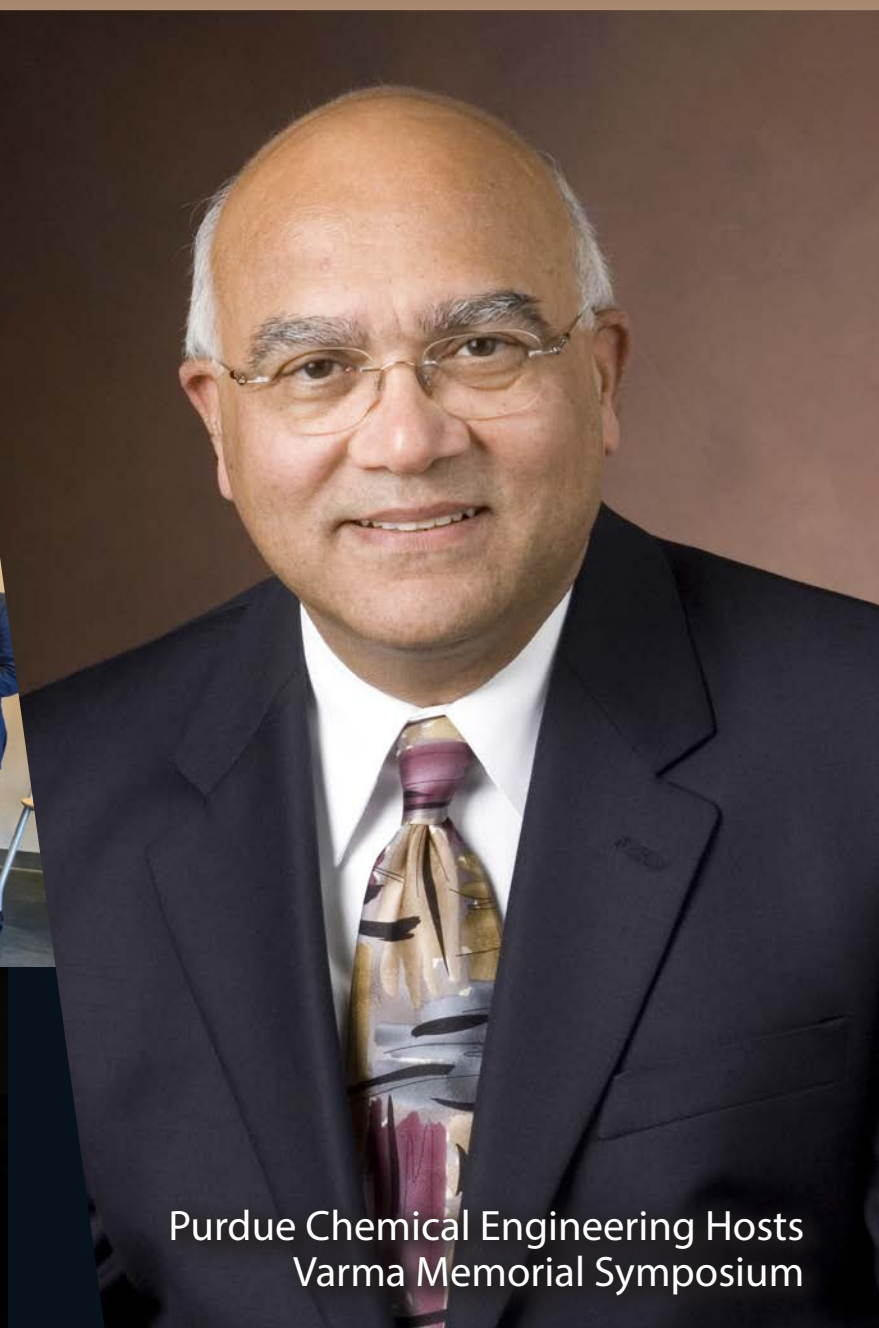
PURDUE
UNIVERSITY

CHEMICAL ENGINEERING NEWSLETTER



Purdue Chemical Engineering Hosts Varma Memorial Symposium

CHARLES D. DAVIDSON
SCHOOL OF CHEMICAL ENGINEERING

FALL 2019

Excellence
Excellence at Scale
Cost-Effective Excellence at Scale

MESSAGE FROM THE HEAD

The words "pinnacle of excellence at scale" continue as the hallmark of Chemical Engineering at Purdue. With over 800 undergraduate and graduate students enrolled in our School, our major moves and initiatives such as eight consecutive years of frozen tuition and enlistment of 94% of the graduating seniors as AICHE professional members, move the needle—literally and figuratively altering the trajectory of chemical engineering in the nation and the world.

In this issue, we honor the memory and legacy of one man–Arvind Varma–who has done more than anyone else in the past 15 years to position Purdue Chemical Engineering to have such an impact.

Highlights from the Arvind Varma Memorial Symposium and memorable moments from Arvind's career are featured on pages 4-8 of this newsletter. Arvind leaves a great void and will be missed by the entire Purdue Chemical Engineering community.

Sangtae "Sang" Kim
Distinguished Professor
Jay and Cynthia Ihlenfeld Head of Chemical Engineering

Purdue Chemical Engineering Undergraduate Class of 2019

Graduating Seniors - 139
Number of Women - 55
Number of Men - 84
Average Starting Salary - $76,934

As Purdue Grows, So Grows Chemical Engineering

Enrollment at Purdue University's West Lafayette campus is the highest ever at 44,551 students, with 33,646 undergraduates. The Fall 2019 incoming class numbered 8,056 students, with 4,057 Indiana residents. Based on the high level of academic achievements and preparation, this year's class is Purdue's best to date. The mean ACT score was 28.7 on a 36 scale, and SAT scores were 1307 on a 1600 scale. Average GPA was 3.69 on a 4.0 scale.

Davidson School of Chemical Engineering is continuing to grow, with total Fall 2019 enrollment at 570 undergraduate students, 83 Professional Master's Program students, and 136 PhD students. May 2019 graduates completed their degrees strongly, with 89.6% of seniors graduating with a GPA of 3.0 or higher, and 61% finishing with a GPA of 3.2 or higher.

As more students seek to pursue a Purdue education, Chemical Engineering will continue to affirm its strategic plan to *maintain a highly capable, motivated, and diverse body of undergraduates, and help them to obtain a strong and relevant education throughout their Purdue experience*.

Many first-year Purdue students attended Boiler Gold Rush in August. (Purdue University photo)

▸ IN THIS ISSUE

Message from the Head 2
The Arvind Varma Memorial Symposium 4-6
A Legacy of Leadership: Remembering Dr. Arvind Varma 7-8
Brett Savoie Selected for ORAU Ralph E. Powe Award 9
ChE 597: Equipping Chemical Engineers in Data Science 10
Alumni Honors: Jennifer Sinclair Curtis Named 2019 DEA 11
Undergraduate Student Awards 12-13
2019 Moments in ChE:
- Senior Awards Banquet 14
- Reception for Dr. Robert Hannemann & Dr. R. Neal Houze 15

Graduate Profile: Meet PhD Graduate Joe Oliva 16-17
Graduate Student Awards and Updates 18-19
2019 Kelly Lecture 19
Around the School 20-23
Development 24-25
Class Notes 25-27

ON THE COVER

Davidson School of Chemical Engineering honored the late Dr. Arvind Varma at the Varma Memorial Symposium on October 13-14, 2019.

***Pictured:** Dr. Sangtae Kim and Dr. Doraiswami Ramkrishna; former students of Dr. Arvind Varma; Mrs. Karen Varma.*

Read more on page 4.

TELL US WHAT YOU THINK:

Write to us at cheschool@ecn.purdue.edu. Share your memories, react to a story, or let us know your thoughts about a particular issue. In doing so, you grant us permission to publish your letter in part or in whole in an upcoming issue. We reserve the right to edit letters for length and clarity.

ADMINISTRATION:

Jay and Cynthia Ihlenfeld Head: **Sangtae Kim**
Communications Director: **Jennifer Merzdorf**
Website: **https://engineering.purdue.edu/ChE**

TO MAKE A GIFT TO THE DAVIDSON SCHOOL OF CHEMICAL ENGINEERING, PLEASE CONTACT:

Travis Stoutenborough, Chief Development Officer
(765) 494-4065, TRStoutenborough@prf.org

THE VARMA MEMORIAL SYMPOSIUM

October 13-14, 2019

Davidson School of Chemical Engineering honored the life and career of Dr. Arvind Varma during the Varma Memorial Symposium on Sunday, October 13 and Monday, October 14, 2019 on the Purdue University campus. Dr. Varma, the R. Games Slayter Distinguished Professor of Chemical Engineering at Purdue University and 10th Head of the School, passed away on July 14, 2019.

Organized by the School in recognition of Dr. Varma's leadership and commitment to excellence in chemical engineering education and research, the Symposium brought together numerous speakers from around the world to the Purdue University campus.

Total attendance at the two-day event was 155 people, including 14 of Dr. Varma's students. Nine of the students gave presentations during the Symposium.

Peffer Distinguished Professor Doraiswami Ramkrishna chaired the Symposium, with planning and logistical support from CISTAR Managing Director Cristina Farmus. The speakers were selected to provide perspectives on Dr. Varma's different professional activities: researcher, faculty, advisor, department head, and chief fundraiser.

Day One (October 13) began with attendees sharing memories and renewing acquaintances over lunch in the Henson Atrium, Forney Hall of Chemical Engineering. The afternoon featured a slate of speakers who shared Dr. Varma's impact on their lives and careers. Opening remarks were presented by **Sangtae Kim**, the Jay and Cynthia Ihlenfeld Head of the Davidson School of Chemical Engineering. Other speakers included:

Sangtae Kim

Doraiswami Ramkrishna, *Harry Creighton Peffer Distinguished Professor, School of Chemical Engineering, Purdue University*

Charles Davidson (BSChE 1972, Purdue), *Venture Partner, Quantum Energy Partners*

Carmo Pereira (PhD 1978, Notre Dame), *DuPont Fellow, DuPont de Nemours Co*

Massimo Morbidelli (PhD 1987, Notre Dame), *Dipartimento di Chimica, Materiali e Ingegneria Chimica, Giulio Natta, Politecnico di Milano*

Evan Bauman (PhD 1988, Notre Dame), *Shell Oil Co., retired*

Doraiswami Ramkrishna

Charles Davidson

Peter Erri (PhD 2007, Purdue), *Manager - Active Ingredient Manufacturing Strategy & Operational Excellence, Crop Science Division, Bayer AG*

Danni Gao (PhD 2014, Purdue), *Research Engineer, Shell Oil Company*

Edward Maginn, *Dorini Family Professor & Department Chair, Department of Chemical and Biomolecular Engineering, University of Notre Dame*

Rex Reklaitis, *Burton and Kathryn Gedge Distinguished Professor of Chemical Engineering, Purdue University.*

Michael Graff

Carmo Pereira

Massimo Morbidelli

Evan Bauman

Peter Erri

Danni Gao

Edward Maginn

(Photos by Mark Simons)

The Symposium continued on Sunday evening at the Lafayette Country Club, with a reception and dinner. Speakers included:

Karen Varma

Gayle Jameson, *Nurse Practitioner, Clinical Investigator, Honor Health Research Institute*

Mrs. Karen Varma

Leah Jamieson, *Ransburg Distinguished Professor of Electrical and Computer Engineering, John A. Edwardson Dean Emerita of Engineering, Purdue University*

Michael Graff (MSChE '79), *Chairman and CEO, American Air Liquide*

Leah Jamieson

The evening concluded with remarks by **Sangtae Kim**, *Jay and Cynthia Ihlenfeld Head, Davidson School of Chemical Engineering, Purdue University*

Day Two (October 14), held in Discovery Learning Center, started with breakfast followed by technical sessions on a variety of chemical engineering topics, including:

Yue Wu, *Herbert L. Stiles Associate Professor, Iowa State University,* "Reactive Metal-Support Interaction on 2D Metal Carbide"

Rakesh Agrawal, *Winthrop E. Stone Distinguished Professor of Chemical Engineering, Purdue University,* "Hydrogen Production and Use in A Solar Economy"

Mung Chiang (Photo by Brittany Bright)

Bala Subramaniam, *Dan F. Servey Distinguished Professor of Chemical and Petroleum Engineering, University of Kansas,* "Ad Astra Per Renewables: Systematic Valorization of Lignin"

Gayle Jameson

Benjamin Wilhite, *Associate Professor, Texas A&M University,* "Process Intensification and Modular Chemicals Production – Emerging Reaction Engineering Opportunities and Challenges"

Moiz Diwan, *Director, Pharmaceutical Development, AbbVie,* "Tangible Impact of Enabling Technologies such as Predictive Modeling, Flow, and Automation for Efficient Biopharmaceutical Process Development and Manufacturing"

Davidson School of Chemical Engineering graduate students David Harvey (not pictured) and Rexonni Lagare (pictured left) were named as inaugural recipients of the Arvind and Karen Varma Fellowship. The fellowships were announced by Dr. Sangtae Kim at the Varma Memorial Symposium event at the Lafayette Country Club on October 13.

Vilas Pol, *Associate Professor of Chemical Engineering, Purdue University,* "Materials by Design for Safer Rechargeable Batteries"

Yang Xiao, *Research Scientist, Davidson School of Chemical Engineering, Purdue University*, "Parametric Sensitivity and Runaway in Fixed-Bed Reactors: Example of Methanol Oxidation over Pt-Bi Catalysts"

Rex Reklaitis

Closing remarks were presented by **Mung Chiang**, the John A. Edwardson Dean of the College of Engineering at Purdue University, and Dr. Sangtae Kim.

One highlight of the event was the announcement of the inaugural Arvind and Karen Varma Fellowships. These fellowships will support Purdue Chemical Engineering graduate students with outstanding academic and research performance. See more at left.

Read more about the Varma Memorial Symposium at **http://bit.ly/Varma-Celebration**.

(Photos by Dave Wegiel)

Arvind Varma Academic Tree

ARVIND'S STUDENTS

University of Notre Dame:

1978	Carmo J. Pereira	1992	Richard Pigeon
1979	Antonio L. DeVera	1993	Alexi Gavriilidis
1979	Steve C. Paspek	1994	D. Chatzopoulos
1980	D. T.-J. Huang	1994	Uhlick Stafford
1980	J. B. Wang	1996	C. Kachelmyer
1981	V. Ravichandran	1996	Mostafa Maalmi
1982	N. Jothi	1997	S. Hwang
1983	A. Shaikh	1997	John Szegner
1984	S. Dhalewadikar	1997	RaeAnn Wu
1984	B. Subramaniam	1999	Alexi Pelekh
1986	Raj Chemburkar	2000	R. Souleimanova
1986	M. Kosanovich	2002	V. Diakov
1987	R. Herrera	2002	R. Huang
1987	Cassian Lee	2002	Cheryl Lau
1987	Massimo Morbidelli	2002	L. Thiers
1988	E Bauman	2002	Benjamin Wilhite
1988	D. Price	2005	Kishori Deshpande
1992	J. -P. Lebrat	2005	Chris Norfolk

Purdue University:

2005	Moiz Diwan
2005	Peter Erri
2006	Soon Kay Teoh MS
2007	Timothy Andrzejak
2011	Wenbin Hu
2012	Ahmad Al-Kukhun
2013	Ranjita Ghose
2014	Andy Koswara
2015	Danni Gao
2015	Gregory Honda
2015	Shinbeom Lee
2019	Ryan Adams
2019	Wooram Kang
–	Rexonni Lagare *(current student)*

Southeast University (China):

2014	Yang Ziao

Arvind Varma ..... 1972, Minnesota

- **Neal R. Amundson** ..... 1945, Minnesota
- **Hugh L. Turritin** ..... 1933, Minnesota
- **Rudolph E. Langer** ..... 1922, Harvard
- **George D. Birkhoff** ..... 1907, Chicago
- **E. H. Moore** ..... 1885, Yale
- **H.A. Newton** ..... 1850, Yale
- **Michel Chasles** ..... 1814, École Polytechnique
- **Simeon D. Poisson** ..... 1800, École Polytechnique

- **Joseph L. Lagrange** ..... 1754, Torino
- **Leonhard Euler** ..... 1726, Basel
- **Johann Bernoulli** ..... 1694, Basel
- **Jacob Bernoulli** ..... 1676, Basel

- **Pierre-Simon Laplace**
- **Jean le Rond d'Alembert**

A LEGACY OF LEADERSHIP: REMEMBERING DR. ARVIND VARMA (1947-2019)

Professor Arvind Varma, the R. Games Slayter Distinguished Professor of Chemical Engineering at Purdue University and 10th Head of the School (1947-2019). (Purdue University photo)

By Jennifer Merzdorf

Professor Arvind Varma, the R. Games Slayter Distinguished Professor of Chemical Engineering at Purdue University and 10th Head of the School, passed away on July 14, 2019. Dr. Varma will be known as a ground-breaking chemical engineering researcher who has had significant impacts in the areas of hydrogen and other energy sources, chemical and catalytic reaction engineering, and in the synthesis of advanced materials. He will also be fondly remembered as an innovative leader in the field of chemical engineering.

"I'd like to share one facet of this remarkable person. It seems like only yesterday that I met Arvind for the first time, but it was over thirty years ago in South Bend," said Dr. Sangtae Kim, Distinguished Professor and Jay and Cynthia Ihlenfeld Head of Chemical Engineering. "He was demonstrating his latest and greatest results in combustion synthesis of advanced materials. His creative flair continued right to the present, and the School will work with his students to make sure that the world sees his final contribution, a new record-breaking benchmark in non-oxidative coupling of methane (NOMC)."

Born in India, Dr. Varma earned his B.S. from Panjab University in 1966, his M.S. in 1968 from the University of New Brunswick, and his PhD from the University of Minnesota in 1972. He began his faculty career as an assistant professor at Minnesota for one year, before joining the faculty at Notre Dame in 1975. He progressed to full professor in 1980, and served as Chair of the Department of Chemical Engineering at Notre Dame for seven years.

In January 2004, Dr. Varma joined Purdue as Head and R. Games Slayter Distinguished Professor of Chemical Engineering. During his tenure as Head until July 2016, Dr. Varma led the School in a period of significant growth in key areas and reached significant milestones, particularly growth in faculty, graduate student, and undergraduate student numbers; increased research expenditures; expanded facilities and equipment, which included renovations to existing space and the addition of a new wing (dedicated 2004); 100 Years of Chemical Engineering Curriculum at Purdue (2007); and the celebration of the School's Centennial (2011).

"My fond memories of Arvind began during his visit to IIT Kanpur where I was on the faculty. He was only 24 then and about a year away from his PhD at the University of Minnesota," recalled Dr. Doraiswami Ramkrishna, the Harry Creighton Peffer Distinguished Professor of Chemical Engineering. "I asked him to

give a seminar which he did with no slides but with considerable elegance using merely a chalk. An attempt was made to convince him of beginning his academic career at IIT-K but it was unsuccessful as Arvind wanted to spend some time in industry which he did with Union Carbide. But the seeds had been sown for another recruiting attempt at Purdue more than 30 years later that I am happy to have successfully spearheaded as the Head of the Head Search Committee!"

Dr. Varma was elected as a Fellow of the American Institute of Chemical Engineers (2008); Foreign Member, Academy of Engineering, Mexico (2010); American Association for the Advancement of Science (2011); American Chemical Society, Industrial & Engineering Chemistry Division (2011); and Honorary Fellow of the Indian Institute of Chemical Engineers (2011). He received numerous fellowships, honors, and recognitions, including the Benjamin Garver Lamme Award (ASEE, 2018); Giulio Natta Medal in Chemical Engineering (2017); Warren K. Lewis Award (AIChE, 2013); Distinguished Alumnus (Panjab University, 2008); Chemical Engineering Lectureship Award (ASEE, 2000); and R.H. Wilhelm Award (AIChE, 1993). He was a current Trustee of the AIChE Foundation.

He authored over 300 research publications, three books (Mathematical Methods in Chemical Engineering, Oxford University Press, 1997; Parametric Sensitivity in Chemical Systems, Cambridge University Press, 1999; Catalyst Design: Optimal Distribution of Catalyst in Pellets, Reactors and Membranes, Cambridge University Press, 2001) and edited two books. He was the founding Series Editor of the Cambridge Series in Chemical Engineering.

Dr. Varma worked tirelessly to support excellence in Purdue Chemical Engineering. From recruiting top faculty to engaging alumni donors to supporting student success, Dr. Varma's contributions as a visionary leader have created a lasting legacy that will continue into the future.

Davidson School of Chemical Engineering honored the legacy of Dr. Arvind Varma on October 13 and October 14, 2019 at the Varma Memorial Symposium. Read more on page 4.

Dr. Varma is survived by his wife, Karen, and daughters, Anita and Sophia.

Arvind Varma with a portrait of President George Washington at the White House during the presentation of the National Medal of Technology and Innovation to Nancy Ho by President Barack Obama.

Selected Awards and Honors

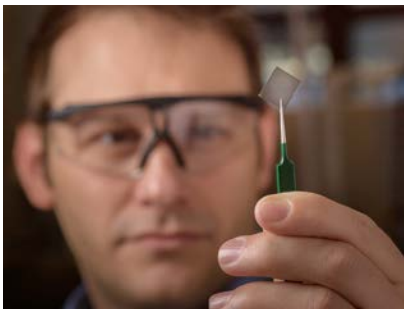
- Indo-American Fellowship, Fulbright Scholar Award, 1988-89
- College of Engineering Teacher of the Year Award, Univ. of Notre Dame, 1991
- Special Presidential Award, Univ. of Notre Dame, 1992
- R.H. Wilhelm Award, AIChE, 1993
- Series Editor (Founding), Cambridge Series in Chemical Engineering, 1996-present
- Burns Graduate School Award, Univ. of Notre Dame, 1997
- Ernest W. Thiele Award, AIChE (Chicago section), 1998
- Chemical Engineering Lectureship Award, ASEE, 2000
- Research Achievement Award (Inaugural), University of Notre Dame, 2001
- Honorary Fellow (Inaugural batch), Indian Institute of Chem. Engineers, 2001
- Technologies of the Year (one of five), Industry Week, 2005
- Honoree, 60th Birthday sessions - I & II, AIChE Annual Meeting, 2007
- Distinguished ChE Alumnus (Inaugural batch of 3), Panjab University, 2008
- Distinguished University Alumnus, Panjab University, 2008
- Fellow, AIChE, 2008
- Honoree, Festschrift issue, I&EC Research (Volume 47, No. 23), 2008
- Elected Foreign Member, Academy of Engineering, Mexico, 2010
- Fellow, American Association for the Advancement of Science, 2011
- Fellow, Industrial & Engineering Chemistry Division, American Chemical Society, 2011
- Leadership Award, College of Engineering, Purdue University, 2011
- Warren K. Lewis Award, AIChE, 2013
- Sigma Xi Faculty Research Award, Purdue University, 2015
- Arden L. Bement Jr Award for Pure or Applied Science or Engineering, Purdue University, 2016
- Innovator Hall of Fame, Purdue University, 2016
- Giulio Natta Medal in Chemical Engineering, Politecnico di Milano, Italy, 2017
- Benjamin Garver Lamme Award, ASEE, 2018

CHE FACULTY DR. BRETT SAVOIE SELECTED FOR ORAU RALPH E. POWE AWARD

By Jennifer Merzdorf

Dr. Brett Savoie, Assistant Professor in the Davidson School of Chemical Engineering, has been selected to receive the Oak Ridge Associated Universities (ORAU) Ralph E. Powe Junior Faculty Enhancement Award.

ORAU provides innovative scientific and technical solutions to advance national priorities in science, education, security and health. Through specialized teams of experts, unique laboratory capabilities and access to a consortium of more than 100 universities, ORAU works with federal, state, local and commercial customers to advance national priorities and serve the public interest.



Dr. Brett Savoie evaluates the optical properties of a stretchable transparent conductor synthesized in the Davidson School of Chemical Engineering. (Photo by John Underwood)

Dr. Savoie will receive a one-year grant, which runs from June 1, 2019 through May 31, 2020, and includes a $5,000 award from ORAU to be matched by Purdue University. He was one of only thirty-six faculty selected to receive the award, from almost 170 applicants nationwide.

ORAU's Powe Awards are designed to propel research and spark professional growth for junior faculty at ORAU member institutions. The competitive research awards provide seed money for junior faculty members that often result in additional funding from other sources.

"We're honored to be recognized by ORAU," explained Dr. Savoie. "This award will provide critical seed funding to support our research on plastics with novel sensing and conductive properties. Awards like this fund the collection of preliminary data that is critical for establishing credibility when applying for larger awards. We are tremendously thankful for this generous support."

The Savoie group is researching new plastics that are capable of conducting both electricity and ions. These "mixed conductors" combine aspects of electrolytes, which are critical components in mature technologies like batteries, with semiconductors, which are utilized in many electronics applications. By combining these functionalities in a single material, mixed conducting plastics can be used in novel sensing platforms for medical applications. The key issues are understanding the interplay of ionic and electronic conduction in these plastics, especially as it relates to long term stability and maximizing signal transduction.

Dr. Savoie's research group focuses on accelerating the design and characterization of materials using theoretical methods. Burgeoning computational power and algorithm development have made theoretical characterization and screening essential steps in modern materials development. From first-principles predictions of electronic structure, catalytic activity, and even crystal structure—methods development continues to push the frontier of what material properties can be predicted in advance, thus economizing costly synthesis and optimization efforts.

About Dr. Brett Savoie

Dr. Brett Savoie, Assistant Professor in the Davidson School of Chemical Engineering. (Photo by Heidi Cervantes)

Prior to joining the faculty of the Davidson School of Chemical Engineering in 2017, Dr. Savoie was a postdoctoral researcher with Professor Thomas Miller at the California Institute of Technology (Caltech). He earned a B.S. in Chemistry and Physics from Texas A&M University, and his PhD in Theoretical Chemistry from Northwestern University under the mentorship of Professors Mark Ratner and Tobin Marks, developing theoretical methods to study photovoltaic processes in organic semiconductors.

Eligibility for the Powe Awards is open to full-time assistant professors at ORAU member institutions within two years of their initial tenure track appointment at the time of application.

Read about Oak Ridge Associated Universities at **https://www.orau.org/index.html.**

Learn more about the Ralph E. Powe Junior Faculty Enhancement Award at **https://www.orau.org/university-partnerships/member-grant-programs/powe/index.html.**

ChE 597: Equipping chemical engineers to make data-based decisions

By Jennifer Merzdorf

Data science is infused in all areas and disciplines. As the demand for data understanding grows, Davidson School of Chemical Engineering is preparing graduates to apply data science methods in a variety of chemical engineering settings.

Beginning fall 2019, the School offered its first data science-focused class, ChE 597: Data Science in Chemical Engineering, the result of collaborative course design and joint teaching efforts by Assistant Professor Brett Savoie and Visiting Assistant Professor Curtis Martin (ChE PhD '18). Both share an expertise in chemical engineering and a background in data science, solidifying their understanding of the important interaction between the disciplines. And as they gauged valuable input from key stakeholders, including Dr. Sangtae Kim, the Jay and Cynthia Ihlenfeld Head of Chemical Engineering, Savoie and Martin knew the timing to launch ChE 597 was right.

"Based on feedback we received from Dr. Kim and the ChE Industrial Advisory Council members, we were confident this course would answer a real need," said Martin. "Engineers are being asked to deal with data in increasingly large volumes. Doing so in a way which enables us to make smarter decisions in the workplace requires new methods of analysis."

By providing a data science course within chemical engineering, Savoie and Martin are training the domain experts how to use data science methods in real-world settings. "The topics we present in ChE 597 have been offered in computer science, but without application to chemical engineering scenarios," explained Savoie. "Because we are chemical engineers, we are able to bring those topics into the ChE curriculum and effectively prepare our graduates."

Giving ChE students hands-on instruction in data science will better prepare graduates to communicate about data in the workplace and to consider how data analysis and modeling can be effectively applied. Savoie further explained, "Our goal is to prepare chemical engineers to understand how these tools work, what their limitations are, and equip them to communicate with data scientists."

Dr. Curtis Martin describes the process for implementing various unsupervised learning algorithms using an industry-supplied data set from Dow. (Photo by Jennifer Merzdorf)

Savoie cited the example of the relationship between data and sensors in manufacturing. In ChE 597, students are taught how to clean and interpret the data, and make predictions about future data, using real data sets when possible. In a manufacturing setting, intelligently using data produced by sensors at certain points in the manufacturing process could save a company valuable time and money, and also improve process safety.

Dr. Brett Savoie quizzes ChE 597 students on different classes of optimization algorithms. (Photo by Jennifer Merzdorf)

The course not only meets a need within the School; it also aligns with the goals of the University. Purdue's Integrative Data Science Initiative (IDSI) was launched with a vision to "be at the forefront of advancing data science-enabled research and education by tightly coupling theory, discovery, and applications while providing students with an integrated, data science-fluent campus ecosystem."

ChE 597 is unique, however, compared to other data science classes offered on campus, approaching the subject from a chemical engineering perspective.

"What makes this course unique is the hands-on application focus," said Savoie. "These methods are also changing how research is performed. There are problems in chemical and materials design that are now plausibly solvable because of machine learning."

Student response to ChE 597 has been positive, with enrollment reaching maximum capacity (30). Savoie and Martin plan to offer the course again in Spring 2020. Savoie predicted, "We anticipate this is just the beginning of a broader incorporation of data science into the Purdue Chemical Engineering curriculum."

ALUMNI HONORS

Jennifer Sinclair Curtis Named 2019 Distinguished Engineering Alumna

For momentous research contributions in the development and validation of numerical models for the prediction of particle flow phenomena, with applications ranging from debris flows and sediments, food processing, pharmaceutical manufacturing, and the aerospace, energy and mining industries.

As a Purdue undergraduate, Jennifer Sinclair Curtis (BSChE '83; OChE '13) pursued her budding fascination for problems never before studied. That fascination flourished, ultimately leading to a prolific career in research and prominent leadership positions in academe.

Now a distinguished chemical engineering professor and dean of the College of Engineering at the University of California, Davis, Curtis oversees eight academic departments with 230 engineering faculty. Student enrollment in the college exceeds 4,600 undergraduates, 400 master's students and 760 PhD students.

Among her most notable research achievements, Curtis is credited with models of particulate flow that have been adopted extensively in commercial and open-source computational fluid dynamics software code. She also was the first to partner with ANSYS Fluent to expand the multi-phase simulation capability of that code, which is now used by 96 of the world's 100 biggest industrial companies and by over 40,000 customers.

With more than 30 years to reflect on since her time as an undergraduate, Curtis says Purdue proved to be the right place to start her journey: "Certainly the Midwestern work ethic that is so evident at Purdue is a great preparation for any profession. I felt very well prepared for the graduate courses at Princeton, and I was able to effectively compete with my fellow graduate student classmates who all came from top chemical engineering programs across the country."

Curtis says Purdue's demanding engineering curriculum helped her learn how to organize and prioritize her time. "Our professors taught us how to frame problems and to systematically solve them," she says. "I also had my first research experience at Purdue, and through that, I learned to investigate problems that no one had ever studied before."

As well as her experience engaging in undergraduate research, Curtis cites a work-study job as being instrumental in her choice of career. "I served as a grader and recitation leader for algebra (MA 153)," she says. "While walking back to my dorm from one of the algebra recitation sessions, it dawned on me that I enjoyed both research and teaching others, and that perhaps I should be a university professor!"

To current students who may get disheartened by a bad grade and be tempted to give up, Curtis says: "You may not like or do well in every one of your engineering or science courses, but that definitely does not mean you should not be an engineer."

Favorite quote:

"Trust in the Lord with all your heart and lean not on your own understanding; in all your ways submit to him and he will make your paths straight." Proverbs 3:5-6

Career Highlights

2015-present	Distinguished Professor of Chemical Engineering and Dean, College of Engineering, University of California, Davis
2012-2015	Associate Dean for Research and Facilities, College of Engineering, University of Florida
2013-2015	Director, Florida Energy Systems Consortium
2005-2009	Chair, Department of Chemical Engineering, University of Florida
2000-2003	Head, Department of Freshman Engineering, Purdue University
2002-2003	Associate Dean of Engineering, Purdue University

Education

1983	BSChE, Purdue University
1985	MSChE, Princeton University
1989	PhD ChE, Princeton University

Source: **https://engineering.purdue.edu/Engr/People/Awards/Institutional/DEA/DEA_2019/Curtis**

Congratulations

UNDERGRADUATE AWARD WINNERS MAY 2019

AIChE Award
Given to a senior student in the Davidson School of Chemical Engineering based on his or her service to the department through AIChE.

Recipient: **Lindsey Blanshan**

Stephen Craig Award
Centennial Scholarship
Established to recognize an outstanding junior in the Davidson School of Chemical Engineering. Recipient also receives the Centennial Scholarship to help fund their senior year.

Recipient: **Lucas Baston**

Excellence for Undergraduate Teaching Assistant
Established to recognize teaching excellence in senior courses in Chemical Engineering, as voted by the senior students is awarded to:

Recipient: **Ayse Eren**

Marilyn Forney Trailblazer Award
Established in 2014 to recognize an outstanding female student whose impact has helped pave the way for women in the field of engineering. The award is based on contribution, leadership, participation, and service in the Women in Engineering Program or Women in Chemical Engineering Seminar.

Recipient: **Taylor Underwood**

John Clarence Lottes Memorial Award
Established in 1953 to recognize an outstanding senior in Chemical Engineering.

Recipients: **Lindsey Blanshan** and **Chantel Roberts**

Omega Chi Epsilon Award
Omega Chi Epsilon established the Outstanding Senior Award to be presented on the basis of scholarship, leadership, and character.

Recipient: **Andrew Howser**

George T. Tsao Award
Awarded to a worthy junior on the basis of scholarship and in consideration of their accomplishments.

Recipient: **Dwi Sutandar**

Undergraduate Research Award
Established in 2013 to recognize outstanding students who have participated in research opportunities throughout their academic journey. The award is based on countless hours spent in the lab, papers presented at conferences, and articles submitted to journals.

Recipients: **Brian Bayer**, **Li Lin**, and **Benjamin Rentz**

Lindsay Anne Williams Award
Established in 2011 to honor a senior in chemical engineering based on service to Purdue, service to community, character, and organizational involvement, also taking into consideration technical and academic achievement.

Recipient: **Mary Lipari**

2019 Senior Design Awards Recognized

Awards are presented annually for the best senior design projects. The top three teams for 2018-2019 are:

First Place – **Team 29**: *(pictured right)* Madison Sprecher, Alex Adams, Caleb Geissler, Madeleine Ryder, Lindsey Blanshan. (*Mentor*: Dr. Gintaras Reklaitis)

Second Place – **Team 1**: Jordan Baker, Scott Farley, Madeline Morgan, Alex Nunan, Benjamin Rosen. (*Mentor*: Dr. Jeffrey Siirola)

Third Place – **Team 11**: Julia Anderson, Andrew Howser, Susannah Pritchett-Montavon, Megan Vernino. (*Mentor*: Dr. Jeffrey Siirola).

ChE undergrads awarded six Co-Op scholarships for 2018-2019

Davidson School of Chemical Engineering undergraduate students were awarded six Co-Op scholarships for 2018-2019, including five scholarships named for Purdue Chemical Engineering alumnus William Nelson (BSChE '74, MSChE '75) and his wife, Linda. The scholarships were presented on Wednesday, February 20 during the 2019 Professional Practice Days luncheon, in the Purdue Memorial Union.

In 2017, William (Bill) and Linda established eight $1,000 scholarships to support Purdue Co-Op undergraduate students. Bill is a 2013 Co-Op Hall of Fame inductee and a 2017 Outstanding Chemical Engineer. The scholarships are awarded for the academic year, four each in the fall and spring semesters.

2018-2019 recipients of the William & Linda Nelson Scholarship include five students from Chemical Engineering:

Alex Dobbins – *five-term Co-Op with Vantage Specialty Chemicals (Fall 2018)*
Katie Dudek – *five-term Co-Op with Procter and Gamble (P&G) (Fall 2018)*
Allyson Gilbert - *five-term Co-Op with Nufarm Americas (Spring 2019)*
Talia Fix McNamara – *three-term Co-Op with Mead Johnson Nutrition (Spring 2019)*
Benjamin Pratt – *three-term Co-Op with Air Products and Chemicals (Spring 2019)*

Purdue Chemical Engineering undergraduate **Nichole Szumigalski**, *three-session Co-Op with Kimberly Clark, was awarded a $1000 ExxonMobil Scholarship (Fall 2018).*

2018-2019 Co-Op Scholarship Recipients Allyson Gilbert, Alex Dobbins, Katie Dudek, Nichole Szumigalski, and Talia Fix McNamara with Dr. Gabriela Nagy, Director of Industrial Education in the Davidson School of Chemical Engineering. Not pictured: Benjamin Pratt.

ChE undergrad Natalie Kadlubowski receives Goldwater Scholarship

Chemical Engineering undergraduate student Natalie Kadlubowski has been awarded a 2019 Goldwater Scholarship. Recipients of the Goldwater Scholarship are selected based on their strong commitment to a research career in the natural sciences, mathematics and engineering; effective display of intellectual intensity in the sciences, mathematics and engineering; and potential for a significant future contribution to research in his/her chosen field. Kadlubowski is pursuing two majors, chemical engineering and chemistry, and aims to advance research in drug delivery through nanoparticles. She is one of two Purdue students to be awarded a Goldwater Scholarship this year.

Read more at **http://bit.ly/ChE_Goldwater.**

2019 MOMENTS IN CHE:

2019 ChE Senior Awards Banquet

Davidson School of Chemical Engineering seniors were honored at the Senior Banquet on Thursday, April 25, 2019. Held in the East-West Faculty Lounge in the Purdue Memorial Union, the Chemical Engineering Senior Banquet is a time to honor those students who have received scholarships and recognition awards in 2018-2019.







Photos by Alin Mesaros

Reception for Dr. Robert Hannemann, M.D. and Dr. R. Neal Houze

Davidson School of Chemical Engineering faculty, staff, and students honored Dr. Robert E. Hannemann, M.D. and Dr. R. Neal Houze at a reception celebrating their combined 100 years of service to Purdue University on April 24, 2019 in the Henson Atrium, Forney Hall of Chemical Engineering.

Photos by Vincent Walter

GRADUATE PROFILE

Meet PhD Graduate Joe Oliva

By Jaclyn Pullen

Joe Oliva watches as participants in the inaugural GSO Solar Rollers cheer their team cars on April 13, 2018. (Photo by Rebecca Wilcox)

Purdue University fosters growth, discovery, and innovation – essential values which provide opportunities for students to accomplish their goals while growing, engaging, and learning, both personally and academically. These values attract thousands of talented students worldwide to attend Purdue. Recent PhD graduate Joseph Oliva is one of those outstanding students.

From his undergraduate degree, throughout his graduate studies, Oliva's passion for research has been an integral part of his drive for education and influence for pursuing his PhD in the Davidson School of Chemical Engineering.

His passion for research began while exploring different engineering disciplines when deciding his undergraduate degree program at the University of Florida. Oliva knew he wanted to be involved in an industry with broad applications that would allow him to explore challenging research problems. His drive for analysis and experimentation led him to investigate various engineering topics, from materials engineering to electrical engineering. After fully exploring his options, Oliva was confident that chemical engineering was the best fit for his interests.

After three years of successfully conducting undergraduate research at the University of Florida with Chemical Engineering alumna Dr. Jennifer Sinclair Curtis (BSChE '83; OChE '13; DEA '19), Oliva narrowed his chemical engineering interests even further, to pharmaceutical applications engineering. "Dr. Curtis played a key role in developing my passion for research," explains Oliva. "I credit her influence in my decision to attend Purdue, and earn my PhD in Chemical Engineering."

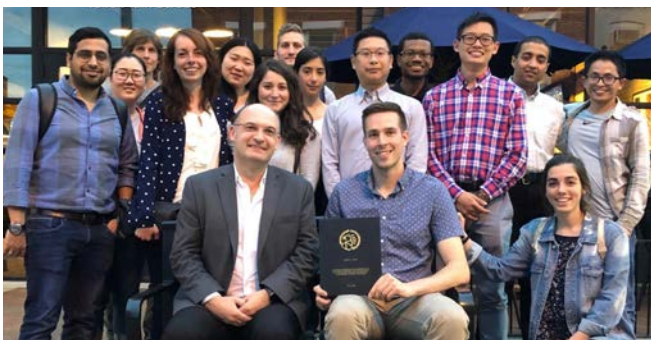
While at Purdue, Oliva was a recipient of the Graduate Assistance in Areas of National Need (GAANN) Fellowship. He also worked as a graduate research assistant under Professor Zoltan Nagy, and cites Dr. Nagy as a mentor who had a major impact in his education at Purdue.

"Professor Nagy provides his students an independent environment that fosters creativity in their research," he says. "This style of management has greatly influenced me, and I hope to emulate it as I transition into industry."

Oliva's research focuses on process intensification of integrated continuous systems using process analytical technology tools for in situ real-time control in the green production of pharmaceuticals; continuous crystallization of active pharmaceutical ingredients in an oscillatory baffled crystallizer; spherical crystallization process intensification techniques; and continuous upstream API synthesis in an oscillatory baffled reactor.

> *Through my research, I have been exposed to several projects relevant to industry," Oliva says. "My research experience has served as a bridge between academics and pharmaceuticals."*

Upon graduation in May 2019, Oliva accepted an offer with Blaze Metrics, LLC as an applications engineer. He is eager to make an impact in industry, citing his hopes to contribute high-level recommendations and adaptions for products. He wants to enable the next generation of pharmaceutical therapeutics by providing researchers with advanced process analytical technology that will bring safe and efficacious drug products to market faster. "With my Purdue Chemical Engineering education and research experiences, I have the understanding and know-how to address cutting-edge issues in pharmaceutical crystallization," Oliva says. "I feel well-prepared for a seamless transition between academics and industry."



Dr. Zoltan Nagy (left) and his research group at a going-away dinner for graduating PhD student Joe Oliva (right).

Joe Oliva (right) and Purdue ChE GSO members pick up litter along U.S. 231, north of campus as part of the Adopt-a-Highway program.

Reflecting on his time at Purdue, Oliva cites one experience that had the biggest impact on his education. Along with other graduate students, Oliva volunteered to teach science at a local elementary school weekly. GSO members covered a variety of topics, such as space and chemical reactions, so the students were able to be engaged in STEM education by participating in these experiments. The students were eager to learn about the world around them. "The other GSO members and I knew it was important to keep the students' interest flourishing," he recalls. "The experience impacted my education, while providing motivation to give back to the next generation of STEM researchers."

Dr. Jennifer Sinclair Curtis with Joe Oliva during a reception in Henson Atrium on February 21, 2019, honoring Dr. Curtis as a 2019 Distinguished Engineering Alumni.

Oliva sees his Purdue Chemical Engineering degree as the beginning of a new and exciting chapter in his career.

"Graduate school teaches you how to produce creative, independent research that contributes to the scope of a much broader problem," he says. "By narrowing your expertise in a specific area, PhD students take a single problem from start to finish, which is rewarding, but almost always leads to additional research questions."

Congratulations

GRADUATE STUDENT AWARD WINNERS 2018-2019

Purdue University Awards

Bilsland Fellowship
Recipients: **Radhakrishna Tumbalam Gooty and Daniel Wilcox**

2018 Graduate Teacher Certificate
Recipient: **Jason Bates**

Excellence in Teaching
Recipient: **Abhijit Talpade**

2019 Teaching Academy Graduate Teaching Award
Recipient: **Kyle Weideman**

College of Engineering Awards

Magoon Award for Excellence in Teaching
Recipients: **Ayse Eren and Andrew Radcliffe**

Outstanding Service Scholarship
Recipient: **Joe Oliva**

Outstanding Graduate Student Research Award
Recipient: **Ryan Adams**

School of Chemical Engineering Awards

Purdue ChE Faculty Lectureship Award
Recipient: **Brandon Bukowski**

Chemical Engineering Excellence in Safety Award
Recipient: **Claire Nimlos**

Citation Award of the School of Chemical Engineering
Recipients: **John di Iorio** *(PhD '18)* and **Charles Hages** *(PhD '15)*

Marilyn Forney Trailblazer Award
Recipient: **Claire Nimlos**

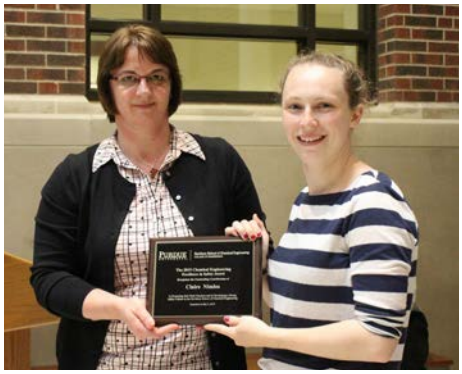
Excellence for Undergraduate Teaching Assistant
Awarded to a graduate student for teaching excellence in senior courses in Chemical Engineering, as voted by the senior students.
Recipient: **Ayse Eren**

Other Awards

Innovation for Clinical Translation (ICT) Fellowship
Recipient: **Kaustabh Sarkar**

2019 NSF Graduate Research Fellowship
Recipient: **Jessica Torres**

Claire Nimlos ChE Safety Award 2018



Claire Nimlos (right) receives the Chemical Engineering Excellence in Safety Award from Dr. Gabriela Nagy, Director of Industrial Education in Chemical Engineering.

Claire Nimlos Marilyn Forney Trailblazer Award

Claire Nimlos (right) receives the Marilyn Forney Trailblazer Award from Dr. Gabriela Nagy, Director of Industrial Education in Chemical Engineering.

2019 Graduate Student Awards

Chemical Engineering graduate students Andrew Radcliffe, Joe Oliva, and Ayse Eren are joined by Professor David Corti (left) during the Purdue College of Engineering 2019 Graduate Student Awards on April 23, 2019.

CHE GSO ELECTS 2019-2020 OFFICERS

The Chemical Engineering Graduate Student Organization (ChE GSO) announced its new officers for 2019-2020. Officers serve a one-year term and comprise the organization's executive committee. Welcome to the incoming ChE GSO officers:

President - **Jessica Torres**
Vice President - **Ayse Eren**
Outreach Chair - **Apurva Pradhan**
Sustainability - **Anna Murray**
Social Chair - **Kurt Russell**
Sports Chair - **Jonathan Turnley**
PGSG Chair - **Kaustabh Sarkar**
Cocurricular Chair - **Xiao Liu**
First Year Reps - **Carly Battistoni** and **Wei-Lee Wu**
Student Advocacy - **Clayton Gentilcore**
Safety Chair - **Jonathan Turnley**
Communications Chair - **Vik Cherupally**

CHE GSO MEMBERS FIND WORK-LIFE BALANCE

By Tony Mathew

ChE Graduate Student Organization (GSO) members were busy in spring 2019. Throughout all of their activities, members focused on finding a manageable work-life balance.

Continuing their collaboration with Murdock Elementary School in Lafayette, Indiana, GSO members conducted more than 10 sessions of the Murdock After School Science Club, and will continue sessions into the summer. These hands-on activities and experiments introduce third grade students to basic scientific concepts.

GSO's new monthly activity, The Shared Shelf, combines literary art, food, and coffee – a great combination! The group also sponsors several activities for both mental and physical exercise, such as the annual Jeopardy! quiz bowl, laser tag, and several intramural sports teams, including basketball, soccer, and volleyball.

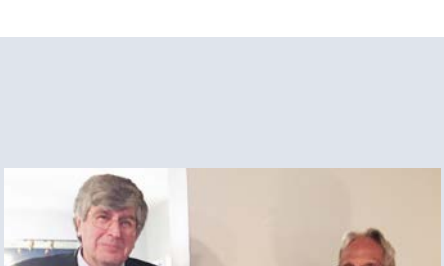
During the recruitment Colloquium, GSO members shared their research areas and laboratory activities with prospective graduate students from around the country through a poster session. They interacted with the visiting students by organizing a social night, bowling, and escape room activities.

End-of-semester activities include an Arbor Day tree planting, Solar Rollers, and more. Read more about Purdue Chemical Engineering Graduate Student Organization at: https://engineering.purdue.edu/~gso/

KLAVS F. JENSEN PRESENTS 2019 KELLY LECTURE

Dr. Klavs F. Jensen, the Warren K. Lewis Professor in Chemical Engineering and Materials Science and Engineering at the Massachusetts Institute of Technology, was the invited speaker for the 2019 Kelly Lectures. Dr. Jensen presented two lectures, "Automated Systems and Machine Learning for Chemical Synthesis" and "Accelerating Development and Intensifying Chemical Processes."

Established in 1965, the Kelly Lectures are funded by a grant from alumnus Arthur Kelly (BSChE '24) to support annual lectures presented by outstanding engineers and scientists from broad areas of chemical engineering. Kelly retired from B. F. Goodrich as Executive Vice-President and Director. He was awarded an honorary doctorate from Purdue in 1961.



AROUND THE SCHOOL

Faculty Honors and Awards

Rakesh Agrawal, *Winthrop E. Stone Distinguished Professor of Chemical Engineering*, Academy of Chemical Engineers Lectureship; Purdue University College of Engineering, National Medals of Science and Technology Wall.

Letian Dou, *Assistant Professor of Chemical Engineering*, 2019 Office of Naval Research Science & Technology Young Investigator Award

Julie Liu, *Associate Professor of Chemical Engineering*, Drexel University Executive Leadership in Academic Technology, Engineering and Science program; Purdue University Faculty Scholar

John Morgan, *Professor of Chemical Engineering*, Purdue University Insights Forum Fellow

Stephen Beaudoin, *Professor of Chemical Engineering*, Purdue Teaching Academy.

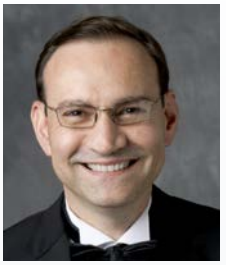
Zoltan Nagy, *Professor of Chemical Engineering*, 2019 AIChE Pharmaceutical Discovery Development and Manufacturing Forum Award

Vilas Pol, *Associate Professor of Chemical Engineering*, Purdue Trask Innovation Fund; American Chemical Society Salute to Excellence Award; 2019 AIChE Professional Achievement Award; ACerS Richard M. Fulrath Award; Purdue University Faculty Fellow

Rakesh Agrawal, **Ronald P. Andres**, **William Nicholas Delgass**, **Fabio H. Ribeiro**, **Arvind Varma**, and **You-Yeon Won**, were recognized at the 2019 Purdue University Inventor's Recognition Reception for inventions patented during the 2017-2018 fiscal year.

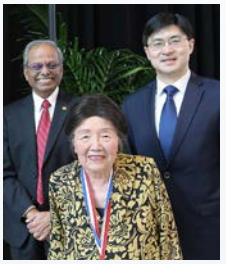
Brett Savoie, *Associate Professor of Chemical Engineering*, 2019 Oak Ridge Associated Universities (ORAU) Ralph E. Powe Junior Faculty Enhancement Award

You-Yeon Won, *Professor of Chemical Engineering*, Purdue Foundry Black Award; Trask Innovation Fund



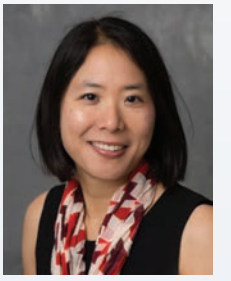
Fabio Ribeiro, *R. Norris and Eleanor Shreve Professor of Chemical Engineering*, 2019 Giuseppe Parravano Memorial Award for Excellence in Catalysis Research

Rajamani Gounder (left), *Larry and Virginia Faith Associate Professor of Chemical Engineering*, College of Engineering 2019 Faculty Excellence Award for Early Career Research



Rakesh Agrawal (left) and **Nancy Ho** (front) were honored at the Purdue Engineering Patents and National Medals of Science and Technology Wall unveil event on Wednesday, March 20, 2019. Comments at the event were presented by Dr. Mung Chiang, the John A. Edwardson Dean of the College of Engineering at Purdue University. Held in the Armstrong Hall of Engineering, the event celebrated Purdue Engineering patent holders and recipients of the National Medals of Science and Technology, the highest honor given by the U.S. government for Technology and Innovation.

Dr. Julie Liu named University Faculty Scholar



Dr. Julie Liu, Associate Professor in the Davidson School of Chemical Engineering, was recently named as a Purdue University Faculty Scholar beginning fall 2019. The five-year appointment will run through 2024 and includes $10,000 annually to support Dr. Liu's research and academic programs. University Faculty Scholars are a select group of mid-career faculty who are on an accelerated path for academic distinction.

Read more: **https://engineering.purdue.edu/ChE/news/2019/dr-julie-liu-named-university-faculty-scholar**.

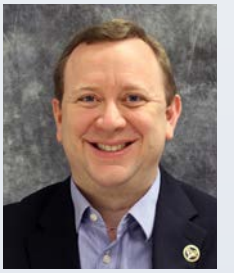
Chemical Engineering faculty honored at 2019 Faculty Awards Convocation

S. Beaudoin

V. Pol

Three Davidson School of Chemical Engineering faculty were honored at the Purdue University 2019 Faculty Awards Convocation.

Dr. Stephen Beaudoin, Professor of Chemical Engineering, was recognized for his selection to the Teaching Academy at Purdue. The Teaching Academy strives to bring together the best teaching faculty across campus to create a collective voice for teaching and learning on campus.



J. Morgan

Dr. John Morgan, Professor of Chemical Engineering, was recognized for his selection as a Purdue Insights Forum Fellows. This program focuses on developing leadership skills in faculty who are interested in administration at Purdue, particularly at the Associate Head, Head, Associate Dean, and Center/Institute Director levels.

Dr. Vilas Pol, Associate Professor of Chemical Engineering, was recognized for his selection as a University Faculty Scholar. Created in 1998, this program recognizes outstanding faculty members at the West Lafayette campus, who are on an accelerated path for academic distinction.

Read more: **https://engineering.purdue.edu/ChE/news/2019/che-faculty-recognized-at-faculty-awards-convocation2**

Staff Honors and Awards

Gabriela Nagy, *Director of Industrial Education,*
2019 Purdue Presidential Safety Award

Jennifer Merzdorf, *Communications Director,*
2019 Chemical Engineering Staff Excellence Award

Welcome New Staff

Jill Clauson
Research Account Specialist

Denise Driscoll
CISTAR Diversity Director

John Hegg
Business Manager

Timothy Stephens
Director of Development

SFEWS HOLDS RIBBON CUTTING AT BECK AG CENTER

Sustainable Food, Energy and Water Systems (SFEWS) held its ribbon-cutting ceremony on August 12. SFEWS is a multidisciplinary NSF Research Traineeship project, located at the Purdue Agronomy Center for Research and Education (ACRE). Dr. Rakesh Agrawal, the Winthrop E. Stone Distinguished Professor of Chemical Engineering, is partnering with Dr. Mitch Tuinstra, the Wickersham Chair of Excellence in Agricultural Research and professor of plant breeding and genetics in the Department of Agronomy, and faculty from Purdue and Florida A&M University on the research. The project started with $3M award from NSF in 2017, and recently received another $2.5M from the NSF's Innovations at the Nexus of Food, Energy and Water Systems (INFEWS) program.

Read more: **http://bit.ly/SFEWS-research**

Manufacturing Design Laboratory celebrates opening at Purdue

Officials from Purdue University cut the ribbon Wednesday, January 30, 2019 on the Manufacturing Design Laboratory, a research space dedicated to the technology-driven future of manufacturing in Indiana and across the globe. The Manufacturing Design Laboratory is housed in Purdue's Composites Manufacturing and Simulation Center (CMSC), a part of the Indiana Manufacturing Institute (IMI), located at Purdue Research Foundation's Purdue Research Park of West Lafayette. Established in 2015, IMI is a partnership between Purdue and the state of Indiana. Dr. Jan-Anders Mansson, Distinguished Professor of Chemical Engineering and Materials Engineering, developed the new Laboratory in Purdue's CMSC. Read more at: **http://bit.ly/MDL_Opening**

Purdue Process Safety & Assurance Center continues growth

Purdue Process Safety & Assurance Center (P2SAC) experienced an outstanding year in 2018, with five additional companies joining as sponsors. P2SAC now funds nine process safety-related PhD projects, in addition to similar numbers of Professional Masters and undergraduate research projects. Additionally, there are two joint CISTAR/P2SAC projects funded by the National Science Foundation, which address cybersecurity and laboratory safety. Process safety fundamentals are taught in the core dual level course, with 175 students enrolled in fall 2019.

The Center hosted its first multi-day conference on May 7-9, with two days focused on the pharmaceutical industry and flow assurance. Dr. Paul McKenzie, Executive Vice President of Biogen presented a keynote address to kick off the pharmaceutical conference, followed by Dr. Suresh Garimella, Executive Vice President for Research & Partnerships at Purdue. Presentations by eight pharmaceutical companies and faculty presentations from Chemical Engineering, Mechanical Engineering, and the Department of Industrial and Physical Pharmacy rounded out the slate of speakers.

The last two days of the conference were equally informative, with presentations by various faculty and industrial partners, including Dow, Honeywell, Phillips 66, 3M, and more. Attendance set a new record, with over 120 registered attendees.

P2SAC will host its fall conference on December 4-5, 2019, with various companies providing process safety tutorials on risk management on Dec. 4. Learn more about P2SAC and register for the fall 2019 conference at **engineering.purdue.edu/P2SAC**.

Dr. Paul McKenzie, Executive Vice President of Biogen, gives a keynote address during the pharmaceutical industry conference at the P2SAC 2019 Spring Conference on May 7, 2019.

▶ *EVER TRUE: THE CAMPAIGN FOR PURDUE UNIVERSITY* CONCLUDES

On behalf of the Davidson School of Chemical Engineering, I am excited to share the overwhelming response received over the past seven years through *Ever True: The Campaign for Purdue*. With help from our alumni and friends, we raised over $63 million in philanthropic support. This result is more than double the campaign goal initially set. *Thank you!*

The total raised is definitely an important figure to celebrate. And just as important to recognize are the people contributing to over 6,000 gifts supporting the Davidson School of Chemical Engineering. Your kindness and generosity is having a profound impact here in West Lafayette. We appreciate you!

As I meet with alumni from around the world and listen to their stories of why they give, I notice some common themes. The most common is that people care about Purdue Chemical Engineering and want to make a difference! Some stories relate to a scholarship an alum received as a student, which resulted in a personal goal to pay it forward. Some gifts are a reflection of the outstanding faculty members who made a profound impact on students' lives. All donors have acknowledged that their years spent at Purdue were some of the happiest times of their lives.

The Davidson School of Chemical Engineering Development Office is dedicated to ensuring that your support of the School is used to make a meaningful difference. All gifts, regardless of size, are important. We thank you again for your support!

Ever Grateful,

Travis Stoutenborough

EVER 150 YEARS TRUE
THE CAMPAIGN FOR PURDUE UNIVERSITY

$4 MILLION DAY... OF GIVING!

Purdue University celebrated a new one-day record of fundraising on April 24, 2019, announcing $41,596,596 contributed as part of the annual Purdue Day of Giving. Additionally, the Davidson School of Chemical Engineering was excited to announce some new records as well, by raising over $4 million (9.8% of the University total) and finishing third overall in total giving among all participating schools and colleges. It was a day of pride for all involved!

As part of Purdue Day of Giving, we recognized two professors who continually give of their time, mentorship, and leadership to make Purdue Chemical Engineering the best it can be. We hosted a reception honoring the 100 years of combined service by Dr. Robert Hannemann and Professor Neal Houze, each of whom have served Purdue University for 50 years! See photos from the reception on page 15 of this newsletter.

Mung Chiang (left), the John A. Edwardson Dean of the College of Engineering, and Chemical Engineering alumnus Max Downham (BSChE'58; OChE'01; DEA'06) celebrate completing The Relay Run during 2019 Purdue Day of Giving.

WELCOME TO TIM STEPHENS

Director of Development

The Chemical Engineering Development Office is excited to announce Tim Stephens has joined the team as a Director of Development. Tim comes to Purdue University from Automatic Data Processing (ADP) in Louisville, Kentucky, where he was responsible for acquiring new clients, cultivating relationships, and providing leadership to transition customers to the ADP system.

"It is an honor be part of the rich tradition of excellence in the Davidson School of Chemical Engineering," says Tim. "The generosity of ChE donors clearly has an impactful role in the School's historical successes and breakthroughs. My excitement builds as we seek to advance technologies that will change the world. I aim to help our supporters identify how they want to become active participants in these efforts. Purdue is a place where some of the brightest chemical engineering minds began their journey. And as my journey begins at Purdue, I can truly say I am proud to be a welcomed member of the Boilermaker family."

Prior to his position at ADP, Tim worked with Riverbend Financial Group and Lifetime Wealth Strategies, helping build relationships between financial advisors and their clients, with an emphasis on personal wealth management.

You can reach Tim at **tjstephens@prf.org**.

LinkedIn

Get connected with Purdue Chemical Engineering alumnni on LinkedIn

Join Chemical Engineering alumni in the Purdue ChE Alumni LinkedIn group. The group is open to all Purdue Chemical Engineering graduates, and provides a place for alums to get in touch with each other and keep up-to-date on information about the School.

Join at: https://www.linkedin.com/groups/114409

CLASS NOTES

1950s

Robley George (MSChE'58) is Director of the Center for the Study of Democratic Societies.

James Rust (BSChE'58) is a retired Professor of Nuclear Engineering at Georgia Tech. Rust is currently a policy advisor for The Heartland Institute, where he has been writing papers on climate science and energy policy since 2008. His interest was developed after attending the first International Conference on Climate Change in 2008. He has since attended eleven more conferences.

1960s

Joseph Alford (BSChE'66) is an Independent Consultant at Joseph S. Alford, LLC. Alford accepted an invitation to join the Bioengineering Industry Advisory Board, chaired by Purdue Chemical Engineering Professor Dr. Bill Clark. Alford also continues to give occasional guest chemical engineering lectures at Purdue, focusing on industrial practices, as he has done for the past 20 years.

Charles Gillard (BSChE'67) is President and CEO of C.F. Gillard and Associates.

CLASS NOTES

Richard Peacock (BSChE'67) is retired after 20 years in the Chemical Division, PPG Ind., and 30 years as President of PVS Nolwood Chemical, Detroit, Michigan.

Gary Poehlein (BS'58, MSChE '63, PhD 1966) gave his last lecture in June in the 50th Emulsion Polymers short course that he started at Lehigh University. He never dreamed it would last this long.

Dennis Schnecker (BSChE'67) is a retired dentist.

1970s

Arl Altman (BSChE'70) is President of A-Cubed.

FJ Baptista (BSChE'72) is Vice President of Business Development of Meridian Energy Group.

Timothy Bohrer (MSChE'73) is Owner of Pac Advantage Consulting, LLC. Bohrer was inducted into the Packaging and Processing Hall of Fame in November 2018.

James Burton (BSChE'74, MSChE'75) is ORS Engineer at Praxair.

James Fortuna (MS'73, PhD'83) is retired President of Voyager Software, Inc. Fortuna is currently consulting part-time.

Deborah Grubbe (BSChE'77, HDR 2010), Owner and President of Operations and Safety Solutions, LLC., is working with the National Academies to dismantle U.S. chemical weapons stockpile high technology sites. Grubbe was named 2020 President-elect of AIChE.

Robert Jurish (BSChE'60) is retired. Jurish is lead author of a series of publications covering the oil refinery industry in Central and Eastern Europe and Kazakhstan.

William Lynch (BSChE '79) has a new assignment in Project Completions Engineering for ExxonMobil Corporation. Lynch is completing a project being engineered in Madrid, Spain for a Singapore facility.

Robert Myers (BSChE'79) is Director of Global Engineering of Pfizer, Inc. For the last three years, Myers led the $200M Pfizer Hangzhou, China Global Biotechnology Project, which recently won the prestigious International Society of Pharmaceutical Engineering (ISPE) Facility of the Year (FOYA) in two categories: Project Execution and Facility Integration.

William Quillen (BSChE'81) is retired.

1980s

John Arnold (BSChE'82) retired in March 2019 as Plant Manager of McCormick & Company, Inc.

Matthew Fornefeld (BSChE'81) is Owner/ Founder of Clariti Inc. Advanced Vision Correction, a refractive/cataract ophthalmology practice. Fornefeld was the first physician to perform radial keratotomy in south central Indiana (1992); the first physician to perform lasik in south central Indiana (1995); and the first physician in Indiana to implant the Visian ICL (2006).

Maria (Rumbaugh) Gross (BSChE'85) is Director of Clinical Experiences at Azusa Pacific University. Gross continues her goal of preparing quality teachers as future STEM professionals. Besides teaching math methods and foundational master's courses, Gross leads a team supporting teacher candidates as they apply theory in the classroom. She also supports a new secondary school in South Sudan.

Laura Hamilton (BSChE'81) is retired, and currently does longarm quilting as a part time vocation.

David Hazen (BSChE'84) has transferred to DuPont Electronics and Imaging business as a Process Safety Technology SME after an almost 35-year career at Dow Chemical.

Marc Hochman (BSChE'88), Partner at A.T. Kearney, Inc., was named President of Cervello, an A.T. Kearney Company, and to its Board of Directors. Cervello is A.T. Kearney's first acquisition in 26 years and operates in the analytics and information management space, helping clients become connected enterprises.

David Muenz (BSChE'84) is Senior Vice President, Chief Sustainability Officer at Kao Corporation.

Robert Neuman (BSChE '82) is a System Engineer at Mid-America Conversion Services.

Jim Robb (BSChE'84) was named Chief Executive Officer at North American Electric Reliability Corporation (NERC) in April 2018. Robb is responsible for ensuring the reliability and physical and cyber security of the interconnected bulk power in the U.S., Canada, and Mexico.

David Rockstraw (BSChE'86) is Academic Department Head of Chemical and Materials Engineering at New Mexico State University. Rockstraw is also Interim Academic Department Head in Mechanical and Aerospace Engineering.

James Savage (BSChE'83) is Director of BioPharma Process Design for Jacobs Engineering Advanced Facilities Life Sciences, North America network.

Michael Trentel (BSChE'89) assumed the roles of CFO and Treasurer at Panda Power Funds, a private equity firm focused in the electric generation energy sector.

Bryan Weber (BSChE'83) is President & CEO of IN-PIPE Technology, an environmental services company providing bio-augmentation to municipal wastewater treatment operations. IN-PIPE provides 24/7/365 dosing of naturally occurring bacteria at strategic locations throughout the collection system, leading to reduced pollutants, H2S odor, and FOG.

1990s

Judith Banning-Buckner (BSChE'91) is Senior Vice President of Business Transformation at Reynolds Consumer Products.

Jason Bilbrey (BSChE'94) is Quality Manager at Keihin North America.

Joshua Bishop (BSChE'98) became an in-house Patent Attorney at Corteva Agriscience.

Eric Brooks (BSChE'92) is Senior Project Engineer at Wagner-Meinert, LLC. Brooks was responsible for upgrading the process heat exchanger system for the confectionary production facility. He completed a vegetable oil processing and storage capacity increase project for an oilseed processing customer.

Mark Cheesman (BSChE '81) is Senior HSE Assessor at Calumet Specialty Products. Cheesman retired from CITGO in 2015, and began working for Calumet in Houston, Texas in February 2016.

Matthew Decker (BSChE'98) is Program Management Director at Genomic Health, Inc.

Kris Dermody (BSChE'93) was promoted to Vice President, Global Technology & Engineering, Consumer Healthcare, Pfizer.

Daniel Knight (BSChE '09) is an Assistant Professor of Teaching at University of California, Irvine.

Rebecca Kopp (BSChE'99) was promoted to Partner of Porter Wright Morris & Arthur. Kopp was the founder and first President of the ChE Student Advisory Counsel. She is also the former President of the Purdue Alumni Club of Cleveland.

Seung Jin Lee (PhD'99) is Managing Director, Korea Saint-Gobain, a position he has held since 2016. Lee has held a variety of executive and business development roles, beginning as the team leader of Battery Business at LG Chem, followed by DuPont as a regional business manager, and Samsung and SK Chemicals as a Vice President.

Craig Paterno (BSChE'96) is Vice President of Operations at Synthetic Specialties Company.

Joshua Rockhold (BSChE'94) is Director, Delivery and Logistics Category Management at Harland

CLASS NOTES

Clarke Holdings. Rockhold received the Pillar of Excellence (awarded to less than 1% of employees) for work in migrating small parcel delivery carrier across all enterprise business units in a complex, integrated manufacturing and information technology environment. The effort significantly reduced costs and improved service.

John Ruhl (BSChE'98) was recently promoted to Director of Engineering at Novomer. Novomer focuses on sustainable chemistry routes to high volume commodity chemicals.

Brian Saunders (BSChE'90) is Scientist II, Bioinformatics at Agena Biosciences.

Scott Seymour (BSChE'95) is a Teacher at Carmel Clay School in Indiana, just entering the fourth year of teaching physics and chemistry after approximately 15 years working in semiconductor process development. Seymour is enjoying the additional time with his growing boys and having the summers off to spend in Florida.

Ann Simmons (BSChE'93) is a Lead Manufacturing Engineer at The Boeing Company.

Christopher Smith (BSChE'95) is Vice President and General Manager at Ecolab.

Chad Starr (BSChE'92) is Plant Manager at W.R. Grace.

Loy Sek Tay (BS'93) is Director of GPS (Operation Excellence) at GSK. Tay is certified in Risk Management, Project Management, Operations and Process Design, Supply Planning and Strategic Planning.

Stacy Wubbolding Carey (BSChE'98) is President of Midwest Associates, a commissioning, test and balance, construction quality assurance, and safety firm located in Indianapolis, Indiana. The firm is a certified Women Business Enterprise that provides third party services in the education, healthcare, life sciences, and manufacturing markets.

2000s

Paul Chestovich (BSChE'02) is an Assistant Professor of Surgery at UNLV School of Medicine, and is working as a Trauma/Critical Care/Burn Surgeon in Las Vegas, Nevada.

Joseph Franses (BSChE'05) is a clinical instructor of Medicine at Massachusetts General Hospital and Harvard Medicine School. Franses finished a Medical Oncology fellowship and was hired as a clinical instructor in medicine at the Massachusetts General Hospital Cancer Center. In addition to taking care of patients with gastrointestinal cancers, he will continue to perform translational research on pancreatic and liver cancers.

Sam Hartmann (BSChE'04) is Engineering Manager at Valero. After five successful years as Senior Process Engineer at the Valero Renewables 110 MM gal/year fuel ethanol facility in Mt. Vernon, Indiana, Hartmann was promoted to Engineering Manager in April 2019, leading a team of experienced process and plant engineers.

Brian Heasley (BSChE'09) is Senior Technology Manager, Refining at KBR.

Joan Jang (BSChE'09) is a Facilities Engineer at Ultra-Pure Water Intel Corporation.

Andy Kusumo (BSChE'02) is Director of Science and Technology at Monde Nissin Singapore Pte. Ltd.

Alvaro Timotheo (BSChE'00) is General Manager of the Nonwoven Division at Andritz North America.

Emily Tse (BSChE '00) is a Compliance & Purchasing Manager at Boehringer Ingelheim (Hong Kong) Ltd. Tse was certified as Compliance & Ethics Professional - International (CCEP-I) by the Compliance Certification Board on Feb 14, 2019.

Tracy Woodard (BSChE'08) has taken a new position a Process Safety Engineer at INEOS O&P, after leaving CPChem as a relief device engineer.

2010s

Elizabeth Arndt (BSChE'17) is a Research and Development Engineer I at Honeywell Aerospace. Arndt recently obtained six sigma green belt certification.

William Baud (BSChE'18) is Product Manager, Lumavate LLC. Baud is starting his second year in the Orr Fellowship, an elite program for entrepreneurial development.

Brent Bishop (BSChE'14) was hired at Dow Chemical as Ethylene Oxide Pilot Plant Engineer in September 2018.

Jennifer Claunch (Evans) (BSChE'14) is a Renewable Fuels Analyst at Phillips 66.

Brittney Corley (BSChE'13) is a Pyrolysis Engineer at ExxonMobil.

Benjamin Daum (MSChE'18) recently started a new role as Chemical Process Engineer I at AdvanSix, located in the Richmond, Virginia area.

Charles Hages (PhD'15) is an Assistant Professor of Chemical Engineering at the University of Florida.

James Harris (PhD'17) is a Postdoctoral Associate at University of Minnesota. Harris will begin an appointment as an Assistant Professor of Chemical and Biological Engineering at The University of Alabama in fall 2019.

Adam Ingram (BSChE'14) is a Shift Supervisor at the Ethylene Unit at Chevron Phillips, Cedar Bayou Plant. Ingram has five years with Chevron Phillips, starting as a Process Engineer in NAO. He then spent 3.5 years as an Operations Engineer between the Polyethylene Units and the Ethylene Unit. Ingram has now moved into his first management position.

Pritish Kamat (PhD'17) is a Senior Research Engineer.

Luke Labus (BSChE'18) has taken on the role of Project Manager for ClearObject in Fishers, IN, an innovative software company developing IoT solutions. Labus is also participating in the Orr Fellowship Program, an elite program developing the next generation of business leaders and entrepreneurs.

Michael Ogden (BSChE'14) was promoted in January 2019 from Lab Technician to Chemist at Molding Products, working in research and development.

Atish Parekh (PhD '16) is a Research and Technology Manager at Aarti Industries.

Mattia Rostochak (BSChE'15) is Process Contact Engineer at ExxonMobil, where she planned and executed the largest turnaround in Joliet's history.

Caitlin Schmitt (BSChE'11) finished her family medicine residency in June 2018 and joined BJC Medical Group at Progress West Hospital in O'Fallon, Missouri in family medicine with an obstetrics physician. She also serves as guest attending for the Cox Family Medicine Residency Program.

Kurtis Sluss (BSChE'16) is CEO and Founder of Brightlamp, a medical device company that uses software to measure pupillary responses and correlates them to concussion.

Brandon Steinhardt (BSChE'17) was recently promoted from Process Engineer to Lead Process Engineer at Kimberly Clark, with strategy development and implementation responsibility for asset optimization for personal care assets.

David Trivunovic (BSChE'18) is a Patent Search Professional at Cardinal Intellectual Property.

Alisha Tungare (BSChE'15) began an MBA at the University of Chicago, Booth School of Business in fall 2018, and is continuing the program. Tungare recently transitioned roles at Salesforce to become a Solution (sales) Engineer, aligning with her graduate school experience and career goals.

Devin Zuck (BSChE '17) was promoted to Research and Development Engineer at FritoLay in February 2019.

PURDUE
UNIVERSITY

Davidson School of
Chemical Engineering

480 Stadium Mall Drive
West Lafayette, IN 47907

From left: Purdue President Martin Jischke, Arvind Varma, Marilyn Forney (BSChE 1947), Robert Forney (BSChE 1947, MSIE 1948, PhD 1950), and College of Engineering Dean Linda Katehi at the October 22, 2004 Dedication of Forney Hall of Chemical Engineering.