

The ChemE Connection

Lafayette College Chemical and Biomolecular Engineering News

100th ANNIVERSARY

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LAFAYETTE
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ENGINEERING

The year 2015 marks a very special milestone in the history of the department, and in many ways, the discipline: the 100th anniversary of chemical engineering at Lafayette College. The earliest days of the department can be traced back to the late 1880s, when Professor Edward Hart, then Head of the Department of Chemistry, identified an industrial need for high purity chemical manufacturing. Together with his students, Baker and Adamson, he formed a chemical manufacturing facility on College Hill. Although the chemistry curriculum had integrated some of



Edward Hart

these principles of chemical manufacturing around the turn of the century, the College Catalog officially listed the "Course of Study in Chemical Engineering" in academic year 1915-1916. Hart took the reigns as the Department's first professor and chair. His vision, leadership, and strong mentorship of his students resulted in several important contributions to the field, including the J.T. Baker Chemical Company, the Journal of Analytical Chemistry, the Journal of the American Chemical Society, the call to organization of the American Institute of Chemical

Engineers, and the first textbook in the United States to bear the title Chemical Engineering (Chemical Publishing Company, Easton, PA). For further reading, please see the accompanying CEE article (ASEE 2015).

In July 2015, James stepped down as head of the department, a position he held since 2010, to accept a new role as Dean of Curriculum and Resources at Lafayette College. James is the James T. Marcus '50 Professor of Chemical Engineering and the Robert Adenbaum '49 Co-Director of the IDEAL Center for Innovation. In the five years of his leadership, the Department has seen a 100% growth in enrollment, welcomed 3 new tenure-track faculty, and acquired several capital assets, including a twin-column distillation plant and additive manufacturing suite. James has been instrumental in forging strong partnerships with industry to provide the students with hands-on, real-world capstone design projects. The ability to provide students with these innovative and entrepreneurial opportunities depends on strong industrial partnerships and dedication to the Department's mission of excellence. Please join me in thanking Dr. Ferri for his vision, leadership, and strong mentorship of students, who, like Dr. Hart, has elevated the status of Lafayette ChBE during his tenure.

The 100th anniversary celebration has provided several opportunities to reconnect with alumni, friends and community partners. On October 8th, alumni, parents, corporate partners, and friends gathered for a Black Tie Gala at the Lotos Club in NYC.

On October 18th, the Department hosted the Centennial Lecture delivered by Dr. H. Scott Fogler (Univ. of Michigan), one of the most distinguished professors in chemical engineering and past-president of AIChE. On December 4th, we will



ChBE Faculty with Dr. Fogler, Centennial Lecture

gather for a final reception, namely the Chemical Engineering Birthday Bash. I encourage you to join us, to not only meet our current faculty and students and learn about the new things going on in the Department, but also to reconnect with each other.

As you will see throughout this newsletter, the Department continues to offer a program rich in experiential learning and hands-on education through the generous support and energy of the far-reaching Laf-ChBE community. We are not without needs, however, and so I will continue to seek out new partnerships and gratefully welcome your continued support. Wishing you all a blessed holiday season.

Lauren S. Anderson,
Associate Professor and Acting
Department Head

Recap: 2nd Annual ChBE Symposium

On March 26-27, 2015, the Lafayette ChBE Department and the Lafayette Chapter of AIChE hosted the 2nd Annual ChBE Symposium entitled, "What is the Value-Add of an Engineer?" Through plenary lectures and a roundtable discussion, alumni highlighted what they thought were the distinguishing characteristics that engineers bring to any work environment. The symposium also provided an opportunity for our current students to network with alumni in the professional engineering community and to celebrate the 100th year of Chemical Engineering at Lafayette College. The 2015 Symposium yielded a greater turnout than the previous year's: more than 100 students and 45 alumni

and friends of the Department attended the event. We would especially like to thank our keynote speakers: Julianna Drinane '93 and Kim Faulkner '98 and our panelists: Maryann Kokus '12, Robert Lovelett '11, Lauren Marzocca '12, Jason Pomante '02 and Caroline Richardson '10 for graciously donating their time to discuss their experiences and provide their wisdom and insights. This event successfully illustrated to our students that Lafayette ChBE provides the training, mindset, and skills necessary for pursuing a meaningful career.

Michael Meshberg '16



Students, faculty, alumni and friends gather for the 2nd Annual ChBE Symposium

Mark Your Calendars: 3rd Annual ChBE Symposium

On April 15th, 2016, we will host the 3rd Annual Symposium entitled, "Skills for Success: The Legacy of Dr. Edward Hart." This event will continue to focus on connecting students and faculty with alumni, while also highlighting the particular skills and mindset learned in the process of becoming a Chemical Engineer. It will be an excellent opportunity to learn from successful professionals who have graduated from Lafayette and incorporated the principles of Dr. Edward Hart, the founder of Chemical Engineering at Lafayette, into their own pathways. We look forward to

numerous alumni explaining how they have not only utilized skills that they developed at Lafayette, but also how they have expanded their horizons into noteworthy careers.

If you are interested in getting involved, attending, or learning more about the Symposium, please contact us by emailing aiche@lafayette.edu.

Michael Meshberg '16

Report on the 2015 Mid-Atlantic Regional Conference

On the weekend of April 10, 2015, members of the Lafayette chapter of AIChE drove to College Park, Maryland to attend the 2015 AIChE Mid-Atlantic Regional Conference at the University of Maryland. This conference included activities such as professional development lectures, presentations and workshops, the ChemE Car competition, the student research poster session, and the awards ceremony banquet. Dave Gnopo '15, Long Nguyen '15, Chris Verni '15, and Rachel Elias '17 had the opportunity of presenting their research as the Research Poster Session. Hayden Jarboe '16, Michael Meshberg '16, and Danielle Ricciardi '17 represented the Lafayette AIChE Executive Board at the Mid-Atlantic President's Meeting. Additionally, Assistant Professor and AIChE Advisor, Michael Senra also attended and served as a judge for the ChemE Car Competition.

The most memorable moment of the conference was the success of Long Nguyen '15, as he won co-first place in the research poster session competition for his research in biomolecular engineering. Another fun highlight from this conference was when Rachel Elias '17 won a portable phone charging stick for correctly answering a trivia question during the Awards Ceremony Banquet.

Overall, the 2015 Mid-Atlantic Regional Conference was a successful trip for all who attended. The University of Maryland at College Park did a wonderful job organizing the event. We look forward to attending the 2016 AIChE Mid-Atlantic Regional Conference at the University of Delaware and are hopeful that Lafayette will host its own Mid-Atlantic Regional Conference within the next few years!

Michael Meshberg '16

ChBE Success at the 2015 AIChE National Student Conference

This November, the national AIChE student conference was held in Salt Lake City Utah. Lafayette College sent seven students to participate in the conference, several of which participated in the student poster competition to present his/her research. Out of 386 total posters from highly regarded institutions in the U.S and select international schools, four Lafayette students placed highly in their respective research categories.

Sean McSherry '17 finished second in the Sustainability subsection with his poster *Solving the Impossible-Recycling Challenges*. His advisors are Ashley Cramer and Phil Brunner at Zzyzx Polymers.

Aaliyah Shodeinde '17 finished first in the Food, Pharmaceutical and Biotechnology subsection with her poster *Cytotoxicity of RGD Functionalized Silver Nanoparticles on EOMA Cells*. Her research advisor is Chris Anderson.

Cara Abecunas '17 finished first in the Materials Engineering and Sciences subsection with her poster *Examining Cell Adhesion and Gene Expression on P(MEO₂MA-co-OEGMA) and PNIPAM Thermoresponsive Biomateri-*

als with Integrated Proteins. She is being advised by Professors Lauren Anderson and Chris Anderson.

Rachel Elias '17 finished first in Fuels, Petrochemicals and Energy subsection with her poster *Bio-diesel Structure Property Correlations for Cold Weather Applications*. Additionally, this subsection offers overall prizes and Rachel finished first in Fuels, winning \$500 and a plaque. Her advisors for this project are Professors Lindsay Soh and Michael Senra.

These results are a testament to the quality and diversity of Lafayette College's research endeavors in the Department of Chemical and Biomolecular Engineering. Each of the



Award winners at the National Conference. Pictured left to right: Sean McSherry, Aaliyah Shodeinde, Rachel Elias and Cara Abecunas

students who participated in the poster session is thankful for the carefully fostered relationships shared with the research advisors and professors in the department.

Sean McSherry '17

LafChE100

Join us for the Chemical Engineering Birthday Bash!

Friday, December 4, 2015 5-7 pm

Pfenning Alumni Center, Lafayette College



Study Abroad Experience: Bremen, Germany

One of the reasons I chose Lafayette College was because of the abundance of study abroad opportunities for engineering students. Traveling and experiencing different cultures has always been very important to me. With the help of the engineering department, I was able to travel across Europe and receive a global perspective of engineering at Jacobs University in Bremen, Germany.

Classes such as Bioprocess Engineering and Renewable Energy introduced me to German and global engineering concepts. It was interesting to see how environmental engineering is significantly more important in German culture compared to in American culture. I definitely devel-



Bremen Study Abroad students visit the Brandenburg Gate in Berlin

oped a new appreciation for renewable energy sources and their impact on society.

At Jacobs, there were also many opportunities to experience German engineering first hand. Students were able to take a trip to the Mercedes Benz factory and learn about the engineering involved in manufacturing luxury vehicles. We also traveled to the Beck's Brewery where we learned about the processes involved in making beer.

Overall, I will always remember my stay in Bremen as the best semester of my college career.

Laura Himmelreich '17

Summer Internship Experience Takes a Pard Across the Country

Chicago and Vegas and Houston, oh my! 10,078 miles -- I think I traveled more this summer than I have in the past three years of my life. Just a couple of months ago, I completed my internship at NRG Energy -- the largest independent power producer and third largest renewable generation company in the U.S. NRG exceeded my expectations of a summer internship, and was a valuable experience that brings me closer to my dream of working in renewable energy.

The highlight of my internship was visiting the world's largest solar thermal power plant. Located in the Mojave Desert, just on the border of California and Nevada, the Ivanpah generating station produces 377 MWs of power that supplies 140,000 homes. I had the unique opportunity of spending two days at the plant touring the site, interacting one-on-one with the engineers, and even taking an elevator ride to the top of the tower—inside the operating boiler! The sheer magnitude and principle behind

Ivanpah is awe-inspiring; it's hard to convey without seeing it with your own



Kristen Pogozelski '16 at the Ivanpah generating station

eyes. In addition to my trip to Ivanpah, I traveled to Chicago and Houston for other projects and team business meetings in which I was involved.

Between my travels, I was based at NRG's headquarters in Princeton, NJ. I divided my time between two teams: one in business development and the other in plant operations. As a

result, I learned about both the business and financial ends of the company as well as applied my technical knowledge of chemical engineering. As part of the intern program, I was able to have lunch with the CEO, CFO, CAO, and other top executives of NRG. I also volunteered at a local charity, and took day trips to different sites. Over the course of twelve weeks, I grew new friendships, connected with dozens of NRG employees, and learned A LOT about the world of chemical engineering. All in all, it was a remarkable summer.

Kristen Pogozelski '16



Kristen at Princeton Health Care Systems

Magnificent Mentoring

Once again, the Chemical and Biomolecular Engineering Department's Mentoring Program is off to a great start! Last year, the program grew to over thirty-five underclassmen mentees and twelve upperclassmen



Mentors and mentees get to know each other and express their creativity by designing "descriptive dishes"

mentors. Throughout the year, a variety of events took place that encouraged underclassmen involvement and



Freshmen mentees learn the importance of communication as they try to construct a tower of cups without their hands.

development. Among these events, friendly competitions enabled Chemical Engineers of all class years to unite and solve an array of light-hearted engineering problems. This year, thirteen outstanding mentors and over thirty ambitious mentees have been grouped to ensure that students new to the ChBE Department receive in depth exposure to the facilities and faculty. Through faculty-student lunches, mentor-mentee outreach events, and professional workshops, each mentee will complete the program with an ample understanding of what it means to be a chemical engineering student at Lafayette College.

Danielle Ricciardi '17



C. Barker Carlock '17 teaches a group of mentees about the importance of pairing liberal arts and engineering

Students See the Industrial World

During the Spring 2015 semester, ten engineering students travelled to the Air Products and Chemicals Inc.'s Plant in Hometown, PA for a personal tour of the fluorine plant with Lafayette alumni Bill Holler and Mike Barrett. During this tour, students received an in depth look at the unit operations, controls systems and safety required in the production of industrial and specialty gases.



Students visit the Air Products Hometown Facility

We would like to thank the alumni for their time, Air Products for their hospitality, and the Society of Women Engineers for their co-sponsorship.

If you would be interested in hosting our students at your place of employment, please send an e-mail to aiche@lafayette.edu. Our students gain great value in these opportunities throughout their time at Lafayette.

John H. Jarboe '16

Here Comes the Bride...Wedding Well-Wishes for Professor Soh

Cassandra Uthgenannt '16

The ChBE department and EXCEL Scholars joined Professor Soh this summer to celebrate her marriage to Dr. Ngai Yin Yip, Assistant Professor in the Department of Earth and Environmental Engineering at Columbia University.

The surprise wedding celebration created a lot of exciting hustle and bustle in the Fishbowl. The research students spent the beginning of the day baking, not one, but two cakes for the festivities and decorating the room with streamers, balloons, and wedding-themed trinkets. Everyone quietly went about their days until lunchtime rolled around, when they all gathered in the Fishbowl for the big reveal. Once Professor Soh entered the room, the finest wedding music that YouTube had to offer began playing, and all of those in attendance cheered in joyful celebration. Professor Soh was astonished, to say the least.

After the initial surprise had worn away, everyone enjoyed munching away on Mediterranean food and delicious cake, while discussing wedding plans. It was a great time celebrating this new and exciting stage in Professor Soh's life.

The entire ChBE department wishes the happiest future for the two newlyweds and many cheerful years to come!



Faculty and summer researchers celebrate at Professor Lindsay Soh's surprise wedding celebration in the Fishbowl

Lafayette ChBE Welcomes Professor Joseph Woo

Dr. Joseph Woo earned his B.S., M.S., and Ph.D. from the Department of Chemical Engineering at Columbia University. After exploring opportunities in electrochemistry and artificial organs research, Prof. Woo decided to focus his doctoral studies on atmospheric aerosols. As a postdoctoral researcher in Columbia's Department of Mechanical Engineering, he spent time developing course material on sustainable energy in third world countries.

Prof. Woo was drawn to the family-like nature of the Lafayette ChBE department. By developing sincere, interpersonal connections with each of

his students, he hopes to inspire growth, learning, and enthusiasm amongst young engineers. Through discussion of his research in the energy and environmental sectors, Prof. Woo is eager to teach his students how some of the perceived "drier" subjects of chemical engineering coursework actually lead to rewarding and fulfilling applications in the field.

Professor Woo is currently teaching lab courses and Thermodynamics and will teach Process Control in the spring.

Sara Mikovic '18



Visiting Assistant Professor
Dr. Joseph Woo

Connect with us!

We are always interested in connecting and reconnecting with alumni. We are grateful to alumni that have given their time by speaking at AIChE and ChBE events and/or opening their workplace to us to host a plant tour or workshop. For more information about Lafayette ChBE, please join our mailing list by emailing us for a link at aiche@lafayette.edu.

Lafayette Chemical Engineering website: che.lafayette.edu

Lafayette AIChE website: sites.lafayette.edu/aiche

We're on Facebook! 'Friend' Lafayette AIChE

AIChE Board 2015-2016: Professor Lauren Anderson, Professor Michael Senra, Hayden Jarboe '16, Sean McSherry '17, Michael Meshberg '16, Sara Mikovic '17 and Danielle Ricciardi '17