To my pleasure, I was invited to present my research this year at the American Physical Society’s April Meeting as well as act as a Society of Physics Students reporter for the event. I presented an update on the same research I presented last year at this very same conference. My research revolves around numerically developing alternative early universe models, particularly those involving inflation. Please see http://iopscience.iop.org/0264-9381/31/15/155010 for the full publication information in The Journal of Classical and Quantum Gravity. The model suggests that there was more than one singular big bang that sparked the inflationary period of the universe that allowed for the development of space and time.

I attended and presented at this meeting as an undergraduate, but as I sit recounting the conference in the latter part of May, I am a recent graduate from Loyola University of New Orleans where I earned my B.S. in physics and a minor in computational science. I have already been accepted into a PhD program and awarded a research assistantship at Tulane University, and will begin research this month in computational materials science. This conference was a great way for me to conclude my undergraduate career as well as spend a little time with my friends and fellow researchers of the Loyola Physics Department.

The conference this year was held at a large convention center in Savannah, Georgia. This center sat on the opposite bank of a beautiful scenic river from downtown Savannah and ferries shuttled people back and forth to the hotels and restaurants located there. It was great to be able to explore the area when not attending lectures.

If I can’t motivate you to attend professional society meetings by informing you that APS gives generous travel stipends, host luncheons and networking sessions for students, as well as provides you a great avenue to discuss your research with the academic, elite then let me offer up one more small momenta to act as a prompt or a little inspiration.
I got to meet Neil deGrass Tyson! All of my friends back home that know me for being into the wild world of physics were impressed that got to meet and greet the new host of *Cosmos*. This in itself would make the trip worth it for most science enthusiasts. While his talk was geared not towards “research” per say, and was mainly about social media statistics and the current popular view of physics, it was refreshing as a slightly more entertaining session at the conference.

In conjunction with getting to hear Tyson speak I also attended a plethora of lectures on topics ranging from information regarding the Vacuum Rail Transit System to new and novel quantum gravity investigations. Each presenter offered up novel information that stimulated creative thinking. There is always something to learn for those interested in many different fields of study.

I was really impressed to learn some logistical information on the new Hyperloop Vacuum Rail being developed by Elon Musk and his team. The idea behind this device is to engineer a giant tube with magnetic rails built into it that runs from one location to another. Then you evacuate the air out of it to eliminate air resistance. Once this is done you float a transit cart on the rails and propel it with alternating currents. With no air resistance or energy lost to friction on wheels, the device becomes incredibly efficient. With transit times estimated at under an hour and a half between Los Angeles and New York, as well as being powered by solar panels that will be built into the transit system itself, this project is a techie’s dream.

More in line with my research, I attended a series of lectures on quantum gravity and learned about many of the exciting approaches that are being devised to incorporate quantum mechanics into general
relativity. The mathematics are very intense, focusing mainly on differential topology, and the concepts are sometimes so sophisticated and model specific that I did not always understand exactly what was being said. Yet, I felt that each talk brought me a little closer to understanding my own theory as well as the context of the field as a whole. I find this area of physics fascinating as it deals with better understanding gravity’s relationship to the other fundamental forces, one of the largest looming questions in modern physics. Even if you are not able to understand everything you see at these conferences, it is always great to challenge yourself to comprehend advanced ideas.

I am reporting the events of the conference for the Society of Physics Students so that I might inspire other undergraduate students to go beyond what is traditionally required in their institutions and build their careers as young scientists through professional development activities. I know that participating in these activities has certainly helped me to develop a sense of confidence and maturity that will give me an advantage in my career.

I am beginning my PhD program at Tulane University next year where I will be building atomistic simulations for quantum mechanical systems. Therefore this was the last year I was able to access the SPS resources that facilitated this trip and several others like it. I strongly advocate that other likeminded students pick up the torch in my stead. It will be your job to carry on bringing youthful and imaginative energy to these great conferences each year. This not only gives you valuable experience but offers the established scientists the chance to see that the next generation is both competent and excited to follow in their footsteps.