



THE VIRGINIA TECH DEPARTMENT OF CHEMICAL ENGINEERING

CONNECTION

GROWTH CONTINUES



Greetings from Blacksburg,

I hope this newsletter finds you happy and well. Over the past 12 months the department has been very productive. In the spring of 2016, we graduated 96 B.S. chemical engineers.

Our students continue to be remarkably engaged:

- 63% had co-op or intern experience,
- 40% had a study abroad experience for Unit Operations Laboratory,
- 40% had an undergraduate research experience

Our externally funded research expenditures have increased nearly 30% in the past three years because of the hard work of our faculty. The additional funding translates into higher graduate enrollments and increased research opportunities for our undergraduates.

Demand remains high for the ChE major. This past year we surpassed the target for undergraduate enrollments by nearly 77% as called for by the College of Engineering's enrollment management plan introduced three years ago. The plan aims to control the enrollment of sophomores entering a major based on the number of full time faculty in the department. The plan is not an absolute cap, but allows all students with a 3.0 GPA or better to enter the major of their choice, regardless of numbers. We have the highest student/teacher ratio in engineering, and the demand for our major has been met with an enthusiastic investment by the college of new faculty for the department. We

have hired five new faculty in the past three years and have additional openings for the coming year.

Our continuing success as a department owes a debt of gratitude to our alumni who give back to the department through their spirit of *Ut Prosim*, through giving, and through the hiring of our talented graduates. With each passing year the philanthropy of our alumni becomes more important to the department. Your generous gifts allow us to enhance the educational experience and the learning environment for our students, maintain the quality of our programs through support of our teaching mission, support our student groups, support student travel, and a host of other uses. Thank you!

We love to hear from our alumni, so please stay in touch. If you are in the area, I encourage you to stop by and visit the department in Goodwin Hall. Please take a moment to complete the Alumni Information Form on the reverse side of the newsletter or the online ChE Alumni link on our website: www.che.vt.edu.

Best wishes,

Professor and Department Head

New lab opportunity in Germany

IN THE SUMMER of 2015, the chemical engineering department initiated a new undergraduate student exchange program with the Ruhr University of Bochum (RUB) in Germany. Similar to the ongoing program with the Technical University of Denmark (DTU), Virginia Tech chemical engineering students visit RUB in the summer and complete the Unit Operations (UO) Laboratory requirement in our curriculum. The time in residence in Germany for the program is eight weeks and in addition to the UO requirement the students additionally complete an undergraduate research project. In exchange, RUB students visit Virginia Tech during the academic year.

The program was conceived and developed by Drs. Erdogan Kiran and Stephen Martin at Virginia Tech, in conjunction with Dr. Sulamith Frerich of RUB during the 2012-13 academic year while Frerich was a visiting scholar in Kiran's laboratory.



Graduate student Ami Jo describes her work on peptide-loaded PLGA nanocarriers for reduced platelet absorption of leukemia cancer cells.

Eighth Annual Graduate Student Symposium

THE CHEMICAL ENGINEERING Graduate Student Association (ChEGSA) hosted another successful Graduate Student Symposium on April 21, 2016. The one-day event featured 13 contributed oral presentations by graduate students covering all aspects of graduate research in the department, and a poster session including contributions from undergraduate and graduate researchers.

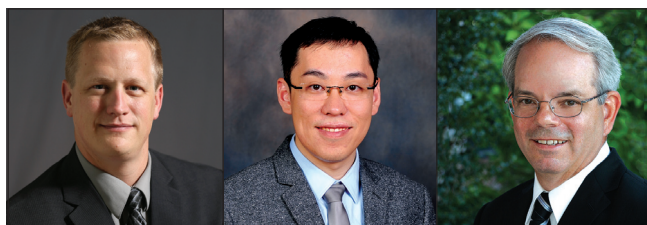
The program co-chairs for the symposium were graduate students Yow-Ren Chang and Greg Lambert. Highlighting the program was the plenary address given by Dr. David Jack, of the mechanical engineering department at Baylor University.

ChE welcomes three new faculty

THE CHEMICAL ENGINEERING department welcomed three new faculty members who joined the department during the 2015-16 academic year.

Dr. Michael Bortner joined the department in August 2015 as a tenure-track assistant professor after serving for two years as an instructor and primary undergraduate advisor. Before joining Virginia Tech, Bortner had a decade of industrial experience in research and product/process development. His research interests are in polymer nanocomposites, nanostructured materials and surfaces, polymer morphology and structure-property relationships, and surface and interface phenomena in polymers. He represents the department in a newly-formed advanced manufacturing group in the College of Engineering. Bortner is a Virginia Tech alumnus, having received his Ph.D. under the direction of Professor Don Baird.

Dr. Rong Tong joined the department in August 2015 as a tenure-track assistant professor, following postdoctoral work at MIT and Boston Children's Hospital – Harvard Medical School with professors Daniel Kohane and Robert Langer. Tong's research interests are in



Left to right: Dr. Michael Bortner, Dr. Rong Tong, and Dr. Gary Whiting.

drug delivery systems, biomaterials and nanoparticles, and polymer synthesis and materials chemistry.

Dr. Gary Whiting joined the department in March 2016 as a professor of practice. Whiting brings a wealth of technical and business expertise from a 30+ year career at DuPont. He will serve as the next Joseph H. Collie Professor of Chemical Engineering. His duties will include teaching, including the elective course on business and marketing strategies for the process industries, and undergraduate advising and mentoring. Whiting received an M.S. in chemistry and a Ph.D. in chemical engineering from Virginia Tech.



Lu named Fred Bull Professor

PROFESSOR CHANG LU has been appointed the Fred W. Bull Professor of Chemical Engineering by the Virginia Tech Board of Visitors. The professorship was funded through alumni donations to honor the many contributions to chemical engineering education of the late Professor Fred W. Bull, the second head of the chemical engineering department.

A 2008 NSF CAREER award winner, Lu joined Virginia Tech in 2010 from Purdue University where he was an associate professor. He is internationally known for his research on microfluidic biotechnology, and using fluid engineering principles and physical sciences to create tools and techniques for studying and manipulating cell and molecular biology. The university has filed four patents based on the research in his group. He is currently working with two companies to develop epigenomic profiling technology for commercial use.



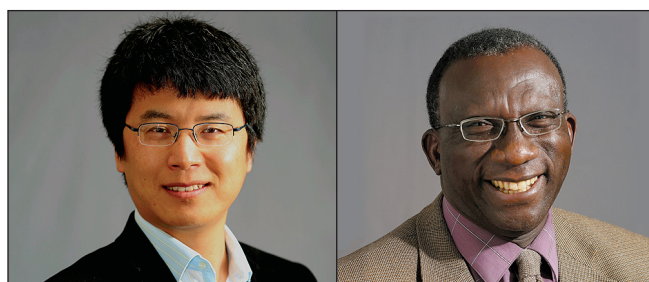
Whittington receives 2016 Outstanding Alumna Award

THE DEPARTMENT OF Polymer and Fiber Engineering at Auburn University awarded its 2016 Outstanding Alumni Award to Dr. Abby Whittington. Dr Whittington graduated Summa cum Laude from the department in 2000 when it was known as Textile Engineering with a degree in Textile Chemistry. She was specifically noted for her PhD in Materials Science and Engineering from University of Illinois at Urbana-Champaign in 2006, more than 20 publications in peer reviewed journals, recent promotion to associate professor with tenure in Chemical Engineering and Materials Science and Engineering at Virginia Tech, and her patent application in the development of new imangible polymers specifically designed for pediatric medical devices. She was honored on April 8, 2016 during the Auburn University's Samuel Ginn College of Engineering Annual Awards Ceremony in Auburn, Alabama.

Karim and coworkers featured in Chemical Communications

A PAPER (Chem. Commun., 2015, 51, 16617-16620) published in the Journal of Chemical Communications by Professor Ayman Karim and coworkers was chosen for the back cover illustration for the December 2015 issue. The paper describes a novel concept for upgrading vapors generated from the pyrolysis of biomass to fuel precursors without an external hydrogen supply. The concept uses a hierarchically structured catalyst with steam reforming and hydrodeoxygenation functionalities being deposited in the micropores and macropores of a support, respectively. The hierarchical structure restricts the larger, more valuable molecules from reaching the active site (e.g. Pt) for steam reforming in the micropores where the smaller oxygenates react to generate H₂. The H₂ generated from small oxygenates in the micropores is used to hydrodeoxygenate the large molecules in the macropores (on PtFe), eliminating the need for external H₂ supply and improving the carbon efficiency of the process.

Karim's collaborators include Junming Sun from the Gene and Linda Voiland School of Chemical Engineering and Bioengineering at Washington State University (WSU), Xi Li, James Rainbolt, Libor Kovarik, Yongsoon Shin from Pacific Northwest National Laboratory, and Yong Wang who holds a joint position between WSU and PNNL.



Research of Xin and Achenie highlighted

THE JOINT WORK of two ChE faculty has been recognized by scientific news outlets AlphaGalileo, EurekaAlert, and NewsWise. Luke Achenie and Hongliang Xin, along with Xianfeng Ma and Zheng Li from Xin's research group, coauthored an article entitled "Machine-Learning-Augmented Chemisorption Model for CO₂ Electroreduction Catalyst Screening" in the Journal of Physical Chemistry Letters (J. Phys. Chem. Lett., 2015, 6 (18), pp 3528–3533.) The work is touted as the first example of machine learning from data in catalysis, which could significantly accelerate catalytic materials discovery. The group used data from ab-initio quantum chemical calculations as input to train artificial neural networks to make predictions of novel alloy compositions and atomic structures that might be useful for efficient chemical conversions. The group examined multimetallic alloys for improved efficiency and selectivity for CO₂ electrochemical reduction to C₂ species because of current interest in this process for sustainable production of fuels and value-added chemicals.



Stephen Martin (right) receives award from the former dean of the College of Engineering, Richard Benson.

Martin receives Dean's Award

IN EARLY MAY, Associate Professor Stephen Martin received a 2016 Dean's Award for Service Excellence in recognition of his extraordinary contributions to service. Martin has long demonstrated an exceptional commitment to college and university service, including stints on the Faculty Senate (2007-2013), the Commission on Research (2008-2011), the Engineering Faculty Organization (2010-2013, President 2011-2013), and more recently on the University Curriculum Committee (UCC Chair 2013-2014, 2015-2016) and the Commission for Undergraduate Studies and Policies (CUSP, 2013-present, Chair 2014-2015). He has also served on the University Chemical Safety and Hazardous Materials Management Committee since 2010. At the department level, Martin is an active participant in the Chemical Engineering Department Curriculum Committee, Assessment Committee and Safety Committees.



Oyama named AAAS Fellow

PROFESSOR S. TED OYAMA, a part-time faculty member in Chemical Engineering, has been named a Fellow of the American Association for the Advancement of Science (AAAS). Oyama, also on faculty at the University of Tokyo, was recognized for his research in catalytic fuel processing, selective oxidation of hydrocarbons, volatile organic compound elimination, steam reforming, and membrane processes. He has been a pioneer in the development of heterogeneous catalysts and advanced inorganic membranes.



Baird elected as a Fellow of two societies

PROFESSOR DON BAIRD, the Alexander F. Giacco Professor of Chemical Engineering at Virginia Tech, has been elected a Fellow of the Society of Rheology and a Fellow of the American Institute of Chemical Engineers (AIChE). Fellow status in the Society of Rheology recognizes members who have a history of distinguished scientific achievement, significant technological accomplishment, and outstanding scholarship in the field of rheology. Fellowship status is awarded to no more than 0.5% of the membership in any given year. Fellows of the AIChE are elite members who have been practicing chemical engineering for 25 years or more with demonstrated long-term excellence. Fellow status in the AIChE is a recognition of professional attainment, and significant accomplishment in engineering.



Durrill wins major teaching award

IN APRIL DR. Preston Durrill, adjunct professor and undergraduate advisor, received the university's 2016 William E. Wine Award for Teaching Excellence. Durrill has been active in the chemical engineering department since 1983 when he began as an instructor for the summer unit operations laboratory. In 2004, after retiring from the chemistry department at Radford University, he began teaching the introductory sophomore course in mass and energy balances and started serving as an undergraduate academic advisor to ChE students. That same year, Durrill also began teaching General Chemistry to hundreds of freshmen. Our heartfelt thanks go out to Preston for his dedication and outstanding service to our students and the department.



ChE staff members receive awards

TWO STAFF MEMBERS in the Chemical Engineering Department received awards at the annual CASE (College Association for Staff in Engineering) luncheon on Tuesday, May 3rd.

Jane Price (left) received the inaugural Virginia Louise "Jenny" Frank Memorial Award from the College of Engineering for her outstanding service. Riley Chan (right) received the College of

Engineering Dean's Award for Technical Staff in honor of outstanding contributions in the college.

This is the third year in a row that ChE staff members have won major college-level awards for their outstanding service and the second time in three years that the department has had multiple winners.



Rajagopalan named Hord Professor

PROFESSOR PADMA RAJAGOPALAN has been appointed the Robert E. Hord, Jr. Professor of Chemical Engineering by the Virginia Tech Board of Visitors. The professorship was established to acknowledge and reward faculty at the rank of professor who have shown exceptional merit in research, teaching and/or service. The professorship is funded through an endowment established by a gift from the late Robert E. Hord, Jr., a 1950 Master of Science graduate in power and fuel engineering. Hord was an enthusiastic supporter of Virginia Tech's chemical and mechanical engineering programs.

A member of the Virginia Tech community since 2007, Rajagopalan is a recipient of the CAREER award from the National Science Foundation and a winner of the Dean's Award for Excellence in Research in the College of Engineering. She is internationally recognized for her work on the development of model tissue constructs and the study of cell-substratum interactions. She is a member of the Biomaterials and Biointerfaces Study Section for the National Institutes of Health. She also serves as the Director of the ICTAS Center for Systems Biology of Engineered Tissues, and the director of the Computational Tissue Engineering Interdisciplinary Graduate Education Program.



Liu Named 2015 Professor of the Year

THE CARNEGIE FOUNDATION for Advancement of Teaching and the Council for Advancement and Support of Education, co-sponsors of the U. S. Professors of the Year Awards Program, named Y.A. Liu the 2015 Virginia Professor of the Year. Liu serves as the Frank C. Vilbrandt Professor of Chemical Engineering and Alumni Distinguished Professor at Virginia Tech, and teaches the department's capstone senior design course. The award recognizes the most outstanding instructors across the country, those who excel in teaching and positively influence the lives and careers of students. It is the only national program to recognize excellence in undergraduate teaching and mentoring for the past 35 years.



Chemical Engineering Seniors Win National Competition for Safety in Process Design

Left to right: Coogan Thompson, Mai Ngo, and Jared Klein with their design course professor, Y.A. Liu.

THREE VIRGINIA TECH chemical engineering seniors from the class of 2015, Coogan Thompson of Grundy, Virginia, Mai Ngo of Blacksburg, Virginia, and Jared Klein of Sterling, Virginia, won the national competition for safety in process design sponsored by the American Institute of Chemical Engineers. The student group participated in the 2015 AIChE national student design competition to develop an inherently safe process for the removal of acid gases from a natural gas stream. The group won the Safety and Health Division Award for Inherently Safer Design.

This is the second year in a row that a Virginia Tech team has captured the same top award in safety in process design sponsored by the national chemical engineering professional society. The student team received the award at the AIChE annual conference in Salt Lake City in November 2015.

Chemical engineering professor Y.A. Liu taught these students their senior design courses. He credits this success to the hard work and intelligence of the students. Thompson, Ngo, and Klein are now doctoral students at the University of Wisconsin, the University of Illinois at Urbana-Champaign, and Princeton University, respectively.

Othmer Award goes to Finkenauer

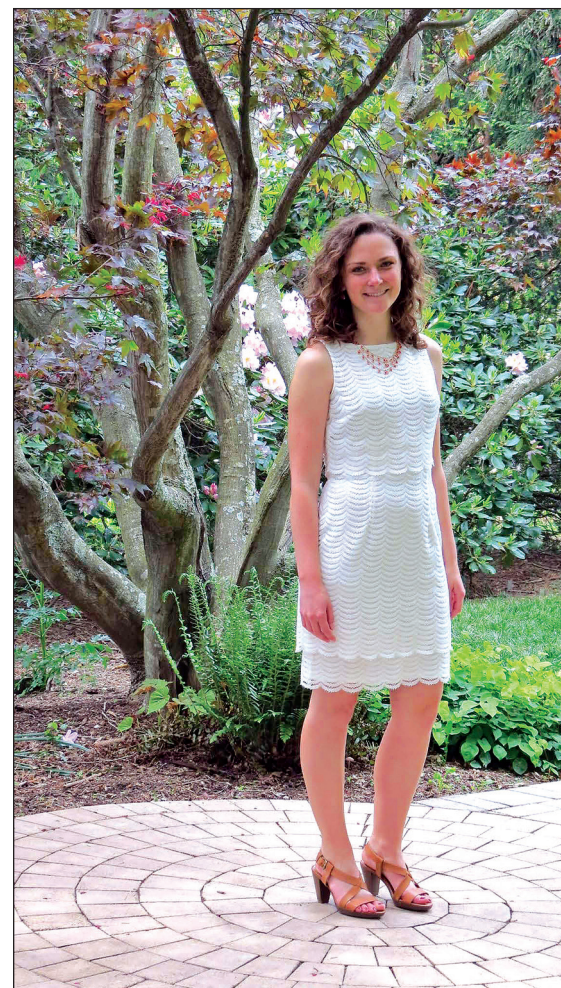
BLAKE FINKENAUER, a junior chemical engineering student from Yorktown, Virginia, is the recipient of the 2014-2015 Donald F. Othmer Sophomore Academic Excellence, presented by the American Institute of Chemical Engineers. The Othmer Award recognizes the sophomore who maintained the highest scholastic standing of any member of the AIChE student chapter. In addition to his academics, Finkenauer has provided service through Virginia Tech Services for Students with Disabilities, participated in residential learning communities on campus, interned with NASA Langley, and worked as a co-op with DuPont in Richmond. The award consists of a certificate and a complimentary copy of Perry's Chemical Engineers' Handbook.



Kramer named Howe award recipient

CORINNE KRAMER of Avondale, Pennsylvania, was selected as the 2016 James Lewis Howe Award recipient for the department of chemical engineering. This award from the Blue Ridge chapter of the American Chemical Society recognizes the outstanding achievements of graduating seniors in the chemical sciences.

Corinne is a member of the Omega Chi Epsilon Chemical Engineering Honor Society, the American Institute of Chemical Engineers, and the Gamma Beta Phi Honor Society. After graduation she went to work in new product development for W.L. Gore and Associates.





Doctoral Student Orbach recognized by the Society of Toxicology

SOPHIA ORBACH was selected by the Society of Toxicology as a "Gold Level Award Recipient" for her abstract submitted to their 2015 conference "FutureTox III: Bridges for Translation — Transforming 21st Century Science into Risk Assessment and Regulatory Decision-Making." Sophia's abstract was entitled "Hepatotoxicity Testing in Multi-cellular 3-D Organotypic Liver Models and Their Potential for High-Throughput Studies."

Her work in the laboratory of Professor Rajagopalan focuses on the design of a 3-D organotypic liver model. These liver models were assembled using automated procedures and scaled down to a 96-well plate. The potential of this high-throughput platform is being investigated for toxicity evaluations and drug-drug interactions.



Chem-E-Car team has impressive year

THE VIRGINIA TECH team excelled at the AIChE International Chem-E-Car Competition held on November 8, 2015, during the Student Conference before the annual AIChE meeting in Salt Lake City, Utah. The Chem-E-Car competition tests a team's ability to design and construct a shoe-box sized car that is powered by a chemical energy source that safely carries a specified load over a given distance and stops by direct control of a chemical reaction.

The Virginia Tech team won the poster presentation competition and placed sixth out of 35 universities worldwide in the car competition. The team was forced to improvise when the shipment that contained the car's tools, key parts, and precision lab equipment was misplaced by the carrier and did not arrive in time for the competition. The Virginia Tech car came within 62.4 centimeters of the target distance of 25.4 meters. This was the team's second consecutive year of competing at the international level, having won the video competition and finishing fourth in the car competition in Atlanta in 2014. Team members for the fall competition included three seniors: team leader Tyler Reif (Reston, Va.), Rae Crews (Chester, Va.), Yining Hao (Chengdu, China); and two juniors: Bobby Hollingsworth (Springfield, Va.) and Courtner Clark (Leesburg, Va.).

Following their performance in Salt Lake City, the Hokies designed and built a completely new vehicle before the regional Mid-Atlantic competition held at the University of Delaware on April 9, 2016. The team utilized a lead acid-based battery to power the vehicle, and implemented on-board computer control to manage the vehicle systems and monitor a novel cinnamaldehyde-based chemical reaction to stop the car. The Virginia Tech team placed third in the regional competition out of 28 teams, and again qualified for the international competition to be held in San Francisco in November. This was the team's fourth consecutive top-three performance in regional competition. The team for the spring competition included two seniors: team leader Tyler Reif (Reston, Virginia), and Yining Hao (Chengdu, China); and four juniors: Bobby Hollingsworth (Springfield, Virginia), Courtner Clark (Leesburg, Virginia), and newcomers Rebecca Engler (Hockessin, Delaware) and Olivia Fischer (Fairfax, Virginia).

The team acknowledges the financial support of Virginia Tech alumnus Steve Cope and the support of staff in the department of chemical engineering.



Above: Car team members receive their award from competition officials in Salt Lake City, Utah, in November, and pose with the new vehicle at the regional competition in April (at top right).



Don Savacool (at left), a junior majoring in chemical engineering from Flemington, New Jersey, works with a Dhumba community member to collect information and measurements the Service Without Borders team will use to create designs for an irrigation system.

Students involved with Service Without Borders

SERVICE WITHOUT BORDERS (SWB) is an interdisciplinary, student-led organization whose mission is to share the spirit of Virginia Tech's motto, *Ut Prosim*, locally and globally by providing assistance to communities in need. SWB projects engage students in real-world design, project management, construction, marketing, fund raising, and cultural experiences.

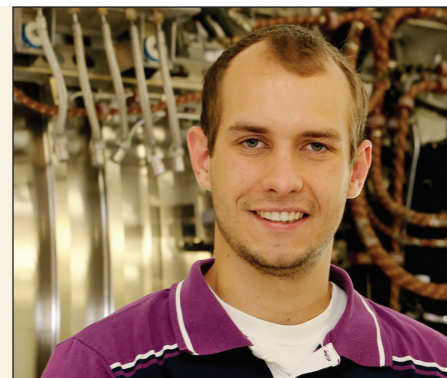
In January 2016, a group of Virginia Tech students and professors,

including ChE student Don Savacool, traveled to Nepal to assess earthquake damage in the Tibetan community of Dhumba.

In partnership with the Dhumba village leaders, the SWB team decided that rehabilitation of the village irrigation system would have the greatest effect on agricultural productivity and livelihoods in the community. Locally, Service Without Borders is involved with projects in and around the Blacksburg community.

Taylor serves Office of Undergraduate Research

SHANE TAYLOR, a senior chemical engineering student and undergraduate researcher, was selected by the Office of Undergraduate Research as one of eight student ambassadors for the 2015-16 academic year. The ambassadors' responsibilities include hosting weekly office hours and information sessions on undergraduate research. Interested students have the opportunity to ask the ambassadors general questions about getting involved in research on or off campus, how to share research results broadly, and how to get the most out of their experiences.



Slutzker named ChE Outstanding Senior for 2016

MATTHEW B. SLUTZKER was named the Outstanding Senior for the department of chemical engineering for 2016. Slutzker graduated with a B.S. in chemical engineering and minors in business, French, and chemistry.

In addition to his outstanding academics and participation in undergraduate research, Slutzker is a model for student

leadership and service. He served the Student Engineers' Council as Director of Finance and as chair for the Leadership in Engineering Conference. He also served as director for the North Atlantic section of the National Association of Engineering Student Councils.

Slutzker's service to campus included work as a resident advisor for the Honors

Residential College, helping as a Hokie Ambassador Tour Guide for the Office of Undergraduate Admissions, and assisting as a group fitness instructor for VT Rec Sports.

Slutzker also served the greater New River Valley as a soccer coach to disadvantaged 3-6 year olds, and helped those in need by gathering produce for local food pantries.

Undergraduates participate in Deloitte National Case Competition

IN APRIL 2016, a team of Virginia Tech undergraduates participated in the Deloitte National Case Competition. The Virginia Tech team was comprised of James Lavinder (Chemical Engineering), Peter Gula (Chemical Engineering), Cal Wontrop (Finance and Accounting), and Thomas Arruda (Finance and Accounting). The Virginia Tech team, the only team with two engineers, was first runner up and excelled due to their diversity of academic backgrounds.

The Deloitte R.I.S.E. National Case Competition provides students the opportunity to showcase their abilities and gain experience solving real problems faced by real world clients. Participants work in

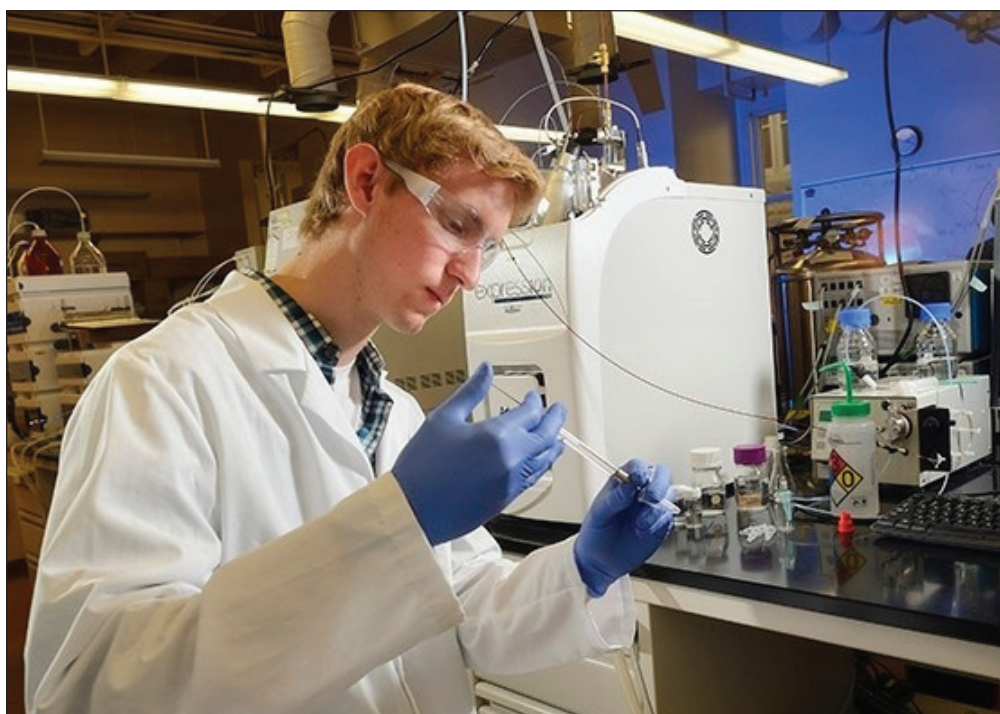


VT Deloitte team including ChE students James Lavinder and Peter Gula (second and third from the left).

teams to analyze the case, interact with Deloitte professionals, and present their solution to a panel of judges both in written and oral form. This specific competition focuses on risk-based advisory services. Upon winning one's regional competition, teams are hosted at Deloitte University for the national competition. The competing schools were selected from Deloitte's

recruiting campuses: Bentley University, Fordham University, California Polytechnic Institute at San Luis Obispo, Michigan State University, the University of California at Los Angeles, the University of Illinois at Urbana-Champaign, the University of Maryland at College Park, the University of Notre Dame, the University of Texas at Austin, and Virginia Tech.

SPOTLIGHT ON ACHIEVEMENT



ChE JUNIOR BOBBY HOLLINGSWORTH, a 2015 Goldwater Scholar and 2015 ACC Fellow in Creativity and Innovation, was profiled by VT News for his dedication to medical research and his desire to serve mankind. The full story can be found online at: www.vt.edu/spotlight/achievement/2015-11-06-cure/hollingsworth

DEGREES AWARDED

The department awarded 96 bachelors degrees during the spring 2016 commencement. The department also awarded the following masters and Ph.D. degrees over the past year.

Cassin, Margaret (M.S.)

The Design of Antimicrobial Detachable Thin Films for the Study of Hepatic Infections

Advisor: Padma Rajagopalan

Chan, Wai-Fong (Ph.D.)

Functionalized Carbon Nanotube Thin-Film Nanocomposite Membranes for Water Desalination Applications

Advisors: Steve Martin and Eva Marand

Cieslinski, Mark (Ph.D.)

Using a Sliding Plate Rheometer to Obtain Material Parameters for Simulating Long

Fiber Orientation in Injection Molded Composites

Advisor: Don Baird

Feng, Xu (Ph.D.)

Interaction of Na, O₂, CO₂ and Water on MnO(100): Modeling a Complex Mixed Oxide System for Thermochemical Water Splitting

Advisor: David Cox

Herrington, Kevin (Ph.D.)

Factors Affecting Fiber Orientation and Properties in Semi-Flexible Fiber Composites Including the Addition of Carbon Nanotubes

Advisor: Don Baird

Higgins, Stuart (Ph.D.)

Design and Optimization of Acid Gas Cleaning and Post-Combustion CO₂ Capture

Advisor: Y.A. Liu

Qian, Chen (Ph.D.)

Linking the Rheological Behavior to the Processing of Thermotropic Liquid Crystalline Polymers in the Super-Cooled State

Advisor: Don Baird

Vu, Lucas (Ph.D.)

Investigation of Hepatocyte Proteomes using Three Dimensional Organotypic Liver Models

Co-Advisors: Padma Rajagopalan and Richard Helm (Biochem.)

Yu, Yueying (Ph.D.)

Simulation and Comparison of Operational Modes in Simulated Moving Bed Chromatography and Gas-Phase Adsorptive Separation












































Advisor: Y.A. Liu

Chemical Engineering



Class of 2016

Stevens Photography, Inc.
Christiansburg, VA

 Sari H. Arafat	 Yu Bai	 Tyler J. Benson	 Andrea A. Blanco	 Justin A. Borrison	 Cynthia R. Bowen	 Jessica A. Bramhall	 Josiah E. Bumgarner	 Sherif Camel - Toueg	 Nelson D. Canales	 Nai Qi Cao	 Matthew J. Cevasco	 Zun Meng Chan	 Eileen Cheng	 Brittany A. Chinn					
 Adrian J. Clark	 Lauren E. Courtney	 Rachel K. Creus											 Alyssa R. Cunningham	 Adam P. D'Amico	 Sean P. Dalton				
 Lauren E. Donohoe	 Christopher M. Dorcak	 Sierra L. Encarnacion	 Tyler J. Faruque											 Sonia Garakgaraghi	 John W. Gauvain	 Laura K. Gerdesmeier	 Nicholas R. Gigliotti		
 Ziyun Guo	 Yining Hao	 Matthew C. Harmon	 Mohamed A. Hassan	 Jonathan E. Hittel											 Matthew E. Hopkins	 Parber B. Hudson	 Malec C. Kennedy	 Leta M. Kent	 Weston L. Kiser
 Alexandra M. Kopach	 Corinne E. Kramer	 Tanner K. Kuremsky	 Raixing Li	 Yichen Li	 Sarah Loh	 Chun Cheng Loo	 Cameron N. Loury	 Mitchell J. Lucas	 Maha Malik	 Nicholas S. Manchester	 Kathleen A. McGoff	 Matthew R. Mendez	 Suzanne L. Murphy	 Parber J. Newland					
 Sonny V. Nguyen	 Drew D. Noble	 Michael J. O'Brien	 Melissa K. Overholser	 Tarik J. Phillip	 Lauren A. Pironis	 Rebecca K. Pournell	 Evelyn Quiroz	 John K. Rafferty	 Natalie M. Rauhs	 Jaired N. Re	 Kathleen A. Reid	 Tyler J. Reif	 Benjamin J. Romano	 Alycia N. Rouffa					
 Samson A. Schirmer	 Katherine A. Sheridan	 Miranda D. Shortell	 Jacob C. Sieve	 Brittany E. Skogstad	 Stephanie M. Sor	 Max A. Tarshis	 Shane C. Taylor	 Jacob M. Tiernan	 Ryan L. Tomas	 David A. Tunick	 Andrew T. Walters	 Samuel S. Welborn	 Jier Yang						



Wagner speaks at commencement

ChE ALUMNA LORI L. WAGNER was chosen as a commencement speaker for the College of Engineering spring commencement exercises held May 14.

Wagner is a former member of the Virginia Tech Board of Visitors (2006-10), a member of the Virginia Tech Academy of Engineering Excellence, and a member of the ChE external Advisory Board.

She earned both her bachelor's and doctorate degrees in chemical engineering in 1982 and 1987, respectively. Upon graduation, she joined Allied, which after two buyouts, subsequently became Honeywell. Within four years, Wagner was promoted to management, supervising the process development group for Spectra fiber and Spectra Shield materials. Four more years later, she became technology manager of these Spectra lines, equipped with a \$3.5 million budget.

Wagner's name appears on more than 30 patents. She serves as armor marketing manager for the Packaging and Composites segment of the Specialty Products business, part of Performance Materials and Technologies – a \$10 billion strategic business unit of Honeywell.



Alumni Start New Brewery

TWO OF OUR 2010 ChE alumni, Aaron and Christine (Sargent) Holley, have put their chemical engineering educations to good use, and opened the Wasserhund Brewing Company, a brewery and restaurant in Virginia Beach. Congratulations and best wishes to Aaron and Christine on their new venture. If you are in the Virginia Beach area, stop in and see Aaron and Christine. Wasserhund webpage: www.wasserhundbrewing.com



Sinha to lead alumni – student mentoring program

SHASHWAT SINHA, a 2015 B.S. graduate of chemical engineering, will serve as the department's first alumni liaison. He aims to develop and build strong relationships between the alumni and the college, and specifically to facilitate alumni mentoring of current students and recent graduates.

During his time at Virginia Tech, Shashwat served two terms (May 2013-May 2015) as the president of the AIChE student chapter. He worked to increase student interconnectedness, and to increase the organization's national involvement and professional outreach. He started the organization's first-ever student mentoring program to connect groups of senior, junior, and sophomore chemical engineering students into mentoring groups, and expanded the effort to include graduate students. The work the organization did during this time led to a national AIChE Outstanding Student Chapter Award for the department for the first time.

Share your knowledge and experience to benefit the professional growth of our students and alumni by e-mailing Sinha at shashwat@vt.edu or fill out a survey online at www.che.vt.edu by clicking on the Alumni-Student Mentoring Program link. Also, please update your entry in the Virginia Tech Online Alumni Directory (secure.hosting.vt.edu/alumni.vt.edu/Directory/auth/login.php) available to all alumni who have a valid Virginia Tech pid and password. Log into my.vt.edu, select the Personal Info tab at the top of the page, and then click on "Manage Your Profile."

IN MEMORIAM

Clifton C. “Cliff” Garvin Jr.

An innovative leader in business and philanthropy



Clifton C. “Cliff” Garvin Jr., retired board chairman and chief executive officer of Exxon Corporation (now ExxonMobil Corp.), whose dedicated service and philanthropy set an example at Virginia Tech, died on April 17. He was 94.

A native of Portsmouth, Garvin graduated from Virginia Tech with honors in 1943, earning a bachelor’s degree in chemical engineering. Garvin served three years as a combat engineer in the U.S. Army, making multiple landings in the South Pacific during World War II, before returning to Blacksburg, where in 1947 he completed a master’s in chemical engineering. That year he also joined the precursor of Exxon, starting out as a process engineer at the corporation’s facility in Baton Rouge, Louisiana. In 1968, Garvin was elected to the board, and in 1972 was elected president. He became chairman and chief executive officer in 1973 and served in that capacity until he retired in 1986.

A member of the Virginia Tech Board of Visitors from 1988 to 1996, Garvin served as rector for five years, from 1991 to 1996. Garvin served on the board of the Virginia Tech Foundation; was vice chairman of the Campaign for Excellence, Virginia Tech’s first national fundraising campaign; chaired the Virginia Tech Annual Fund; and was a member of the Corporate Development Council and the Committee of 100 in the College of Engineering.

In recognition of his numerous accomplishments, in 1983 Garvin was the first ever recipient of Virginia Tech’s University Distinguished Achievement Award. In 1997, he was presented

the William H. Ruffner Medal, the university’s highest honor, and he received the Alumni Distinguished Service Award in 2001. Along with his wife, Thelma, Garvin was a member of the President’s Circle within the *Ut Prosim* Society of the university’s most generous donors.

A dedicated community and business leader, Garvin served as member and director of numerous national and international corporations, including Citicorp and Citibank, Hospital Corporation of America, Johnson & Johnson, J.C. Penney Inc., PepsiCo Inc., Georgia Pacific, and TRW Inc. (now part of Northrop Grumman). He served as vice chairman of the Board of Managers of the Sloan-Kettering Institute for Cancer Research, and vice president of the Board of Trust at Vanderbilt University.

Garvin also served on the board of Saudi Aramco. He was a director of the Americas Society, and a member of the Business Council, the Council on Foreign Relations, the American Institute of Chemical Engineers, and the Business Roundtable.

Garvin held honorary doctorate degrees from New York University, Stevens Institute of Technology, and Georgetown University. Other awards he received included the Distinguished Service Award from the Texas Mid-Continent Oil and Gas Association and the C. Walter Nichols Award from the New York University Graduate School of Business.

Garvin is survived by his wife of 72 years, four children, 10 grandchildren, and 13 great-grandchildren.

CLASS NOTES

1973

Lee A. Daniel, Jr. (BS)
Email noxtopox@gmail.com.

1977

James (Tom) Evitts (BS)
Email tom.evitts@honeywell.com

1979

Joseph Haymore (BS)
Other degree: MS, ISEEM,
University of Tennessee.
Joseph is a project manager
with Professional Project
Services. Email jhaymore@
comcast.net. Joseph lives in
Knoxville, Tennessee.

1982

Lee Harrison (BS)
Email ruxvilleengineering@
verizon.net.

1989

Chris Welch (BS)
Chris is Vice President of Sales
with Ethox Chemicals, LLC.
Email cwelch@ethox.com. He
and his son Ryan are huge
Virginia Tech football fans
and enjoy coming back to
Blacksburg for the games. GO
HOKIES!

1992

Kenneth Walker (BS)
Other degree: MBA, University of
Delaware. Kenneth currently
is a senior vice president
and chief operating officer
with EnPro Industries, Inc.
He lives in Charlotte, North
Carolina. Email ken.walker@
enproindustries.com.

1994

Mark Meno (BS)
Mark is currently the director of

the research and engineering
group, Department of the
Navy – Fleet Readiness
Center East and was recently
selected to direct the 600+
engineering workforce
responsible for in-service
engineering support of the
U.S. Navy and Marine Corps
helicopter, vertical lift jet, &
tilt rotor aircraft fleet. Email
tmeno@ec.rr.com.

1999

Andrew J. Capozzi (BS)
Other degree: MBA, University
of North Carolina, Charlotte.
Andrew recently left PPG
Industries after 16 years to join
ITW (Illinois Tool Works) as a
director of global sales in the
Brand Identity Group.

Justin Lacombe (BS)
Other degree(s): MS, PhD,
chemical and biochemical

engineering, Rutgers. Justin
is a manager in process
development with Teva
Pharmaceuticals.

2011

Julie (Latterell) Harris (BS)
After graduation, Julie worked
for four years at TVA as
an environmental systems
engineer in Chattanooga,
Tennessee. Over the past
year, she has been working
for Gore Microwave Cables
as a process engineer in
Newark, Delaware. She and
her husband both graduated
from ChE in 2011 and were
married in Blacksburg, Virginia,
January, 2015.



Dean joins advisory board

ChE ALUMNUS DAVID DEAN, B.S. 1993, has joined the department's external advisory board. Following his undergraduate work at VT, David completed a Masters and Ph.D. at Princeton University before taking a position at DuPont in 1998. He is currently manager for Americas Technical Service and Application Development at DuPont addressing technical needs of customers and target application areas for new product introductions. Dr. Dean holds 14 U.S. patents.

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To make it as easy for you as possible to support our department, we have added a link on our homepage (www.che.vt.edu) that will direct you to a form for making a gift online. The link is entitled "Giving to ChE" and can be found on the upper right hand side of the page. The page describes the method for designating your gift for the Chemical Engineering Department using the "Enter your own" button. If you type in "Department of Chemical Engineering" in the form, you can be assured that your support will come directly to us and that it will be used wisely. If you would like to contribute to our new endowment fund, specify "Chemical Engineering Excellence Fund."

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The department welcomes updates from our alumni about your lives and careers. The easiest way to send us updates is to use our online alumni update system which can be accessed via the Department's homepage, www.che.vt.edu, and clicking on "ChE Alumni" link on the right side of the page. On this form, you can specifically state what level of privacy we should use with your information. Per your approval, this information will be published in our Connection newsletter.

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Please feel free to provide any additional information (on separate piece of paper if needed) about yourself or your career: _____

The Department of Chemical Engineering would like to keep our alumni updated about the careers and lives of other alumni, either via the web or the department newsletter. However, we also respect each person's right to privacy. Thus, please indicate below the level of confidentiality that you wish us to maintain with regard to your information:

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