma Pi Sigma chapters have also engaged in a variety of activities to assist St. John's students of various majors with their physics courses and to promote a science and engineering education within our local community.

Each semester our SPS chapter organizes a series of tutoring events and physics seminars: promoting student fellowship, fostering interaction between students and faculty, and encouraging undergraduate research. For example, on October 2nd & 5th 2017, St. John's SPS and Sigma Pi Sigma Chapters co-organized a Mid-term Prep Tutoring Session for students of both the College and University Physics courses.

The St. John's Chapter of SPS is also committed to promoting education of science and engineering among the general public including: participating in various outreach activities and helping local inventors check the validity of their science. The local Physics Community also helps us. For example, on November 14th, 2017, our SPS Chapter hosted the Medical Physics Graduate School of Hofstra University to visit and speak to our students about pursuing a graduate study in medical physics. On November 16th St. John's SPS Chapter will host a NYU Tandon School of Engineering representative speak to about graduate study opportunity.

Often local inventors call St. John's to tap St. John's Physics Professors for a trusted sounding board for their inventions and concepts. Our Professors generously spend their time listening and helping where possible. Interesting these contacts also confirm to St. John's that the public at large continues to be concerned about the energy, climate change, and the global resource supply.

Notable 2016/2017 activities to also be embraced and celebrated at our Induction Ceremony include: SPS teaming with St. John's Science & Technology Entry Program (STEP) to conduct a total of 12 physics workshops for the students in the STEP program since fall 2009. For example our 2017 workshop invited middle schools girls from four different local Queens New York middle and high schools to gain hands-on experience performing experiments adapted from our College Physics lab curriculum. These young women also got to see that University laboratories, Instructors, and students are not scary people. These workshops are well received by the high school students as indicated by their positive feedback seen on their response forms. Working with

St. John's Academic Service Learning (ASL) program, St. John's SPS chapter also visits local high schools to give workshops to stimulate our younger generation's interest in science.

With the generous support of the Sigma Pi Sigma national office and the St. John's University, St. John's Sigma Pi Sigma chapter has successfully hosted seven induction ceremonies from 2010 to 2017, honoring the outstanding achievements of our students and alumni. All events were well received by the students and their families and friends, invited guest speakers, and faculty and staff. Students were especially interested in networking with alumni and asked them for career advice. As the public is becoming increasingly aware of environmental issues like climate change, at this year's Sigma Pi Sigma induction ceremony, we would like to bring our guest speaker, alumni, current students and faculty together to learn how physics can help the environment. Importantly many of our graduating seniors are motivated to post graduate study by the prospect of socially important research as they recognize that physics majors have the unique and important way of solving problems and a responsibly to do so. To the St. John's SPS this means using the physics skills obtained in our education and careers to find innovative ways to help the poor and protect our planet. This year plenary talks will focus on energy for the 21st century and the application of science to improve humanity. The point is that Physics degrees not only fuel meaningful careers but also provide an essential vehicle for technological revolution. We will also invite our physics alumni whose careers are related to energy and environment to the ceremony and ask them to share their experiences of applying the physics learned at St. John's to solve various environmental and socially important issues.

The Sigma Pi Sigma induction ceremony and the dinner banquet following the ceremony will be held in the evening of April 3th, 2018. About 15-20 physics alumni and their family members, 15-20 Sigma Pi Sigma members including new inductees and their guests, and 10-15 students and faculty members from all science departments of the St. John's University are expected to attend the event. In addition, we will invite 7-8 local high school students plus their parents to the ceremony. A total of 60 attendees are thus expected at the ceremony. The event will start with a basic engineering team competition with teams of a mix of faculty, alumni, and students. Teams will be challenged to build the tallest model, the "Leaning Tower of Pisa" with the maximum "lean". Members will brainstorm and collaborate to develop an approach. Construction is restricted to the materials provided: 10 pieces of spaghetti, 3 marshmallows, and 8 in. of tape. Teams will have 30 minutes to build their towers. Construction will continue during the subsequent ceremony, in the background our towers will be standing tall. Prior to the meal the towers will be judged and prizes announced. We expect the contest should bring a lot of fun to the event, especially with the participation of alumni and our high school student guests. The formal ceremony will be opened by the Chair of the Physics Department, followed by induction of the new Sigma Pi Sigma members. The main part of the ceremony is for our guest speaker and alumni to share with the audience how they have used their physics knowledge to help the environment. We expect the event will promote students' interest in physics, provide opportunities for students and faculty, alumni, and the local communities to interact with each other, and inspire the younger generation to become tomorrow's leaders in science and engineering fields.

How Proposed Project Meets the Purpose of the Award

- Since 15-20 alumni and their family members are expected to attend the event and interact with our students and local high school students, the event will build community among alumni, new and current Sigma Pi Sigma members, and local high school students.
- We expect to induct 7-8 new members into Sigma Pi Sigma, bringing the total number of inductees at St. John's University to more than 70. The celebration of these inductees will hopefully motivate our younger students to work hard in their physics studies to be inducted as well.
- By inviting local high school students and their parents to our Sigma Pi Sigma induction ceremony, it will raise the awareness of Sigma Pi Sigma and the Society of Physics Students in the local community and promote the study of science among the younger generation
- Our SPS chapter has been named one of the outstanding chapters by the SPS national office twice in the past three years, hoping to named outstanding chapter again for this past 2016-2017 year. We also won the Blake Lilly Prize for our physics outreach and received excellent feedback from it. We will celebrate these achievements at the event and make our SPS chapter more visible to the community.

Plan for Carrying Out Proposed Project

- Personnel planning and organizing the event:

SPS President: Rachel Tyo

SPS Vice-President: Claire Alvine

SPS Secretary: Seychelle Khan

SPS Treasurer: Natalie Macdonald

SPS PR- Andrew Nunez

The team will be assisted by Ms. Mary Ann Frohnhoefer, secretary of the Department of Physics and Dr. Charles M. Fortmann, faculty advisor of SPS who will organize the event with Rachel. The activity will be organized by Claire. Natalie will be consulting Rachel and Mary Ann to monitor the budget.

- Marketing:

Invitation letters will be sent to alumni and local high school students and emails will be sent to current students and faculty of the St. John's University physics as well as the general STEM community (to encourage greater Physics Minor enrollment) to invite them to the event by Mary Ann. Event flyers will be made and posted on the St. John's University Website, St. John's SPS chapter Facebook page, and on bulletin boards at various places on campus by Seychelle and Andrew Nunez

- Sigma Pi Sigma member participation:

We expect to induct about 7-8 new members into Sigma Pi Sigma at the ceremony. About five to six current Sigma Pi Sigma members are also expected to attend the event. In addition, 15-20 students and faculty members from all science departments of the St. John's University are expected to attend the event.

Project Timeline

January-February 2018	Invitations sent out to alumni and local high school students
February 1-15, 2018	New inductees selected by the committee
February 15, 2018	Invitations sent out to new inductees
March 1, 2018	Deadline for inductees to reply to invitation
March 10, 2018	New inductees' information sent to the Sigma Pi Sigma national office and reception items ordered. Invitations sent out to current students and faculty
March 15, 2018	Materials for contest prepared
March 31, 2018	Deadline for alumni, high school students and guests, current students and faculty to confirm attendance
April 1, 2018	Acquire prizes for contest
April 6, 2018	St. John's University 2018 Sigma Pi Sigma Induction Ceremony

Project Evaluation Plan

The project will be evaluated in the following aspects: The number of participants will be recorded by asking attendees to sign in at the event and this number will be compared with our expected number of 65 participants. A post-event survey will be conducted to get feedback from the participants. Suggestions and feedback will also be sought by speaking with current students and faculty directly after the event.

Budget Justification

The Inductee Ceremony is more than a celebration. It is our chance to promote community and to encourage one another to seek and succeed in post-graduate work. Furthermore, it's a chance to learn from and reconnect with our Physics Alumni. The Leaning Tower of Pisa activity is not merely a way to pass time while the induction gets underway as this activity stimulates Team Work and community as it challenges to put our scientific minds to work. Through friendly competition, guests will realize that they know more about physics than they think. The winning team will then be given brain-teaser puzzles as an award, so the learning never stops!

The dinner banquet will provide all participants of the event opportunities to network with each other and bring our alumni, students and faculty, and local communities closer, spark friendly and productive communications, and promote fellowship among them. It is also expected to help create better communication channels without local high school enabling us to more quickly invite and respond to requests for assistance. This event is designed to demonstrate that the Physics Community is a welcoming, supportive, and diverse group of caring people striving to better the world through creative scientific endeavor. These interactions will inspire our local high school students as well as our students to pursue careers in science and engineering and become tomorrow's leaders to ameliorate humanity!