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The ChemE Connection

Lafayette College Chemical and Biomolecular Engineering News

Chemical and Biomolecular Engineering Departmental Highlights

As we draw near the completion of cal Compatibilization (CMC) to make vation, Professor Diane Cohl Ahl the new twin-column distillation plant conductive plastic using injection, featuring digital controls at the inaugu- blow, and rotational molding and "Engineering re-Connections: framing cluding electrical conductivity. Through Department and the Lafayette AIChE first-hand perspective of the chalchapter, the event brought together lenges and rewards associated with more than 150 students, faculty, and innovation and entrepreneurship in a alumni with representatives from start-up enterprise. eleven different companies including BASF, Dow, and O'Brien & Gere.



Stephen Pryor '71 cuts the ribbon to signify the commissioning of the twin-column distillation plant

Capstone design continues to be a highlight of the student experience in offered. This year two projects will

nearly a century of chemical engineer- plastics that cannot be produced via (Arthur J. '55 and Barbara S. Rothkopf ing at Lafayette, the Department con- conventional processing techniques, Professor of Art History) and I encourtinues to build on its strong tradition resulting in materials that have supe- age applications for new projects and and reputation of excellence. In March, rior properties. In this project, the stu- will actively seek partners in the Lafaywe celebrated the commissioning of dent team will characterize a novel ette community and beyond. ral Lafayette ChBE Spring Symposium measure key physical properties infuture networks." Co-hosted by the this opportunity, students will gain a

Experiential learning and hands-on ExxonMobil, Pinnacle Foods, Air Prod- education are the hallmarks of the Laucts and Chemicals, AstraZeneca, favette experience. The Department is excited to collaborate with the broader ment enrolls 142 undergraduates College community during a new across all class years; the fourth largphase of strategic growth through part- est program at Lafayette, and we are Design, Entrepreneurship, and Leader- rate for all graduates within six months ship) Center. The mission of IDEAL is of degree completion. Two faculty in to provide a platform for engaging ex- the Department also reached key mileternal partnerships and facilitating ex- stones. This past spring, Professor periential learning for Lafayette stu- Polly R. Piergiovanni was promoted to dents. The high impact products that Full Professor, and Professor Javad result from these collaborations will Tavakoli will enter retirement in Desimultaneously showcase the integra- cember. Please join me in thanking at the College. Programs exploring for their many contributions in making ChBE through the diversity of projects tional boundaries for the current year are grateful for the broad partnership are in the final stages of development, and support from the LafChBE comfeature industry/academy partnerships: and include a symposium and work- munity going forward as we continue to conductive plastic process develop- shop in cybersecurity for state and lo- strive toward the standard of excelment in cooperation with Zzyzx Poly- cal government agencies, an institute lence we all associate with Lafayette. mers and full-density digital part mate- in additive manufacturing, and a prorialization through additive manufactur- gram exploring the use of nanotechnoling with the ExOne Company. Zzyzx ogy for cultural conservation. As the Polymers uses an innovative process new Robert Adenbaum '49 Coknown as Continuous Mechanochemi- Directors of the IDEAL Center for Inno-



ExOne Senior Design Team, Spring 2012

As of September 2014, the Departnership with the IDEAL (Innovation, pleased to report a 100% placement tion of the liberal arts and engineering Professors Piergiovanni and Tavakoli creative collaborations across tradi- the Department what it is today. We

> James K Ferri, James T. Marcus '50 Professor and Department Head Robert Adenbaum '49 Co-Director of the IDEAL Center for Innovation

Student View: After 28 Years, Professor Javad Tavakoli Retires

I was beyond saddened to hear that Professor Tavakoli was retiring at the end of this semester. It's hard to imagine not walking into Professor Tavakoli's office, pulling up a chair at the table, and moving the model hydrogen car over to make space at the table for my homework. The books that line the office contain almost anything one could want to read about chemical en- truly be successful. I experienced this gineering, from alternative energy (there are a lot of those!) to process his office. Professor Tavakoli has alcontrol, and beyond. The wide variety ways asked, not just about school, but of books represents one part of being about all of the different activities that I a professor that Prof. Tavakoli loves -the challenge of constantly learning new developments in the field, in addi- having enough time to relax or sleep, that students bring to the classroom.

Professor Tavakoli apart from the average college professor is the deep investment he makes in a student's overall development. Of course, learning is important in an academic setting like Lafayette, but Professor Tavakoli case my group and I had any gues- Favorite Color: Green considers his students not just as pupils, but as long-term friends. That, he says, is one of the best parts of being that there are more important things Chaplain a professor, the never-ending stream than grades that lead to success in life. Dream Car: Hybrid of long-term friends that one makes. He urges today's young engineers to Favorite ChemE Subject: M&E Professor Tavakoli understands that consider the social and environmental First ChemE Subject taught: Kinetics students are not just individuals to be impact of projects they undertake, not thrown information, but that students just the economics of it. With everyneed to develop holistically in order to thing he does, Professor Tavakoli sees



kindness every time I have walked into have been involved with on campus. He was always concerned that I wasn't pre-lab, because we didn't have a time me. that would work during the week. He stayed longer than he needed to in About Professor Tavakoli: tions.

things with a more global view than most engineers - even the most efficient process could have an impact on the surrounding area.

Professor Tavakoli has told me that it was always his dream to be a college professor, and that was the reason he went to graduate school. He wanted to be a college professor to experience the challenges of an ever-expanding field, in addition to the challenges presented by the students. Upon his retirement, I would like to say this: Professor Tavakoli, you have truly challenged me to think beyond the scope of just engineering to include the wellbeing of the people and environment. tion to the challenge of the new ideas and was always willing to work with me This rounded approach to engineering to ensure that I was taking the time to has changed the way I view the world. One of the characteristics that sets fully understand the course material. I and for that, I will be eternally thankful. remember the day he came into the Rest assured Professor, you have inoffice on a weekend to help me with a deed made a long-term friend out of

> Favorite Animal: Cats (He has five!) Professor Tavakoli has taught me Favorite Movie: Movies with Charlie

> > Bonnie Malhotra '15



Faculty Note: ChBE has a Baby

Evan Anderson was born eyes. Evan loves being outon July 19, 2014, at 5:24am side in the fresh air, going at Doylestown Hospital to on walks in the neighbor-Professors Anderson and myself. We storytime, watching football only checked in to the hospi- with dad, and "dancing" to tal around 3am, so he was in all kinds of music. His favora hurry to come into the ite "toy" is his dinosaur Wubworld! He was 7 lbs 2 oz and banub. He's looking forward 20.5 inches long, and now to meeting everyone! has dark red hair and blue Professor Lauren Anderson

Christopher hood or at the park. He likes



ChBE Symposium

On March 27-28, 2014, we hosted our inaugural ChBE Symposium titled "Engineering reConectons: framing future networks." The purpose of this event was to expose underclassmen students to the professional engineering community and to enhance the connectivity among ChBE faculty, students, and alumni. This event was a great success, reaching over 70 students and over 35 alumni and friends of the department on Lafayette's campus. This event also received recognition from the National AIChE through an article on their blog, ChEnected,

We will be hosting the 2nd Annual Symposium on Friday, March 27, 2015. The event will not only continue to meet



David Lindsay '88 talks with students at last year's ChBE Symposium

Donald Glaser talks with students at last year's ChBE Symposium

the goals of last year's event, but also highlight what sets engineering graduates apart from non-engineering graduates. As Steven Pryor said at last year's symposium, "the world needs great engineers and great problem solvers." This year, we hope to explore a bit more in depth into exactly what that means.

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

Ally Hill '15

Conference Corner

University of Virginia. It was an action- population responsibly. packed weekend full of professional presentations and workshops, student the entire conference was the sucposter sessions, and the annual ChemE car competition. Barker Carlock '17, Tyler Fruneaux '14, Seth Gottlund '14, Allyson Hill '15, Dana Lapides '16, and Danielle Ricciardi '17 had the great privilege of representing Lafayette's AIChE at the conference.

Sponsored by Syngenta and many other companies, the conference exuded the idea of belonging to causes greater than oneself. The keynote

29th 2014, the sweet smell of Chemical Protection Finished Product Process- Lapides who won first and third place Engineering was in the air in Char- ing for Syngenta's North America re- respectively in the research competilottesville, Virginia. That's right, the gion-spoke towards the duty of tion and aptly demonstrated Lafayannual AIChE Mid-Atlantic Regional chemical engineers to solve the issues ette's presence. Tyler will represent Conference was taking place at the of feeding an ever-growing global the Mid-Atlantic region in the national

The most memorable moment of tional conference in Atlanta.



Lafayette ChBE students at Regional Conference

On the weekend of March speaker John Davis—Manager of Crop cesses of Tyler Fruneaux and Dana research competition at the AIChE na-

> The conference was not only a great experience to share ideas with fellow Chemical Engineering majors in the region but also a wonderful time to better know the career paths available within our major. Although UVA did an incredible job organizing this year's conference, the AIChE chapter of Lafayette hopes to host its own Mid-Atlantic conference in the near future and take it to new heights!

> > C. Barker Carlock '17

Visitors in the ChBE Department

There are a few new faces around the Department this semester. The ChemE Connection sat down with each of our visiting professors as they enthusiastically embark on their first semester here at Lafayette. Professors Clark, Cramer, and Woltornist will be joining us for the 2014-2015 academic year. Here are some facts to help you know them better.

Compiled by Hayden Jarboe '16, Michael Meshberg '16, and Danielle Ricciardi '17



Ashley Cramer

Background:

- M.S., Chemical and Biological En gineering, Northwestern University
- B.S., Chemical Engineering, Lafayette College

Why did you choose Lafayette?

I chose Lafayette because of the emphasis it places on teaching and the Why did you choose Lafayette? quality of students that go here; students here are afforded many unique opportunities as undergraduates and Lafayette as an undergraduate, and am grateful to teach and give back to give back than to teach? the Lafayette community.

you plan to bring to ChBE Depart- ment? ment?

process of product design and development, as well as systems integration to the students at Lafavette. In addition, I have the unique experience of designing products for use in underdeveloped countries and have an underfor these areas.

department to know about yourself?

I would like the department to know that I have a golden retriever named Moxon. We make frequent visits to the Quad so if you see us feel free to stop and pet him, he loves attention!



Alex Woltornist

Background:

- MBA, Wharton School of Business, University of Pennsylvania
- M.S., Chemical Engineering, Stevens Institute of Technology
- B.S., Chemical Engineering, Lafayette College

I am a 1980 Lafayette grad in Chemical Engineering. I have been engaging with many aspects of the Career Seryears, and felt that what better way to achieve the balance as Lafayette does.

What from your past experiences do you plan to bring to ChBE Depart- ment?

From what I have seen, a lot of gradu-I plan to bring my knowledge of the ating engineers at many schools are engineering problems. If given the opvery smart theoretically but need some more insight into the practical applications of what they learn. I also see that many students do not get exposed to a lot of the non-technical skills such as team dynamics, change management, ample, we are starting to learn about standing of the different requirements etc. I hope that through my many years of operations experience in the techni-What else would you like the ChBE cal arena I can impart some of my I'd like to share my experience with the learnings to the students through De- students. sign Analysis.

> I believe in a couple key principles; strike a good work-life balance in everything you do in your career and always push yourself to learn new and challenging things throughout your life.



Michael Clark

Background:

- Post-Doc, Rutgers University
- M.S., Ph.D., Chemical Engineering, Columbia University
- B.S., Chemical Engineering, Rutgers University

Why did you choose Lafayette?

I chose Lafayette because the undergraduates seem outstanding, and there is a strong focus on teaching plus research. Many of institutions do are able to further excel. Also, I went to vices group at Lafayette for many one or the other really well, but don't

What from your past experiences do What from your past experiences do you plan to bring to ChBE Depart-

I am really strong in numerical analysis and using computers to solve chemical portunity, I'd like to teach a numerical analysis course in the spring. Additionally, I am hoping that students can benefit from some of my industry experiences. In thermodynamics, for expower plants. I've been in a power plant; I've designed equipment for it.

What else would you like the ChBE department to know about yourself? My first child was born four days before I started grad school. Now I have three kids, and we all feel welcome in the Lafayette community.

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Student Athlete Excels in the Classroom and in the Pool



classroom throughout his first two 1992. years as a Lafayette student.

the school record in the 200m Breast- Psi and the Oaks Leadership Acadstroke and was a part of the relay emy. He is also workteams that broke the 200m and 400m ing as an EXCEL Medley Relay records. He also swam scholar under Profesin the Patriot League Championships sor Michael Senra placing 4th in both the 100m and 200m analyzing Breaststroke.

These accomplishments had con- of model fluids. tributed to him being named to the All-Patriot League Second Team, an finding a balance behonor awarded to less than 80 swim- tween ming in the Patriot league. He also swimming, and other

This past summer, I interned with

the New York City Department of Envi-

ronmental Protection (NYC DEP), a

pollution control.

gained a spot for the B cut in the activities, Greg said "Being an engisophomore is guite impressive."

Greg holds the school record in the very manageable." 200m breaststroke, and missed the school record for the 100m breast- impacted his swimming performance, stroke by just 0.40 seconds. Each of Greg said "The engineering course these recorded had been set by former load is very difficult to handle along Greg Grewal '16 has achieved Lafavette student turned Olympian An- with a varsity sport, but because it is much success from the pool to the drew Rutherford from the class of very time consuming, it helps me

In addition to these accomplish- can get everything done." In his sophomore year, he broke ments, Greg is a member of Phi Kappa

> the rheometric properties

When asked about engineering,

NCAA Division I Championships. His neer does not make it impossible to be coach. Jim Dailey, is quoted on Go- extremely involved in other activities Leopards.com saving "For a sopho- on campus. You just have to work very more to swim this well and drop the hard to balance your time between amount of time he has from his senior extracurricular activities and schoolyear in high school to what he did as a work. It is very tough at first, but once you figure out how to do it, it becomes

> When asked how engineering has budget my time properly to make sure I

> > Ally Hill '15 and Hayden Jarboe '16



Summer Internship Experience

Water Filtration Plant, NYC's first water filtration plant and one of DEP's most of the process changes (chemical dose expensive projects. The plant is still changes, flow changes, pump under construction and is currently un- changes, etc.) that occurred at the dergoing a variety of experiments to plant over a certain amount of time. I maximize filtration efficiency by also then observed the effect of these procminimizing cost. In about a year how- ess changes on water quality, filter ever, around 290 million gallons of efficiency, and the cost of running the clean drinking water per day will be plant. Through my experience, I delivered to the Bronx and parts of learned teamwork skills, problem-Manhattan. I worked with the Process solving skills, and used concepts governmental agency that is in charge Controls and Operations and Engi- learned in Unit Operations, Process of NYC's drinking water, wastewater neering Asset Management sectors Control, Economics, and General and storm water, noise control, and air and spent a lot of time in the lab and Chemistry. out on the field sampling the Croton

I worked in the Bronx at the Croton raw water supply.

For my final project, I analyzed all

Georgia Papagianis '15

Recent Events

In the past number of years, AIChE has become an integral part of the student experience for all chemical engineers at Lafayette. Some highlights of our work include:

- Strengthening connections with alumni: The ChBE symposium provided a wonderful opportunity for alumni to come back and talk about their experiences and reconnect with their alma mater. We hope that future symposia and other events will only further solidify these bonds, both with alumni and their places of employment.
- Increasing the number of students attending AIChE regional and national conferences: Lafayette ChBE is succeeding at improving



Students and faculty participate in the Air Products LIN Demo during National Engineers' Week.



Students pose in their PPE on a plant at the Air Products plant in Hometown, PA.

its visibility both regionally and nationally. Last year, three of our students won prizes for their research and we hope to continue this trend in future years.

- Developing and strengthening our mentoring program: This year's mentee class of 37 is the largest we have ever had.
- Increasing our work outside of the ChBE community: We have become more active with cooperating with other student groups for events and participating in a number of volunteer events. This year's Air Products Hometown tour was done in conjunction with Lehigh's AIChE student chapter.
- Refining our seminars: AIChE has assisted the Department in developing the ChBE brownbags for ES101. This year, we have added a professional development seminar series (connected to capstone design) with the assistance of Professors Lindsay Soh and Alex Woltornist.
- Increasing opportunities for students and faculty to meet each other outside of the classroom and laboratory: The ChBE cookoff has been a very popular event bringing the entire Department in a fun (and sometimes competitive) environment.

Professor Michael Senra

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 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 2014-2015: Professor James Ferri, Professor Michael Senra, Ally Hill '15, Bonnie Malhotra '15, Hayden Jarboe '16, Michael Meshberg '16, Danielle Ricciardi '17

