

# UNDERGRADUATE SCHOLAR OF THE YEAR AWARD – HONORABLE MENTION

**Student:** Jason Milne

**Major Department:** Physics and Mathematics

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**NOMINATED BY** Dr. Michael Jackson

## NOMINATION LETTER:

I am pleased to nominate Jason Milne for the 2010-2011 Undergraduate Scholar of the Year Award. Jason will be presenting at SOURCE 2011; his laser research was also selected for presentation at the 15th annual Posters on the Hill program sponsored by the Council on Undergraduate Research. This program was held on April 13, 2011 and Jason was one of about 70 students selected from a field of nearly 700 applicants.

I have known Jason since he enrolled in the introductory physics sequence at Central Washington University (CWU) in the 2008 fall. He has taken several courses from me including General Physics I, II, and III, Optics, Thermodynamics, and Physics Research. He is a solid B student and will graduate from CWU in June 2011 with majors in Physics and Mathematics. He will then pursue graduate studies in physics after working in industry for several years.

Jason performed this research during the 2010 summer, with preparation work undertaken during the 2010 Spring quarter and follow-up work on a publication and several presentations performed during the 2010-2011 academic year.

This project falls into the category of basic laser research, a fitting project to celebrate the 50th anniversary of laser. Jason used a multi-laser experimental system to discover coherent sources of light in the far-infrared region. This region has traditionally been difficult for many scientists to explore due to the lack of strong sources of far-infrared radiation. Our goal was to discover new sources of light, and once detected, measure their frequencies. Prior investigations resulted in the generation of laser lines having frequencies up to 2.5 THz. In this project, Jason measured twelve laser frequencies that include the discovery and measurement of a 9.04 THz laser emission. This is the highest known laser frequency generated by this laser medium! Scientists can now use these laser lines in their research; investigating molecules which would be their way of finger printing them! The discovery of these lines and the measurement of their frequencies were rather difficult to perform and are a testament to Jason's experimental ability and his tenacity in pursuing a measurement (we measured the laser frequencies with fractional uncertainties up to a few parts in ten million!). A manuscript outlining the work was published in the March issue of the IEEE Journal of Quantum Electronics.

Beyond academics, Jason is involved in the CWU SPS chapter, Astronomy Club, and the Math Club. Jason has participated in a number of informal education physics activities presented to area school groups and the general public along with serving as treasurer for our SPS chapter.

In conclusion, I believe this nomination has a number of key ingredients making it an appropriate selection for this award: performing basic research that significantly extends the

work of other scientists in the field with its results having been peer-reviewed and disseminated. Therefore, I am pleased to nominate Jason Milne for this distinguished award.

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## **UNDERGRADUATE SCHOLAR OF THE YEAR AWARD –**

Winner is awarded \$500 from the Office of Undergraduate Research and the Office Graduate Studies and Research. The award was part of a Students First Grant from the CWU Foundation.

**Student:** Jessica Trappmann

**Major Department:** Nutrition, Exercise and Health Sciences

**Nominated by:** Susan Hawk (Woody)

### **NOMINATION LETTER:**

It is my distinct pleasure to nominate Ms. Jessica Trappmann for the Undergraduate Scholar of the Year Award. Jessica was in the Science Honors Program from Spring 2010-Spring 2011. Her research focused on breast cancer. Jessica's year-long endeavor was to determine if dietary factors like omega-3 fatty acids from fish oil, can help decrease the dose of medications used to treat women with breast cancer. A lot of the cancer therapeutic agents are poorly tolerated by patients at the high doses that are required to help battle the cancer. Given that fish oil fats help slow the progression of breast cancer, Jessica was interested in pairing these fatty acids with a common cancer treatment drug, bexarotene. She hypothesized that when breast cancer cells were treated with the fatty acids and the drug, the ability to slow the growth of the cancer would be better than if the cells received the drug alone. To facilitate this study, Jessica established contact with biology faculty to see if we could use their lab facilities since the nutrition department does not have such resources. She was professional and successful in securing a site for her research. She spent most of her summer learning how to culture cancer cells. In the fall, Jess researched and calculated doses of the drugs and fatty acids to use so that they would closely match the levels patients receive during conventional therapy and conducted experiments. She even implemented a new method for determining cancer cell growth. Next, Jessica sought out statistical help for interpreting her results. Her findings were presented nationally at the Experimental Biology and Medicine meetings in Washington, DC in April and are currently being prepared for submission for publication.

Jess was an ideal mentee because she is grounded, professional and interacts with her peers and faculty maturely. Her inquisitive nature and resourcefulness is unrivaled. Jess thinks critically and is thorough in her approach to problem solving. Thus, she is highly capable and rises to any challenge. Honestly, I felt like I had a PhD student working with me all year. She was prompt in meeting with me, sharing her findings, exploring the literature, designing poster presentations for the national meeting and her poster and talk at SOURCE, and in completing her thesis.

As a scholar, Jess matured gracefully. She is more cautious and thorough with her data analysis and interpretations than earlier in the summer. Her writing ability strengthened considerably from her early thesis drafts to her most current version which is of publication quality. Also, she is more appreciative of the field of science and the time required to conduct experiments.

Jessica is special because absolutely delightful to work with,Ä¶one of those rare students who loves learning. She stays on top of her commitments and has strong follow through. She is a 3.98 scholar who holds a leadership position in her nutrition science club and volunteers extensively in the community. Thus, she maintains a high level of academic excellence whilst giving back to others.