

Dalton Myas, Publications Editor

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End of the Year BBQ!

Hello CBEE students, faculty, and alumni,

The CBEE student club would like to cordially invite everyone to attend the 2015 End of the Year BBQ! The event takes place on Friday, June 5th from 6pm to 10pm at the Thompson Shelter, Avery Park (map is located on page 6). There will be games to play and people to mingle with! This is also an ideal time to purchase this years CBEE t-shirt to support the club and the last time to pick up pre-ordered shirts before they are sold! So come on over to enjoy the sun, FREE food, and great company.

Sincerely,
The CBEE Student Club

ChemE Car Club on the Way to Nationals

By Anica Neumann

ChemE Car is a competition aspect of the American Institute of Chemical Engineers (AIChE) conferences. The goal is to create a shoe-boxed size car powered and stopped by a chemical reaction. The cars are then tested in competition. A specified load and distance is announced at competition and each team must optimize their reactions to carry the cars the specified distance. ChemE Car allows students to gain engineering experience by working collaboratively to create a car from the planning to building and then competition.

Oregon State's ChemE Car Club has been very successful this year. They started off designing two cars. One used a more traditional design, utilizing a hydrogen fuel cell for the power source and an iodine clock reaction for the stopping mechanism. This traditional car used a unique stopping feature – three iodine clock reactions would run at once. With the addition of an Arduino, the team was able to program it so that the car would stop when two out of the three stopping reactions occurred. When the iodide clock reaction runs to completion, the color of the solution changes from clear to dark blue. This color change causes an interruption be-

tween a laser and photodiode, breaking the circuit and stopping power from going to the motor. Changing the concentration of one of the reactants controls the rate at which the reaction occurs, and by allowing the car to run for a certain amount of time at a known velocity, the distance the car travels can be controlled. The innovative car was powered by homemade magnesium batteries and stopped by a silver mirror reaction. Both cars had many parts 3D printed. This enabled the designs of the cars to change throughout the building process and for prototypes to be quickly and easily tested.

At the 2015 regional AIChE conference in Vancouver, B.C., both cars competed. The distance set was 16.5 m and the load was 320 g, to be added as milliliters of water. The innovative car, unfortunately, was disqualified as the car did not move from the starting line. The traditional car placed second with a distance of 1 m from the goal. This placement qualifies the car for the national competition in Salt Lake City, Utah in November 2015. Oregon State's ChemE Car team is looking forward to compete at nationals!



The hydrogen fuel cell car representing Oregon State with its orange balloon. GO BEAVS!



AICHE Annual Student Conference, Atlanta, GA

Hosted by Georgia Institute of Technology

By Jenny Green

Midway through fall term, the CBEE Student Club put their studies on hold to travel to Atlanta, GA to attend the 2014 AIChE Annual Student Conference. Thirty six students and club advisor Dr. Skip Rochefort made the long journey to the national conference to present research, attend workshops, compete in ChemE Jeopardy, and network with students from across the country.

Over twenty CBEE Club attendees presented research in the Undergraduate Poster Competition – the largest group of all participating schools. Congratulations to Elizabeth Allan-Cole (ChE), Marshall Allen (ChE), Hannah Bulovsky (ChE), Raha Kannan (BioE), Branden Kusanto (BioE), Jolynn Meza Wynkoop (BioE), Ashaen Patel (BioE), Sydney Quinton-Cox (BioE), and Steve White (ChE) for earning awards in their respective poster categories! Stephanie Rich (EnvE) was also invited to present her research done with Dr. Lewis Semprini on aerobic bioremediation at the Undergraduate Research Forum.

Professors who made these winning undergraduate research projects possible include Drs. Liney Árnadóttir, Chih-hung Chang, David Hackleman, Stacey Harper, Adam Higgins, Tyler Radniecki, and Dr. Jung Jiao of Portland State University. Several students received funding from the Johnson Internship Program, which provides summer research experiences to first and second-year students. Helping to judge the over 368 posters in the competition were Drs. Liney Árnadóttir, Nick Au-Yeung, Skip Rochefort, Travis Walker and Alex Yokochi.

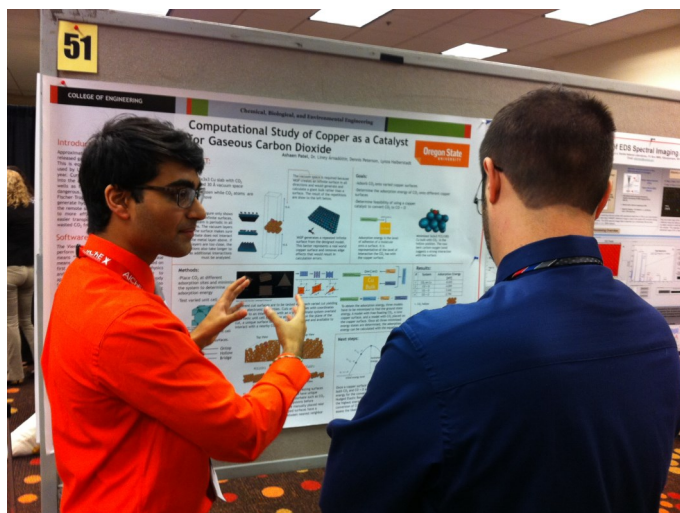
The CBEE Student Club ChemE Jeopardy team fought valiantly but came up short at this year's competition. ChemE Jeopardy is modeled after the classic game show but features questions on process control, safety, thermodynamics, pop culture, and much more. The team qualified for the national competition by winning



Group picture of all CBEE students who presented their research at the 2014 Annual Poster Session

the regional competition in April 2014. National awards were presented to three OSU CBEE students – the Donald F. & Mildred Topp Othmer Scholarship (\$1000) to Kayla Al-Khalely (Sr. ChE), awarded to only fifteen students nationwide, the Sophomore Academic Excellence Award to Elizabeth Allan-Cole, and the Freshman Recognition Award to Marshall Allen.

The CBEE Student Club also earned the Outstanding Student Chapter Award for the 16th time in the past 17 years, and was recognized with a separate award for being an Outstanding Student Chapter for the tenth consecutive year! The Club has already begun planning their trip to the 2015 Pacific Northwest Regional Conference in Vancouver, BC during spring term and is excited to continue to represent the School of CBEE in such a positive way!



Award-winning presenter Ashaen Patel (Jr. BioE, Dr. Árnadóttir) talking about his research to an interested attendee at the Undergraduate Poster Competition.



Some CBEE Club members enjoying free time in Atlanta (Left to right: Kayla Al-Khalely, Liam Wong, Jolynn Meza Wynkoop, Wyatt Self, and Ashaen Patel)



Dancing with the Faculty: A Collaborative Event

By Dalton Myas



The beautiful Sydney Quinton-Cox before performing her routine with Dr. Phil McFadden

The CBEE club held their first collaborative fundraising event of the year with Sigma Delta Omega Sorority. An astounding two-hundred people attended the event hosted within the Memorial Unions' decadent main lodge area. The event brought together students and faculty in the most elegant way possible, dancing!

There were five performances, excluding the spectacular show put on by the OSU Acapella group and Dance club. The students and their respective faculty member performed a coordinated danced routine to claim one of two trophies. Students Kylee Mockler-Martens and Michaela Mockler-Martens performed a lovely routine to "Single Ladies" by Beyoncé featuring Dr. Adam Higgins in a pink tutu. Dr. Phil McFadden and Sydney



Elizabeth Allan-Cole and Dr. Andy Karplus ending the lindy hop with style

Quinton-Cox delivered a stunning Viennese Waltz. Student Jessie Butchino and her Sigma Delta Omega Science Sorority squad performed with Dr. Kevin Ahern to an eccentric science song. Claiming the Mirror Ball Trophy by popular vote was Dr. Travis Walker, students Christine Turner, Kayla Al-Khaledy, Branden Kusanto, John Varin, Talia Helman, and guest appearance of Travis Walker's son. The judges went with a more classical approach, giving the Golden Microscope Trophy to Dr. Andy Karplus and Elizabeth Allan-Cole for their outstanding Lindy Hop performance.



Winners of the Mirror Ball Trophy with their signature giant caterpillar and crippled friend

The fundraising event was an enormous success, raising \$563.50 for the 2015 Relay For Life! Next year will be even better and there are some students and faculty that are ready to come back for vengeance. If you are a student or faculty member that would like to participate next year, email Dalton Myas myasd@onid.oregonstate.edu.



Dr. Kevin Ahern and his sorority girls from Sigma Delta Omega



The fabulous Mockler-Martens twins and 'enhanced' Dr. Adam Higgins captivate the audience by asking them to put a "ring on it."





Engineers for a Cause: CBEE Student Club Tops OSU's 2015 Relay for Life

By Jenny Green

In 1985, Dr. Gordy Klatt ran around a track for 24 hours to raise money for the American Cancer Society, an organization determined to find a cure for cancer by funding cancer research, patient services, and government advocacy. That day in Tacoma, Washington was the beginning of one of the biggest community fundraising events in the world—Relay for Life. Nearly 5,000 of these events take place every year across 20 different countries. Teams fundraise for months prior to Relay for Life and during the overnight event, they camp at a park or local track and participants take turns walking. Teams walk and remain on site for the entire night to symbolize the resiliency of the disease. Cancer never stops, so participants do not stop either.

Oregon State University has hosted a Relay for Life event for 12 years, bringing together students and faculty from all disciplines to raise money. CBEE Student Club has participated for a long time, representing the College of Engineering as one of the only engineering-focused teams. This year, with a new team captain and an earlier start, CBEE Student Club had high hopes to be among the top teams at OSU's 2015 Relay for Life. Team CBEE kicked off their fundraising in February with an event hosted by Bioengineering President, Christine Kang, called Dancing with the Faculty. Modeled after the popular prime-time television show *Dancing with the Stars*, students and faculty members from around the University paired up to choreograph a dance. Pairs and larger groups performed and two winners were determined—one by a panel of judges and another by the audience. Audience votes cost 50¢ each with all proceeds going to Relay for Life. The event was a huge success, raising over \$560! Preparations are already in order to make next year's event even better.



CBEE students and Dr. Travis Walker danced to *Glee's* version of "Don't Stop Believing" to take home the Mirror Ball trophy voted on by audience members.



Dr. Gordy Klatt passed away in August 2014 after battling stomach cancer for several years. (source: www.relayforlife.org.au)

Most of the team's fundraising took place in the month of May. On May the Fourth, the team held a Star Wars-themed bake sale. Storm Trooper cupcakes, Han Solo in Chocolate, and cookies good enough for the dark side drew in students and faculty alike.



This event brought in about \$140 from sales and donations. In addition to the bake sale, a graduate student who submitted a great design for the CBEE Student Club 2014-2015 t-shirt decided to use that design to raise even more money for Relay for Life. Featuring Dr. Skip Rochefort as Seuss's Lorax, his shirts raised over \$100!

Besides organized fundraising events, the team collected personal and team donations from family, friends, and faculty. Team CBEE's 26 team members annihilated their original goal of \$2,000 with a grand total of over **\$4,300!** They ranked 2nd place overall, were recognized as a Silver team for raising \$3,500 to \$5,000, and had a team member become a Grand Club member by raising over \$1,000 individually. Walking around the track is another important part of this event and an annual competition exists between graduate students and faculty and the undergraduates. The team walked nearly 600 laps, or 200 miles, during Relay for Life, and the undergraduates won for the first time in years with about 400 laps! Team CBEE is ecstatic about their successes in 2015 and they hope to do even better next year!

Team CBEE invites you to "like" them on Facebook and to consider joining their team next May!



facebook.com/osucbeerelayforlife





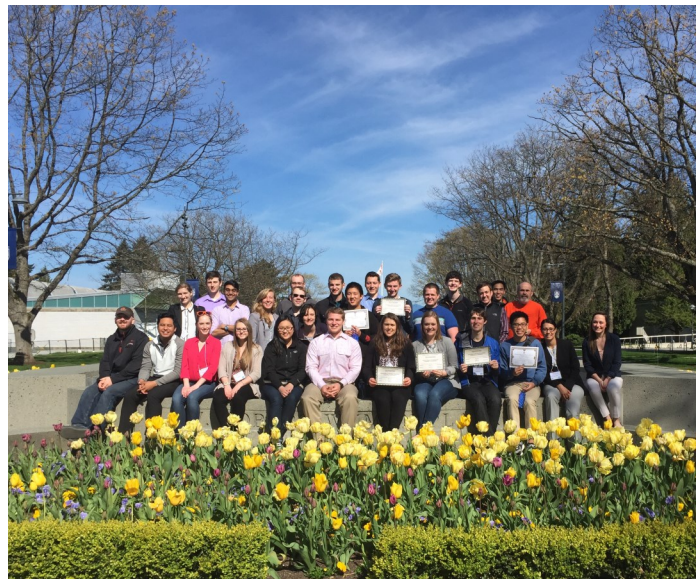
AICHe Regionals at UBC: Yet Another Success for OSU

By Alden Moss

On Friday, April 17th, ~30 CBEE students piled into vans for the trip up to Vancouver, BC for the AICHe Regional Student Conference. As always, we had a strong presence, beating out every other school in our region by the sheer number of students. Driving us forward was a desire to participate, compete, and enjoy an international experience. OSU ended up faring very well in all of competitions, taking home two prizes. Most importantly, everyone had a very enjoyable time.

We took home one prize in the ChemE Car Competition. Due to the large group of students interested, we had two ChemE Car teams this year: a fuel cell car and an innovative car powered by a magnesium battery. Both teams put in immense effort throughout the year, which ultimately resulted in the fuel cell team winning second prize, allowing them to advance to Nationals next fall.

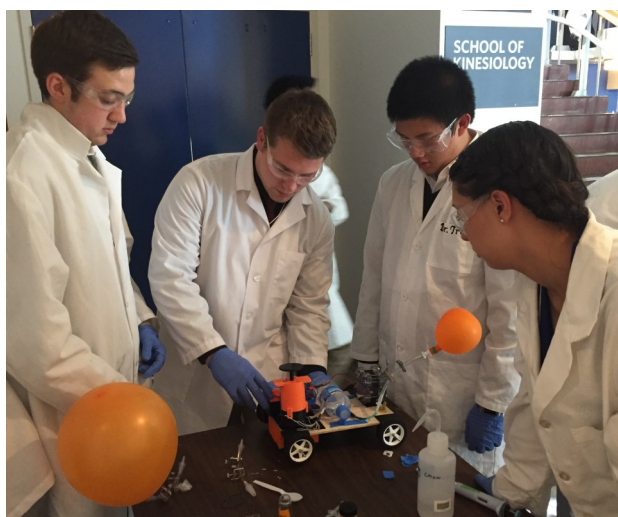
We also fared well in the Paper Competition, in which Elizabeth Allan-Cole took home the second prize. The paper competition is an opportunity for students to give a 10-15 minute presentation on research they have carried out in a lab. This year, we had three participants in the Paper Competition. Elizabeth Allan-Cole presented her work on new deposition methods to create thin films,



Group picture of CBEE students and faculty (Dr. Skip Rochefort and Dr. Travis Walker) at UBC campus

something that could benefit all of us in many ways from electronics to solar panels. Alden Moss presented his research on cryopreservation of white blood cells, something that could immensely help patients with antibiotic resistant infections or undergoing chemotherapy. Sydney Quentin-Cox presented her project on creating titanium dioxide coated beads that could serve as a safe and effective way to clean up pollution.

In addition to the competitions, there were many great motivational and inspirational guest speakers at the conference who talked about everything from ethics to how to ace a job interview. There were also numerous social events such as a formal banquet and an opportunity to play Canadian 5 pin bowling. These speakers and events allowed us to let loose a bit from the competitions, learn, and enjoy our experience. The combination of having an enjoyable time and faring well in the competitions made this year's AICHe Regional Student Conference a smashing success for OSU!



CBEE students preparing their car for the ChemE Car competition



CBEE Student Club Contact Information

FIND US ONLINE:

<http://groups.engr.oregonstate.edu/AIChE/>

FIND US ON FACEBOOK:

[OSU CBEE Student Chapter](#)

FIND US IN PERSON:

[Gleeson Hall, OSU](#)

[2115 SW Campus Way Corvallis, OR](#)

***Ask your class representatives about upcoming events all year round!**

Dead Week Donuts!

It's that time of the year again! Dead Week Donuts! Come stop by for a break from studying for finals and purchase a donut, fruit, and/or coffee to support the CBEE club. We do it for you, our fellow CBEEers! This is also a great time to purchase a new engineering pad or this years CBEE t-shirt.

What: Coffee, donuts, fruit (apples, bananas), engineering pads and t-shirt!

Where: Gleeson Lobby

When: All of dead week! 8am to 12am

Why: BECAUSE WE LOVE YOU!

How: SHOW UP AND FIND OUT!!!

T-Shirt Design WANTED

By Justin Tran

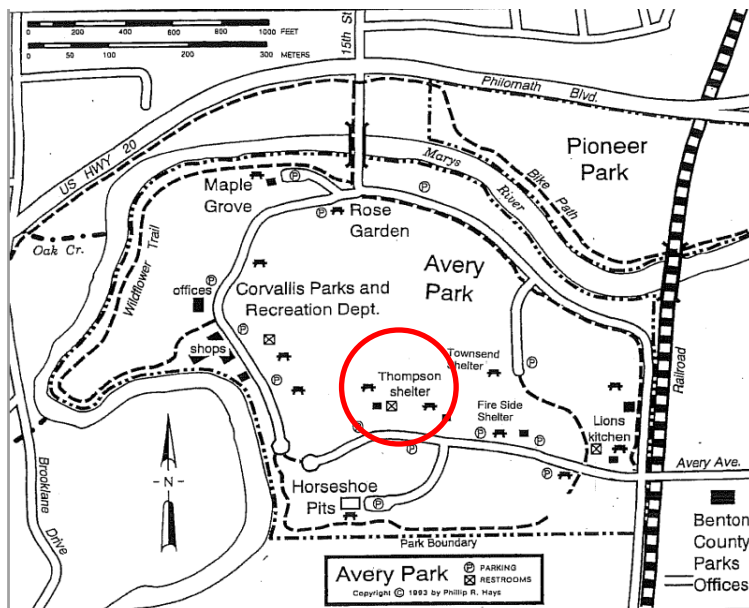
The CBEE Student Club is now accepting t-shirt designs for the 2015-2016 school year! We are accepting designs early this year so you can begin showing them off earlier in the school year! The contest will go through summer and the beginning parts of fall term.

Here are some guidelines for the design:

1. It must be something related to Chemical, Biological, and Environmental Engineering.
2. No profane language or images.
3. Be creative!

If you have a design, send it to Wyatt Self at selfw@onid.oregonstate.edu, preferably as a .pdf file. **Winner of this contest will win their own free t-shirt!**

Any questions can be directed to tranju@onid.oregonstate.edu.



ADDITIONAL INFORMATION

Email Dalton Myas (myasd@onid.oregonstate.edu) with any questions regarding the location or anything else pertaining to the CBEE BBQ.

Remember it is at Thompson Shelter, Avery Park from 6pm to 10pm (1800 - 2200) on Friday, June 5th!

SEE YOU THERE!!!

GO BEAVS!