Nobel Laureate Eric Cornell Visit

University of Southern Mississippi, Nov. 30 – Dec. 1, 2010

By Amanda Palchak, Kileigh Peturis and Xandria McWaters, SPS Reporters

Nobel Laureate Eric Cornell of the University of Colorado, Boulder visited the University of Southern Mississippi campus on November 30 – December 1, 2010 at the invitation of the Society of Physics Students. Cornell shared the 2001 Nobel Prize in Physics with Carl Wieman, also of the University of Colorado, Boulder, and Wolfgang Ketterle of the Massachusetts Institute of Technology "for the achievement of Bose-Einstein condensation in dilute gases of alkali atoms, and for early fundamental studies of the properties of the condensates."

Cornell's visit was made possible by the Nobel Laureates Visitation Program established by the American Institute of Physics with generous support from the Research Corporation. The goal of the AIP program is to give undergraduate and graduate students the opportunity to have personal and informal interactions with Nobel Laureates while learning about exciting new areas of research and what is involved in pursuing a career in science. Another aspect of the AIP program is to bring together students and faculty from majority and minority-serving institutions. The guest institutions attending our event were: Morehouse College (Atlanta, GA), Jackson State University (Jackson, MS), and University of South Alabama (Mobile, AL). We had 9 students and 2 faculty members from Morehouse College, 2 students and 2 faculty members from Jackson State University and 4 students and 4 faculty members from the University of South Alabama. De'Andre Cherry and Ronald Stubblefield from Morehouse College, Sirak Melaku and Alyssa Louis from Jackson State University served as reporters for the Minority-Serving Institutions. Amanda Palchak, Kileigh Peturis and Xandria McWaters served as reporters for the host institution, University of Southern Mississippi.

Just the title, “Nobel laureate,” fills you with awe. Most people would only dream of having the opportunity to hear one speak in person, much less occupy the same table with one at dinner. However USM students and faculty, members of the Hattiesburg community and guests from neighboring institutions were given the opportunity for that and much more. For two days, we had the honor of hosting Nobel Laureate Dr. Eric Cornell at the University of Southern Mississippi. The event kicked off with an hour-long reception and was followed by a public lecture. The scene at the reception was unlike any we’ve seen before. University professors looked more like excited children, all waiting in line with nervous grins to get the opportunity to shake this man’s hand. Students huddled around him, packed as closely together as possible, just to catch a few words of wisdom. Kileigh Peturis, a physics graduate student, remembers “I myself waited for ten minutes to finally be introduced, but was so nervous that by the time I made it to him, I could not think of one intelligent thing to say!”

When the reception party moved into the lecture hall, we were all in for a shock. Three hundred seats were full of excited spectators, and people had begun to line the sides of the room, willing to stand for the entire lecture time! They would soon find out that it was worth it to stand. Dr. Cornell gave a brilliant talk about his research on the Bose Einstein Condensate. His presentation was full of funny hand drawn pictures and hilarious analogies to everyday life. Everyone in the room was stunned at this physicist’s charm and quick wit. The scene was more like that of a comedy club than a physicist’s academic lecture. When the night ended, over 300 people left campus with an entirely new appreciation for science and for the people who do science. Dr. Cornell gave another talk the following day, geared toward a scientific audience.

Along with Dr. Cornell’s amazing and informative lectures, he spent a great deal of time with the Society of Physics Students here at Southern Miss. On the second day of his visit, members of the Society of Physics Students went for a morning run with Dr. Cornell, followed by a breakfast with SPS members as well as our advisor Dr. Alina Gearba and Drs. Gary White and Willie Rockward. SPS member Charles Young said “It feels good to be able to tell friends and family that I got to go on a casual run with a Physics Nobel Prize winner. That's not something most people can say.” Later that day undergraduate students from the University of Southern Mississippi, Jackson State University and Morehouse College had lunch with Dr. Cornell. At this event, we were able to converse with him and ask questions about his life, his career, and his discoveries in physics. These events were extremely beneficial to us, and it was rather exciting to be given the opportunity to spend time with such an accomplished and friendly man.

The graduate physics students had a very unique opportunity to meet with Dr. Cornell as a small discussion group and fire away with every question they could think of. “When we first began,” Kileigh Peturis said, “all of us were nervous and the questions were timid.” However, Dr. Cornell’s gracious attitude and warm smile was encouraging. Before long, the questions were rolling in. We discussed his past research on the Bose Einstein Condensate, his current research at the University of Colorado at Boulder, his experiences as a graduate student, and he gave us advice on our graduate careers.

These events were followed by a question and answer session with student reporters from the University of Southern Mississippi, Jackson State University and Morehouse College. Dr. Cornell went to the podium and immediately began joking, “Well, I’ve wanted to set the record straight ever since the scandal…”

Reporters asked questions such as “Why physics?” To this, Dr. Cornell responded saying that he had inspiring teachers and professors throughout high school and college. When he was a freshman in college, Dr. Cornell obtained a job working in a laboratory, which strengthened his love and interest in physics. Another question Dr. Cornell addressed was regarding his most difficult subjects. Dr. Cornell stated that freshman Modern Physics was his most difficult course, which consisted of Quantum Mechanics and Thermodynamics. Dr. Cornell stated that he was more successful in these subjects once he took Quantum Mechanics and Statistical Mechanics. Amanda Palchak, an undergraduate student currently enrolled in Quantum Mechanics, was eager to know how often Dr. Cornell uses the Schrödinger equation. Dr. Cornell reassured us that the Schrödinger Equation was “his life”, and he uses it on a daily basis. Xandria McWaters asked about the different places he has traveled to due to being a Nobel laureate. He has traveled to all the continents except Antarctica and his favorite place is Italy. He then told us a few of his traveling stories which were very interesting.

Kileigh Peturis’ first question to Dr. Cornell was, “During undergrad, you spent time in China when you felt your career was “choosing you.” Would you recommend this type of experience to all undergrads who are having second thoughts?” Dr. Cornell replied: “Well, that worked really well for me, but it’s tricky. Time was going fast and I considered moving to the humanities. I left school for a year to teach English in Taiwan. The experience allowed me to understand that physics was exactly what I wanted, but I wouldn’t recommend something like that for everyone.” A second question, “Working in Carl Wieman’s lab, you met Chris Monroe who had a ‘Mr. Fix-it’ attitude about store bought equipment. Do you encourage that type of attitude now with your students?” Answer: “I try to tell my students no to be afraid of the experiment. It’s *their* experiment, which means it’s also *theirs* to break. I always say that if they never break anything, they either aren’t working hard enough or they aren’t working fast

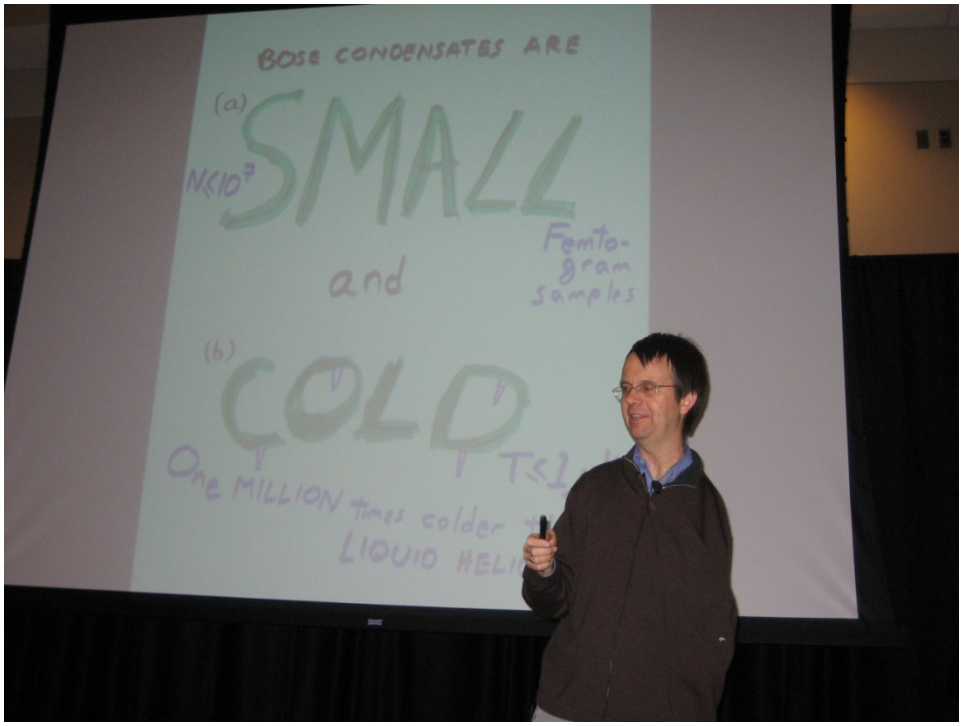
enough. If something isn't working right, what harm can it do to try and fix it? Can you break it more than it's already broken?"

Overall, the experience was one of those "once in a lifetime" things. We often think of the people at the front lines of science as possessing some superhuman intelligence. We assume that their entire life has been spent knowing that they were meant for science and easily bending it to do their will. In other words, the average college student in a science field assumes that struggling in a class, or having second thoughts about their major, means they aren't meant for great things. Dr. Eric Cornell defies these stereotypes. As an undergraduate, he struggled in Modern Physics. He left the major and moved to another country for a while. His life as a student was just like ours, and yet he has accomplished one of the greatest scientific feats of our lifetime. As students, this realization has made us feel like nothing is stopping us from accomplishing amazing things as well.

Dr. Eric Cornell's visit to the University of Southern Mississippi was an extremely informative, refreshing, and inspiring event. Our students, faculty, and members of the Society of Physics Students are extremely grateful for his visit. We are thankful for Dr. Alina Gearba's hard work to put together such an amazing event as well as the inspiring words that Dr. Cornell shared with us. Dr. Cornell proved to be a very engaging and relatable person, which made his presence here at Southern Miss extremely enjoyable and something that our students, faculty, and SPS members will never forget.

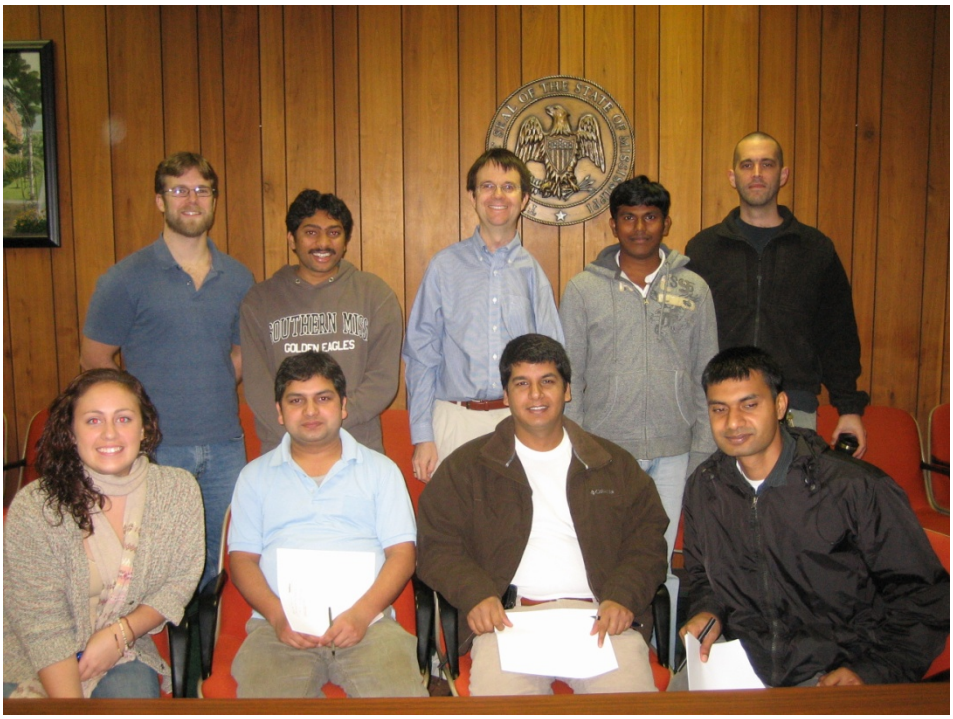
Sothern Miss SPS members Haley Cuevas, Melanie Brady, Xandria McWaters, Amanda Palchak and Charles Young at Dr. Cornell's public lecture promotional booth

Drs. Alina Gearba, Gary White, Eric Cornell and SPS member Kileigh Peturis during the reception preceding the public lecture



Dr. Eric Cornell discussing “Stone Cold Science” during public lecture

Dr. Eric Cornell’s public lecture



Dr. Eric Cornell and Southern Miss physics graduate students

Dr. Eric Cornell and student reporters from the University of Southern Mississippi, Jackson State University and Morehouse College

Dr. Eric Cornell, students and faculty from the University of Southern Mississippi, Morehouse College and Jackson State University

Dr. Gary White showing Southern Miss SPS members what is so special about laser light