

I heard about the APS conference from Mario Gadea when he announced it in class. I had just returned from the ACS National Meeting in Salt Lake City with the Chem. Club, and we had so much fun there I figured I would go to this one. Overall I thought this was a great conference, and it definitely had an appeal in that it wasn't one of the largest ones where people from all over the world present. It was just small enough that it was easy to decide what to go to and get things done, but just large enough to be inspiring.

The most valuable thing I got from this conference was networking with other Evergreen students. I had the same experience at the ACS meeting. Traveling to a distant place with a group of people you don't really know, but who all share a common love for a subject, is really one of the coolest things available to science students at TESC. Not only do you become friends with all your classmates you don't really see outside of an academic setting, but it builds this same kind of bond with the faculty who escort you. Personally I'm really glad I went in the van with the class I'm not in - it allowed me to meet that many more people, and talk about what other kinds of things are going on at Evergreen. The size of the conference also made it a lot easier to meet other students from different universities that have interesting stories to share.

At the conference itself I found the opening talks that were meant to be more broad to be the most interesting. They were still technical in the sense that you needed to know about physics to understand them, but not overwhelming like a lot of the shorter more focused presentations were. Specifically the talk about fractals by Richard Taylor from the University of Oregon really caught my interest. I have been reading a book about chaos theory and the development of fractal dimensions outside of class, so being able to see a specialist talk about it was really exciting. I've found at these conferences that a speaker can pretty much make me interested in anything if they speak well. On the other hand, it can be a really interesting topic, but if the speaker isn't very good at presenting it, a lot of it just drones on without an impact.

Of the more technical talks I found the ones in condensed matter physics the most interesting - and enough so that I'm considering that as a possible route I want to pursue in graduate school. I'm a chemistry major at heart, but the realm of materials science really excites me, because it's chemistry and physics with real immediate applications. The ACS meeting pretty much convinced me that I don't want to go into synthetic organic chemistry / total synthesis, and this meeting convinced me that I do want to get into the more physical realm of materials. This year has been really awesome as far as scientific inspiration is concerned, and a huge portion of it is from trips like this one to scientific conferences.

\*\*\*

I heard about the conference since many of my peers were attending, and it was announced in class. I decided to go for a variety of reasons, to get insight as to what the cutting edge of physics was all about, to bond and share an academic experience with my peers, and to see Vancouver. Overall I had a great time on the trip, and got quite a bit more out of it than I expected. The conference itself was very well organized with excellent speakers, and the campus was extraordinarily fun to explore (especially UBC's particle accelerator). I was able to see the overview of cutting-edge physics that I expected, and lots of it was sufficiently over my head - some times it was even hard to gauge what was the point of the more advanced talks. It made me realize how focused in each area of study is. Fortunately there were a number of talks, especially the ones in the mornings, that were easy to follow and quite interesting.

Some highlights for me were:

- Lecture on how people learn. This talk presented research that essentially suggested that the way Evergreen (or at least Models of Motion) was set up as a learning environment is quite good, such accountability in lectures (using note cards). If nothing else this gave me confidence in my program! This talk also went into short term memory cycles, how much new information a brain can typically hold, and

what it takes to commit information to long term. All very practical information that I was able to take a lot away from.

- Talk on fractals. I had no idea that fractals could model so many real practical things (such as ice shelves and birds). It was interesting to see how the presenter would rate fractals' "d-value" to represent their complexities. Equally interesting, but also frightening was when he mentioned how they can implement chips in brains that use a fractal type architecture, and how the brain learns to interact with it. Also eyesight has fractal trajectories (when looking at photos), and looking at certain types of fractals can lower stress, which triggers the same part of the brain as nature.
- Quantum Computers. I got a lot out of this talk even though it was directed more at the business and organization end of quantum computing, not the science end. It was interesting to see a comparison of similar projects that failed or succeeded, and get the presenter's analysis of why each one did, and what his company is doing with that prior knowledge. He didn't really talk about what quantum computers would be good for (they don't know), other than mentioning you could model quantum type processes like photosynthesis.
- The best put together presentation was on Extra-Solar Planets. It was about looking for planets similar to earth, elsewhere in the universe. This presentation was very clear, organized, focused, and did a good job of explaining "why". The slides he presented were very professional, and had good animations. A lot of this can be attributed to his advantage of knowing the intended audience and what they will be interested in hearing about.

\*\*\*

I wanted to thank you as well for driving and providing the opportunity for all of us to go the Vancouver conference. This was an invaluable experience for me. Anyways, I briefly answered several of the questions for your report.

(2) I decided to attend the physics conference because it was a great opportunity to utilize the skills and tools I have gained in my program to comprehend the physics presentations at the UBC and many of their major implications. Although much of the talks were advanced (I did follow along with the plenary talks pretty well), if I had not been the program, Models of Motion, I would not have been able to make sense out of any of the presentations. The conference was excellent. For me, it was one of the major highlights of the program.

(3) Overall, the conference was an opening for me into the world of contemporary physics. Contemporary physics I feel is very important and I would encourage others to feel the same way. To be specific, the talks about dark energy, the LHC, the Kepler satellite, galactic electromagnetic radiation, fractals, and superconductors were particularly interesting to me. However, the tour of TRIUMF was absolutely my favorite by far!

\*\*\*

This was an enlightening experience. I enjoyed the social aspect of talking with physicists about various things; their research, their ideas, where their from, what they do for fun, and who they thought would win a fight the indestructible/unmovable man vs. the man with the unstoppable force. All and all it was a great experience and it was nice to see Evergreen faculty and students outside the normal context of day to day school.

\*\*\*

First of all, I'd like to thank you for putting everything together, the trip was awesome! I had a complete blast. Vancouver was really enjoyable, as was getting to know everyone who came. I am definitely interested in going to future conferences/field trips, especially to LIGO.

I heard about the APS conference through Krishna Chowdary and my current program. My decision to go was based on previous recommendations, the desire to become aware of what's currently going on in physics, and the opportunity to work with students/faculty in different programs.

The conference was an awesome experience, I learned a great deal on a variety of subjects and was challenged to follow many that went way over my head. The conference served to excite me as to future applications in physics and potential work in grad school. I also became interested in UBC and though I missed the tour, the TRIUMF lab really caught my attention.

A major highlight of the trip was getting to know students and faculty in different programs, something I had not done in previous years at Evergreen. The experience caused me to reflect on the benefits of inter-program communication. I hope to have such interactions in future programs, as well as to apply interdisciplinary approaches in any future work that I may do.

\*\*\*

Attending the American Physics Society Northwest Sectional Conference has been one of my best learning experiences at Evergreen yet, and more than anything else, increased my confidence as both a member of the scientific community, and in working and traveling with my friends and colleagues. I was able to gain real experience by following lectures and speaking with researchers and presenters, and became more aware of opportunities for study and how projects are organized and conducted through institutions. Traveling out of town with faculty and members of other classes that I hadn't had a chance to meet yet allowed me to get outside of my habitual self in a way that I didn't really expect to before embarking. I was able to observe a lot about myself, and make some new friendships. I was even able to get to know students from other universities, and we shared our interests, experiences, and opportunities with each other. This trip helped me to gain experience and confidence in myself, and I will definitely be seeking opportunities like this in the future.

\*\*\*

I heard about the Vancouver conference from a classmate of mine in a group research contract. Despite being very occupied with normal class work, both the opportunity to attend a professional event for physicists and the opportunity to visit Vancouver swayed me to attend. Some background on myself: thought there are not majors at TESC, I commonly refer to myself as a "computer science major," since I focus so heavily on this field. I am also interested in many other areas of engineering and natural science; upon gaining my bachelor's degree, I think it very likely that I will go onto grad school, perhaps for a physics doctorate. When people ask me what I want to do after school, I tell them I want to either be "a software nerd who knows a lot of physics" or "a physicist who knows a lot about programming".

I am especially interested in astronomy. My favorite lecture was by Jason Barnes, "Finding and Characterizing Extrasolar Planets with Kepler". Mr. Barnes mentioned the great amount of data that the instruments would take in, which reminded me of a career idea I had for myself, namely creating algorithms to handle the great amount of data that current telescopes take in.

Also interesting to me was to observe the interplay of applied science/engineering vs. pure science/theory. I often wonder myself how much focus should be placed on pure research vs. applications. I do think knowledge for knowledge's sake alone is a worthy goal; however, science is often a costly endeavor, and when one asks the public, via the government, to fund them, I do think it is reasonable that science should focus somewhat on the applications side. I must admit, I see myself as more of an engineer than a scientist, so my observations are biased! Science is not done by monks, cloistered in an ivory tower on some remote island.

\*\*\*

I had a great time at the conference, thank you again for taking us.

Here is a little bit about my experience:

- > (3) In what ways did the conference connect to, enhance, or supplement
- > your current academic work or short-term or long-term academic goals?
- > In what ways did the conference transform your thinking/attitude about
- > physics and your future work in physics?

As you know, many of the talks at the conference were about particle physics. While I didn't understand most of what the presenters said, the talks reminded me that there are still a lot of things that we don't know. Sometimes learning the basics gives me the feeling that everything is all figured out. The conference reminded me that there is still plenty of exploring left in physics for my generation. For example, before the conference I had read that there are three point-like quarks inside a neutron, and I didn't think about it much more, but the talk on neutron charge distribution really made me think about how the quarks and their properties are arranged inside hadrons. The talk on the LHC was exciting in a similar way -- there really are tons of things we don't know, and when the LHC restarts we will probably just see more unexplained phenomena (and hopefully get some answers too).

Additionally, the cloud chamber at TRIUMF was very very cool, looking into it gave me ideas about how to improve the one that Evan and I have (at that time ours didn't work yet), and got me really excited about building one. It was great to see a cloud chamber and be able to identify different types of radiation by the different kinds of cloud trails.

The only bad part of the conference was that everything was so over my head that by the second day I had a hard time paying attention (on the first day I practiced my serious face and nodded a lot). In the words of a classmate, the conference was humbling.

- > (5) Did going to the conference help you connect better to your
- > various learning communities?

Of course the conference was educational, but it was really great to spend the weekend with everyone. The field trip was a really nice reminder of how lucky I am to go to Evergreen, and that our program, and our general "department" has such a warm supportive feel. I am surrounded by fun, genuinely friendly and respectful people every day -- I can't imagine a better learning environment.