This has been a busy, eventful and difficult six month period for the department. It is with great sadness that I bring you the news that Ahmed Ismail passed away on April 25th, 2019 when he succumbed to a prolonged fight with cancer. Ahmed was with us for over four years and specialized in molecular-level modeling. He will be greatly missed.

On the brighter side, new cohorts of students from both the chemical engineering and biomedical engineering programs graduated in May and we look forward to hearing about their successes in the coming years.

We continue to attract some of the best and brightest students resulting in six of our recent graduates named as WVU outstanding seniors with one of those, Virginia Thrasher, being named to WVU’s elite Order of Augusta. We also have several graduate students winning awards at national conferences. Not to be outshined by our students, our faculty and staff also continue to be recognized at the college, university and national levels.

As many of you already know, Gene Cilento stepped down as the dean of the Statler College of Engineering at the end of June 2019. Gene has served as dean for the last 19 years and has led the College admirably for that period of time. As anyone will tell you, Gene bleeds “Gold and Blue” and his support for all things in the Statler College will continue. He will return to our department in July and we look forward to seeing him at our regular faculty meetings and roaming the corridors of the Department. Earl Scime, chair of the Department of Physics and Astronomy for the past 15 years, has assumed interim dean position as of July, 1 2019. Scime brings a wealth of research and management experience to the job. The search for a new permanent dean has already commenced and we are looking to attract a talented and diverse pool of candidates for this position.

Our Academy of Distinguished Alumni had their annual meeting on April 4-5, 2019. Two new members, Paul Daniell and Stuart Goodman were inducted into the academy. You can read about their distinguished careers in this newsletter.

The academy also endorsed their support for a new initiative in the department, namely the establishment of a fund to support up to three graduate students in their first year in the department. This initiative will keep us competitive in attracting talented students into our graduate pool and further enhance our national reputation. If you are interested in helping support this important initiative, please send your donations directly to Linda Rogers and specify that the funds be used for the Academy Graduate Scholarship Fund.

As a final note, we send our congratulations to Maggie Bennewitz and husband Kelly Alderson on the birth of their son Thomas Kelly Alderson. Maggie, Kelly and Thomas are all doing well.

Best Wishes,

Dr. Richard Turton

WVU Bolton Professor and Chairperson
Department of Chemical and Biomedical Engineering
DEPARTMENT NEWS

FACULTY AWARDS AND RECOGNITIONS

Robin Hissam was named the College’s Teacher of the Year for 2018-2019 along with Melissa Morris from the Fundamentals of Engineering Department. They were recognized at the annual Honor’s Day Ceremonies held in April at the Erickson Alumni Center.

Cerasela Dinu was one of four WVU faculty honored with a newly-expanded award for undergraduate research mentoring. The award recognizes, rewards and encourages faculty members to mentor undergraduate students in research and creative endeavors.

Debanshu Bhattacharyya was named Researcher of the Year/Senior for 2018-2019 along with Nasser Nasrabadi from the Lane Department of Computer Science and Electrical Engineering. They were recognized at the Honor’s Day Ceremonies held in April at the Erickson Alumni Center.

David Klinke was the recipient of the 2018 FEBS Journal Richard Perham Award. The award recognizes the best paper published during the previous year and is selected by the editorial team and members of the editorial board. His paper was entitled “Exosomes Derived from B16F0 Melanoma Cells Alter the Transcriptome of Cytotoxic T Cells that Impacts Mitochondrial Respirator.” The co-authors were Cassidy Bland (’18 BMEG), Christina Byrne-Hoffman, Audry Fernandez-Gomez, Stephanie Rellick and Wentao Deng.

Rakesh Gupta has been elected as a Fellow of the Society of Plastics Engineering. Fellows are honored for their outstanding contributions in the field of plastics engineering, science or technology, or in management of such activities. Candidates must be sponsored by an SPE Division or Special Interest Group and elected by the Fellows Election Committee on the basis of their professional record as well as written sponsorships from at least two SPE members. Only 340 members have been awarded this prestigious title since it was introduced in 1984.

Cerasela Dinu receiving undergraduate research mentoring award.
COLLEGE NEWS

COLLEGE LEADERSHIP

Eugene Cilento stepped down as the Glen H. Hiner Dean of the Statler College of Engineering and Mineral Resources on June 30 of this year. Gene served admirably as the dean of the college for 19 years. He returned to the Department of Chemical and Biomedical Engineering in July where he hopes to mentor young faculty members in the Biomedical Engineering program.

Effective on July 1, Earl Scime assumed the position of interim dean of the Statler College of Engineering and Mineral Resources. Scime is the chair of the Department of Physics and Astronomy at West Virginia University and has been on the WVU faculty since 1995 where he has held a series of named chair positions since 2007.

A national search is underway and we are hopeful that a new dean will be named by early 2020.

STATLER COLLEGE EMERITUS LUNCHEON

The annual Statler College Emeritus luncheon was held on June 7, 2019 at the Erickson Alumni Center. Richard Turton and John Zondlo hosted the chemical engineering alumni in attendance. Those CBE alumni in attendance were Thomas J. Cochrane (BS ’50, MS ’51), Daniel J. Dowling (BS ’49, MS ’51), Hugh H. Felton (BS ’59), A. Phillip Fisher (BS ’59), Richard Haden (BS ’63), and Richard Smith (BS ’59). It is always good to see and talk with our alumni.

UNIVERSITY NEWS

FORBES MAGAZINE SELECTED WVU AMONG “AMERICA’S BEST EMPLOYERS BY STATE”

Forbes magazine has named WVU to the inaugural list of “America’s Best Employers by State.” The rankings are based on responses from an independent survey from a sample of more than 80,000 employees across the U.S. WVU is the top-ranked West Virginia-based employer in the state and ranks number two overall among employers that operate in West Virginia and employ at least 500 people in their U.S. operations.
CHE SENIOR DESIGN

Two senior design group projects for 2018-2019 were undertaken with the clients of Debangsu Bhattacharyya and Fernando Lima. At the end of the spring 2019 semester each group presented their work via poster and oral presentations to an audience of students, faculty, industry representatives, parents and alumni. The presentations were held on campus at the National Research Center for Coal and Energy on April 16 and April 18. The following abstracts are from each design project:


*Caitlin Morrow, Chief Engineer*

Appalachian PolyTek, Inc. (APT) was contacted by PolyGen Tek, Inc. in August 2018 to perform a series of techno-economic studies to evaluate the design of future polygeneration facilities in the Appalachian region using an optimal mix of coal, shale gas, and biomass feedstocks to produce value-added chemicals, utilities, and power. PolyGen Tek, Inc. was not interested in the production of fuels. The feasibility of this design was evaluated in three phases.

Phase 1 involved the investigation of profitable products and process routes. At the conclusion of Phase 1, PolyGen Tek, Inc. accepted the proposal of performing more detailed design leading to the possible construction of a seven-unit production facility that produces coal- and biomass-derived activated carbon, formaldehyde, ammonia, and excess electricity by utilizing bituminous coal, pre-processed shale gas, and poplar wood. The objective of Phase 2 was to create initial models for the proposed processes and achieve preliminary mass and energy balances for all seven units: a biomass and coal pyrolysis and activation unit, a steam methane reforming unit, a syngas production and conversion unit, and a power and steam generation unit. The objective of Phase 3 was to finalize base case mass and energy balances from Phase 2, size equipment items, generate cost estimates, and perform optimizations. Phase 3 optimizations significantly decreased the equivalent annual operating cost (EAOC) of the facility through topological and parametric optimizations. During Phase 3, efforts were made to enhance the synergy between the seven units. Additional objectives for specific units in the process included developing P&IDs, a HAZOP analysis, and a sustainability analysis.

Group B: “Plastic Waste Mitigation Through Biodegradable Polymer Production and Conventional Plastics Recycling”

*Soofia Lateef, Chief Engineer*

PlasticsFuture Tek, Inc. contacted Mountaineer Plastics (MP) on August 21, 2018 with the task of performing a techno-economic evaluation of a plastic waste mitigation plant. Phase 1 consisted of investigating the most viable means of achieving plastic waste mitigation. The methods chosen were: production of biodegradable polymers poly-3-hydroxybutyrate (PHB) and polylactic acid (PLA), glycolysis of polyethylene terephthalate (PET), and use of high-density polyethylene (HDPE) to produce PHB. These biodegradable plastics have potential to replace conventional plastics in many applications. The selected processes were divided into three units: recycling of PET into base units, conversion of HDPE into a PHB slurry, conversion of this slurry along with methane to PHB, conversion of corn stover to lactic acid, and conversion of lactic acid to PLA.

In Phase 2, preliminary material and energy balances for the chosen processes were developed. Integral to this was the development and validation of kinetic models for reactions in these processes. Also mathematical models were developed using software including CHEMCAD 7, to perform equipment design, economic evaluation, process scaling, mass and heat integration, and techno-economic optimizations. Specific units were chosen for a sustainability analysis, a hazard and operability study (HAZOP), and development of a piping and instrumentation diagram (P&ID).
STUDENT AWARDS AND PRESENTATIONS

Ronald Alexander ('19 ChE) was the recipient of the 2019 Professional Promise Award and was recognized at the AIChE Pittsburgh Section student night on March 20. Ron is also the recipient of a Statler Fellowship for PhD studies starting Fall 2019. Ron will be working with Fernando Lima for his PhD.

Ronald Alexander ('19) and Abdullah Kassim ('19) were recognized for having the best final senior year major presentation. They each were presented with a leather briefcase after the senior design presentations on April 18. This award is sponsored by Dow Chemical. Representatives from Dow Chemical were on hand to make the presentation. Attending from Dow Chemical were ChE alumni Mike Castle, Jamin Jones and Matthew Steinheimer.

Virginia Thrasher ('19 BMEG) was a recipient of the Order of Augusta. The Order of Augusta is WVU's most prestigious student honor. Eight WVU students received this honor for 2019. She was recognized during a ceremony on May 9 at the Erickson Alumni Center.

Daniel Baker ('20 ChE) is one of four WVU students awarded a prestigious NSF summer research fellowship. Daniel will spend 11 weeks contributing to ongoing research at National Standards and Technology site in Boulder, Colorado. His research will focus on validating current thermodynamic models using the stability and oxidation properties of materials. He plans to pursue a PhD in chemical engineering before pursuing employment.

Killian Coyne ('19 BMEG), Cristin Dolan ('19 ChE), Brian Donaldson ('19 ChE), Soofia Lateef ('19 ChE), John McLaughlin ('19 BMEG) and Virginia Thrasher ('19 BMEG) were honored as 2019 WVU Outstanding Seniors. WVU’s outstanding seniors exceed expectations in the classroom and collectively reflect the University’s mission and vision. The students were recognized at a ceremony on May 9 at the Erickson Alumni Center.
RECENT GRADUATES

For 2018-2019 the department had a total of 55 graduate students of which 38 are PhD students and 17 are MS students. In December 2018, the department graduated two PhD students and in May 2019 the department graduated one MS student and two PhD students.

Their names, research topics and research advisors are as follows:

Lei Bai (PhD – May 2019)
Research Advisor: Hanjing Tian
Title: Mechanism Study of Shale Gas Conversion via Chemical Looping and Heterocatalysis Processes

Jacob Douglas (MS – May 2019)
Research Advisor: Fernando Lima
Title: Online Model Predictive Control of a Nonisothermal and Nonisobaric Membrane Reactor for Water-Gas Shift Reaction Applications

Xin He (PhD – May 2019)
Research Advisor: Fernando Lima
Title: Design and Implementation of Model Predictive Control Strategies for Improved Power Plant Cycling

Xiao Hu (PhD – December 2018)
Research Advisor: Cerasela Dinu
Title: Applications of Cellular Components in Engineered Environments

Alixandra Wagner (PhD – December 2018)
Research Advisor: Cerasela Dinu
Title: Toxicity Evaluations of Nanoclays and an Associated Nanocomposite Throughout their Life Cycle

ACADEMY SCHOLARSHIPS ANNOUNCED

The Academy of Chemical Engineers provided scholarships of $1,500 each to four undergraduate students for the 2019-2020 academic year. The recipients were:

Matthew G. Alastanos (‘21)
Jason D. Alexander (‘20)
Daniel P. Beahr (‘20)
Hassan H. Khajah (‘21)

All scholarship winners were recognized at the 2019 Annual Academy Banquet on April 5th held at the Holiday Inn, Atria’s Morgantown. The banquet was attended by 104 people.

IN MEMORIAM

Assistant Professor, Ahmed E. Ismail passed away on April 25, 2019. Dr. Ismail joined the Chemical and Biomedical Engineering Faculty during the Fall of 2015. He received his PhD in Chemical Engineering from MIT in 2005 and a BS in Chemical Engineering from Yale University in 1998. He came to WVU from RWTH Aachen University, Germany, where he served as a Junior Professor. Ahmed is survived by his parents and twin brother, who reside in Texas.

SPORTS

We are looking forward to beginning a new era in WVU Football. We welcome Neal Brown as the new head coach for the Mountaineers. Brown was previously the head coach at Troy University in Alabama from 2015-2018 where he had a record of 35-16, including 3-0 in bowl games. The 2019 schedule includes six home games, two Power 5 nonconference games and five Big 12 Conference road dates. The Homecoming game will be against Texas and is scheduled for Saturday, October 5 with a hospitality tent hosted by the Statler College starting two hours before kickoff. Mountaineer Week features a game with Texas Tech on Saturday, November 9.

We would also like to congratulate the WVU Baseball team for a great 2019 season. The team had a run to an NCAA regional berth which was hosted in Morgantown for the first time since 1955. Even though they fell short in the regional, it was a great run. Pitcher Alex Manoah was the No. 11 pick in the major league baseball draft. Alex has also received six First Team All-American post-season honors – a record for WVU. But it wasn’t just all about Alex, the MLB drafted a total of eleven WVU players in this year’s draft. Congratulations to Coach Mazey and the entire WVU Baseball team.
ACADEMY NEWS

ACADEMY MEETING AND INDUCTION CEREMONY

The most recent meeting of the Academy of Chemical Engineers was held at the Holiday Inn Morgantown on April 4-5, 2019. At the dinner on Thursday evening, Fred King, Vice President of the West Virginia University Research Corporation, was the speaker. At the meeting two new members were inducted into the Academy of Chemical Engineers. Their bios follow:

Paul T. Daniell was born in New York City and raised on Eastern Long Island where he attended public schools. He graduated from Rensselaer Polytechnic Institute with a BS in Chemical Engineering and went on to obtain his MS and PhD in Chemical Engineering from WVU. His research topics involved process modeling and combustion gas clean up. Daniell joined Union Carbide in 1986 in UNIPOL Process R&D. His work covered scale up of new products for polyethylene and polypropylene, and optimization of the UNIPOL process. He has numerous patents and research reports resulting from his work with films, extruded resins and blow molded materials. Daniell also served as an R&D licensing representative for several international licensees. He received the corporate engineering excellence award on multiple occasions for his work with scale up of the UNIPOL process and was awarded the highest corporate research award on two occasions for his work with bimodal molecular weight distribution polymers and solution catalyst delivery. Daniell went on to serve as a research lead on the Dow-Exxon joint venture (UNIVATION). After his retirement from Dow, he joined the engineering faculty at Marietta College where he achieved tenure and won the McCoy Teaching Excellence Award. In 2018, he joined the faculty in the Department of Chemical and Biomedical Engineering at WVU. Daniell has two sons, Benjamin and Joshua, and lives in Morgantown with his wife Debbie Daniell. Over the years, he has been an avid astrophotographer, and has mentored young people in astronomy as well as STEM subjects. His other interests are in math research and critical thinking in education.

Paul T. Daniell
PhD 1986
Teaching Associate Professor
WVU Chemical and Biomedical Engineering Morgantown, WV

Stuart N. Goodman was raised in Hampton Bays, New York, located on the east-end of Long Island. At WVU, he was a member of Tau Beta Pi and Omega Chi Epsilon honorary societies, graduating in 1983 with a BS Degree in Chemical Engineering. Additionally, Goodman was a member of the Sigma Chi fraternity and on the WVU Wrestling Team for three years. Goodman subsequently received a Master of Science Degree in Chemical Engineering from the University of Houston and a Master in Business Administration from the University of Texas. He was recruited by Royal Dutch Shell upon graduation from WVU and began his career in Houston, Texas. During his 35+ year career with Shell, Goodman served in a variety of senior leadership roles with his last 16 years in overseas assignments. Most recently he was Senior Shareholder Representative Brunei and Managing Director of Shell Deepwater Borneo, based in Bandar Seri Begawan, accountable for Shell’s shareholder interests in Brunei Darussalam, serving on the Board of Directors of the upstream, midstream and downstream joint ventures. Prior roles include Senior Business Development Manager based in The Hague, Netherlands, VP Finance and Strategic Planning Southern Cone Gas and Power based in Rio de Janeiro and Production Manager for Shell’s Ethylene Oxide/Ethylene Glycol facilities based in Baton Rouge, Louisiana. Goodman currently resides in Austin, Texas, with his wife Karen of 35+ years who is also a graduate of WVU, BS ’83 Geology. They have two children, Stephen and Michelle, who both graduated in mechanical engineering and are currently working for Honeywell and ExxonMobil, respectively. He and Karen welcomed their first grandchild, Max, in July 2018.

Stuart N. Goodman
BS 1983
Shell (retired)
Austin, TX
Alumni Update Summer/Fall 2019

PLEASE WRITE TO US! We want to know where life has taken you since you left West Virginia University. Complete and return this form with your news and comments. Pass this newsletter on, or let us know any alumni who are not receiving *The Major*.

Send to: Department of Chemical and Biomedical Engineering
West Virginia University | 425 ESB | PO Box 6102 | Morgantown, WV 26506-6102

Or, email updates to linda.rogers@mail.wvu.edu.

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Brief News of Professional and Family Activities for Future Newsletters:
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This newsletter is published biannually to keep our alumni and friends informed of departmental news and ongoing activities. For additional information, visit our website: cbe.statler.wvu.edu

We continue to make it more informative and useful to our visitors. Let us know your thoughts and comments, and drop us a line.