

Nurturing Success

for the Entrepreneurial Spirit



PURDUE CHEMICAL

ENGINEERING IMPACT

SUMMER 2008

Introducing
Alumni News and
Behind the Scenes

**Chemical
Generations**
Like father, like son,
like grandson

In My View
Advice from
an entrepreneur



On My Mind

Welcome to *Chemical Engineering Impact* magazine! In this edition, we focus on entrepreneurship. Read about our faculty, alumni, and student entrepreneurs. These leaders possess unique vision, enthusiasm, determination, and risk-taking ability. They are creating the new technologies, products, markets, and jobs that drive our nation's economy and contribute to the reputation of Purdue Chemical Engineering. They are a remarkable group of individuals.

This expanded edition also includes two new sections. One is dedicated to chemical engineering staff excellence, and the second provides news from our alumni. Send us your news at chealums@ecn.purdue.edu, and we will include it in a future issue.

We invite you to visit us in Forney Hall when you are on campus. Come see our beautiful and functional addition! Renovation of the older building is continuing, with the next phase to begin this fall.

Our vision remains to be the premier source of well-educated chemical engineers and high-impact research in the world. This vision can only be realized with your help and involvement. Purdue Chemical Engineering is enjoying a period of unbounded growth, achievement and potential. We will continue to celebrate our progress with you.

Hail Purdue!

Arvind Varma
R. Games Slayter Distinguished Professor and Head

Cover artwork by Hilary Nelson



Tell Us What You Think

Share your Purdue memories, react to a story, or let us know your thoughts about a particular issue. Write to us at peimimpact@purdue.edu. 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/or clarity.



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1970-79

- **John Martin** (BS '73), president and chief executive officer of Gilead Sciences Inc., has been elected to the National Academy of Engineering (NAE) for "the invention, development, and commercialization of anti-viral medicines, especially treatments for HIV/AIDS."
- **Robert Sproull** (BS '73, MS '74, PhD '86) now resides in Bahrain and is the business manager and project manager for SSJ Consortium, a consortium of SNC-Lavalin, Jacobs Engineering and Saud Consult.
- **Davis Silarski** (BS '75, MS '76) has been elected the chair of the South Texas section of the American Institute of Chemical Engineers (AIChE).

1980-89

- **Richard Korsmeyer** (MS '80, PhD '83) has been elected to the College of Fellows of the American Institute of Medical and Biological Engineering (AIMBE).
- **Jennifer Sinclair Curtis** (BS '83) has been elected to the AIChE Board of Directors the 2008-2010 term.
- **Lisa Brannon-Peppas** (MS '86, PhD '88), a research professor in the Department of Biomedical Engineering at the University of Texas, has been elected a Fellow of Biomaterials Science and Engineering in recognition of her pioneering work on degradable polymers and drug delivery products, particularly for cancer treatment.
- **Christopher Bowman** (BS '88, PhD '91), the James and Catherine Patten Endowed Chair at the University of Colorado at Boulder, was appointed associate dean for research in the College of Engineering and Applied Science.
- **Marc Hochman** (BS '88) was recently elected vice president at A.T. Kearney, Inc. and will be relocating to Chicago.

1990-99

- **Julia Ross** (BS '90) was elected to the College of Fellows of the AIMBE.
- **Kristi Anseth** (BS '92), was named Distinguished Professor at the University of Colorado at Boulder in January.
- **Balaji Narasimhan** (PhD '96), professor in chemical and biological engineering, has been appointed associate dean for research and economic development in the College of Engineering at Iowa State University. Dr. Narasimhan has also been elected to the College of Fellows of the AIMBE.

1990-99 (cont.)

- **Becca Kopp** (BS '99), a board member on the Cleveland Council on World Affairs, has joined the law firm of Wickens, Herzer, Panza, Cook and Batista in Avon, Ohio, as an associate attorney.

2000-present

- **Petr Bures** (PhD 2001), has been appointed to head the new Polyester Resins Group within the Coatings, Adhesives and Sealants Business Unit of the Bayer MaterialScience AG.
- **Lynn Takala** (BS 2004), a process engineer at Fluor's Chemical Technology Center in Greenville, South Carolina, has been named one of 14 "New Faces of Engineering" as part of the nationwide celebration of Engineers Week 2008. She was nominated by the AIChE.
- **Viktor Cybulskis** (BS 2005) is a research engineer for LyondellBasell Industries in Alvin, Texas, developing pilot plants for petrochemical and refining processes, and is pursuing his Professional Engineering certification and MBA.

Retired

- **Lloyd P. Jeske** (BS '44) is retired after 23 years with General Mills and previously Henkel Corporation Chemical Division. He has relocated from Minnesota to Oceanside, California, with his wife of 54 years.
- **James D. Jackson** (BS '54, MS '58, MBA '81) is retired from the Investment Casting Institute, where he served as the technical director and a member of the Board of Directors. He consults from his home in Richardson, Texas.
- **Stanley J. Barlog** (BS '56) of Granada Hills, California, is retired.
- **Kenneth D. Vesely** (BS '58) is retired from consulting for Argonne National Laboratory and other organizations for the past 10 years.
- **Robert Davis** (BS '68, DEA 2006) is retired from Air Products and Chemicals, Inc. after 32 years of service in order to "follow his heart" and serve as the assistant head of the School of Engineering Education at Purdue.
- **James B. Stake** (BS '74, OChE 2006) is retired after 34 years with 3M Corporation.



Awards & Honors

Graff Honored as Distinguished Engineering Alumnus



Michael J. Graff (MS '79) was honored by the College of Engineering with the DEA Award. He is the CEO of Air Liquide USA LLC and chairman of Air Liquide Canada.

Ramkrishna Elected Fellow of American Institute of Chemical Engineers



Doraiswami "Ramki" Ramkrishna, Harry Creighton Peffer Distinguished Professor of Chemical Engineering, has been elected a Fellow of AIChE.

Reklaitis Appointed Distinguished Professor



On December 15, 2007, the Board of Trustees of Purdue University ratified the appointment of **Gintaras "Rex" Reklaitis** as the Edward W. Comings Distinguished Professor of Chemical Engineering.



Agrawal



Hillhouse

Awarded

Rakesh Agrawal, Winthrop E. Stone Distinguished Professor of Chemical Engineering, with Chemical Weekly's Padmashri Dr. G. P. Kane CHEMCON Distinguished Speaker Award, IChE and with the 2008 AIChE Fuels and Petrochemicals Division Award.

Hugh Hillhouse, associate professor of chemical engineering, with the Purdue 2008 College of Engineering Faculty Award of Excellence for Early Career Research.



Kim



Wang

Sangtae Kim, the Donald W. Feddersen Distinguished Professor, with the 2008 George Lappin Award, the AIChE National Program Committee Service Award.

Nien-Hwa Linda Wang, professor of chemical engineering, with Purdue's 2008 Violet Haas Award for her contributions toward the advancement of women.



Won



Thomson

Named

Kendall Thomson, associate professor of chemical engineering, as a Purdue University Faculty Scholar.

Inducted

Venkat Venkatasubramanian, professor of chemical engineering, as a Fellow in Purdue's Teaching Academy.



Venkatasubramanian



Albright

Published

Albright's Chemical Engineering Handbook by CRC Press in 2008, a multi-year endeavor by **Lyle Albright**, professor emeritus of chemical engineering.



So You Want to Own Your Own Company?

Owni ng and operating a chemical company has been something I have always wanted to do. When the opportunity arose to purchase Polysciences, to use a popular poker playing term, I was “all in.” My wife, Ginger, and I risked everything and so it worked because it had to work.

My only other job was at Rohm and Haas, a large international chemical company. My experience with Rohm & Haas began as a Purdue chemical engineering co-op student and took me through various domestic assignments as well as living in New Zealand and Mexico. Those experiences count a lot toward understanding what really matters when there is no one else but me to decide what to do.

The most important thing in a small business is cash flow. The definition of cash flow is current assets minus current liabilities. It determines if you can make the payroll and pay all the bills on time. For instance, you might think you are doing well because you have growing sales, but if you don't collect the money in time from your customers, you will not be able to buy more raw materials and build more inventory so, in turn, your business will disappear. At my company, Polysciences, I have been very fortunate to have always enjoyed a very positive cash flow.

The capital requirements of a manufacturing company are constant and growing. Machines that are used to make products are called factors of production. To the extent that they are expensive machines, they are barriers to entry into the market in which you participate. If you do not have a winning lottery ticket or a rich uncle then you may have to borrow money or seek money from investors. A bank is always preferable to investors who will want equity in your company. Banking relationships are very important as all loans are personal loans based on trust. Keep the trust of your banker and you will have access to capital when you need it.

Many small companies depend on one or a few customers or products. Often such a business is at tremendous risk as the single product or customer can be substituted or lost, and replacement takes time. I have always strived to stay diversified with many products and customers. I prefer to develop new customers to growing current customers past 5 percent of the annual sales of my company.



Michael H. Ott

No matter what, if you are in business, you will have problems. After all, we are engineers and solving problems is our reason for existence. Many times discouraging events will tempt an independent business person to throw in the towel. Don't do it! Just keep going. The only time you really lose is when you give up. Fortunately, operating a business is not a ChE 305 test, and you will have enough time and access to enough help to solve your problem as long as you just keep going. ■ **Michael H. Ott** (BS '73; CPA '77, University of Maryland; MBA '80, University of Chicago; DEA 2007, Purdue University).

Polysciences has grown from \$6M in sales and 60 people in 1993 to \$25M and 150 people in 2007. With operations in Pennsylvania, Indiana, and Germany, it is a diversified small specialty and fine chemical operation serving the medical and electronic materials markets.



Nurturing Success

by Kathy Mayer

The journey from innovative idea to economic success can be long and difficult. At Purdue, however, two chemical engineering professors are nurturing and encouraging an entrepreneurial spirit at the student and faculty levels.

Sangtae Kim, the Donald W. Fedderson Distinguished Professor of Mechanical Engineering and Chemical Engineering, introduces his students to real-world entrepreneurial applications and works as an advisor to many startup companies. Joseph Pekny, director of Purdue's e-Enterprise Center and professor of Chemical Engineering, has first-hand experience with a startup and now works in a supporting role with faculty to move research from the lab to the marketplace. The two men share a zest for commercializing research and helping Purdue take a lead role in entrepreneurship.

Kim and Pekny have been kindred spirits since first meeting at Princeton University in the early 1980s. Pekny was an undergraduate student; Kim was his teaching assistant in a fluid mechanics class. After receiving his doctorate in 1983, Kim took a post at the University of Wisconsin-Madison and in 1989 he attempted to recruit Pekny, who came to Purdue instead the following year. The two friends stayed in touch over the years until 2003, when Kim joined Pekny at Purdue.

Pekny and Kim are committed to igniting young enterprising minds and passing their enthusiasm on to motivated students who may take jobs in startups or form their own companies. For Kim this occurs in the classroom and is manifested in advisory roles for numerous startups. For Pekny the torch is passed through work with the e-Enterprise Center.

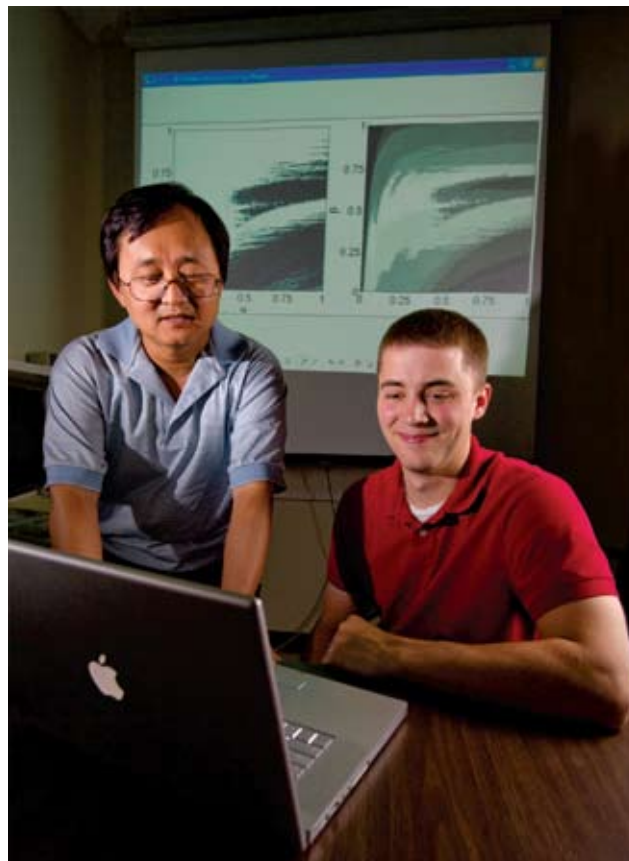
From Bright Ideas to Funding Challenges

Kim loves the dynamics of a startup. "They're agile, quick, everyone has multiple roles, there's no bureaucracy, and there's clear accountability for both good and bad decisions," he says.

Among the companies he's seen grow is Alien Technology, which uses a fluid mechanics process to make radio frequency identification (RFID) tags for inventory tracking. The California company, founded in 1994, employs 250 workers and is one of the industry leaders. "I started with them when they were a university-based project. I was on the founding team," Kim says. "That's the closest I ever came to being an entrepreneur myself."

The RFIDs that Kim works with are an emerging technology with great entrepreneurial potential. He believes they could transform manufacturing by providing more choices to buyers. One way to do this is by using RFIDs during parts productions to label and track components. Companies will be able to deliver custom-manufactured items, such as automobiles, to end-users in as little as a week. Advising Alien Technology gives Kim the chance to foster important technology in industries like retail, consumer goods, manufacturing, defense, transportation and logistics.

Kim also advises Indigo Biosystems, a software and



Sangtae Kim and PhD student Nathan Patterson examine mode space graphs.

information management company spun off in 2004 from Eli Lilly & Co. in Indianapolis. Now employing 10, Indigo recently landed a \$1.6M 21st Century grant from the State of Indiana to further develop its data management product. Kim serves on its board and upholds its mission "to revolutionize the way scientists share, manage and analyze data to create value for patients, customers, shareholders and employees."

Kim's advisory experience extends to software management and technology licensing, proving that an innovative spirit can find work in any field. He aids both California-based IO Informatics, which creates software to manage complex data, and MagSense Life Sciences, a new company housed in the Purdue Research Park in West Lafayette that licenses molecular separation technology from Purdue.

Funding is a challenge for startups in any discipline, so Kim helps companies raise money by serving on advisory boards. Venture Investors, a venture capital firm in Wisconsin, benefits from Kim's experience. The company maintains a \$125M fund for early-stage companies that have spun out of Midwestern universities.



“There’s a gap between research products coming out of the university and what is needed in the commercial world,” he says. “So university researchers or recent graduates have to raise venture capital and do key work themselves. Big companies are working with startups, not university research people.”

Kim’s enthusiasm for the entrepreneurial world easily spreads to the classroom, where he challenges graduate students with real-world scenarios. This spring, students in Kim’s CHE621 Transport Phenomena II course simulated a big company that was analyzing the possible acquisition of a small company. Courses like this prepare students for entrepreneurship in the real world. While Kim is especially interested in helping the U.S. manufacturing world, Pekny focuses his assistance internally on the university community.

Supporting Success

As the director of the e-Enterprise Center, Pekny cultivates inter- and multidisciplinary research opportunities and assists faculty in their efforts to commercialize work. As a researcher, he focuses on what might be termed “efficiency” for several industries. It includes systems analysis, supply chain management, planning and scheduling systems, pharmaceutical pipeline management, decision models in healthcare engineering, and real-time decision systems. As a teacher, he spreads the word on

the benefits of entrepreneurship.

In the classroom, Pekny gives his chemical engineering process design students a new problem each year, chosen from real industry challenges that he has learned about through his work with startups. It’s extremely helpful in the classroom, he says. “If you pay attention

to startup companies, it gives you tremendous advantage in teaching. It gives you case studies, contacts, insights into what’s hot and what’s not, and corporate trends. It keeps you very, very current so you can say, ‘This is why I’m teaching you this.’ ‘Here’s how you’ll use it.’

‘Here’s how it will help you in your career.’ And learning isn’t dry anymore.”

For those who choose the path to startups, Pekny plays a supporting role as director of the e-Enterprise Center. The center, he says, is patterned after industry. It employs a pipeline business model to help researchers launch new businesses. “We’re fast-moving and as customer-service-oriented as possible,” he says.

The center facilitates research and discovery and specializes in providing proposal, project and technical support to small startup companies. “We look for opportunities for growing interdisciplinary, multidisciplinary research at Purdue. We also draw together ideas and groups of faculty.” That’s the first step, he says. “The next phase is the nurturing part, where a team sets criteria for moving the ideas along. We look for strong leadership, potential for funding from outside, a team from many departments, and some evidence of a track record.”

Once research has been given a positive evaluation as a potentially successful venture, the e-Enterprise Center more fully invests in taking the idea to market. “We assign a project manager to help the team look for funding, invite outside guests and companies to come in, and help broker scientific meetings with the endpoint being an application for outside funding,” Pekny explains. “Our job is streamlining the process and making it as customer-friendly as possible. We’ve had more than 80 projects in the pipeline since we did some advance work in 2001 and then opened in Discovery Park in 2002.”

Pekny has learned a fair amount about startups through his association with Advanced Process Combinatorics, a Purdue Research Park company that he co-founded in 1993. APC develops and markets planning, scheduling and management software under the watchful eye of Pekny. “I’m their scientific advisor, their Special Forces unit, and they advise me on practical applications,” he says. “I have a bird’s-eye view of APC, and I’ve learned a lot about the commercial world by watching them.”

Growing a business and realizing success is never a sure thing; he knows this from experience. “Only a small portion grows to Fortune 500 companies.” Many, such as APC, pursue alternative paths to success. “The planned route for most university companies is to grow to a certain size and then get bought out for their market, customer base, and intellectual property.”

Whatever the route to commercialization, with support from academic researchers like Kim and Pekny, Purdue Chemical Engineering is leading the charge to join scientific research with avenues for commercialization, all with great potential to benefit industry and society. ■



Joe Pekny



Professor Excels in ‘Electrospray’ Droplet Research



After 30 years in the field, Osman Basaran knows all about the effects of electric fields on fluids. The Chemical Engineering Reilly Professor of Fluid Mechanics recently co-advised with Professor Michael Harris on a project to mathematically describe exactly how droplets form when liquids are exposed to electric fields.

The breakthrough could result in a variety of applications, from a type of industrial painting called electrospraying, to analyzing molecules in analytical chemistry, to manufacturing tiny micro- and nanoparticles for research and industry.

“Our approach allowed us to do this multi-scale modeling in one big calculation,” says Basaran. An electric field causes liquid drops to form structures that have a perfect cone at the leading edge. Using a precise method called

finite elements with elliptic mesh generation, researchers can break down a material into many smaller segments and separately solve the mathematical equations governing their behaviors.

“We studied higher viscosity fluids to see their effects,” Basaran says. Viscosity plays a vital role in drop formation and size, contradicting conventional wisdom and past research, which concentrated on lower viscosity fluids like water. Basaran and other Purdue researchers conducted experiments with liquids that were similar to fuels. “This may prove to be important in combustion applications because fuel is sprayed into engine cylinders using fuel injectors,” he says.

The findings are detailed in a paper appearing in the January 2008 issue of *Nature Physics*. The paper was written by ChE senior Jeremy Jones, doctoral student Robert Collins, and ChE Professors Michael Harris and Basaran. ■ **Rebecca Goldenberg and Emil Venere**

campaign **impact**



ChE Ambassadors Club

The inaugural event of the ChE Ambassadors Club was held in Naples, Florida, in early April. This new chemical engineering alumni group was initiated by Dick Hazelton (BS '64, HDR '98), Phil Krug (BS '52, OChE '94), Don Orr (BS '61, HDR 2006), David Rea (BS '62, DEA '96), Jim Schorr (BS '54, HDR '87), and Bill Wishlinski (BS '68, OChE '93). The mission of the club is to provide a forum for alumni leaders to get together socially, periodically connect with the school for updates and discussion, and, as a club, make a modest donation to support the school. Initially, the club plans to establish an endowment in the name of the ChE Ambassadors that will provide perpetual funding for scholarships and other school needs. The founders believe the club is the first of its kind for Purdue Engineering! The next get-together is being planned for the Penn State football weekend in early October. Please contact Jim Schorr at jfs32@comcast.net, if you are interested in learning more about the ChE Ambassadors Club. ■ **Linda Davis**



Ambassadors Club gathering in Naples, Florida



Access and Success

This year, Purdue launched Access & Success, a seven-year campaign aimed at securing \$304M to build an endowment to assist and reward students during their time at Purdue.

In the School of Chemical Engineering, new scholarships and programs are being established for students of all backgrounds and abilities. Undergraduate scholarships are planned based on *need* (for underrepresented sophomores and students in the program who come from urban high schools), *middle-income need* (targeting families that don't qualify for federal or state assistance based on their household income), and *out-of-state need* (for high-ability students from states other than Indiana).

The school will also accelerate the deployment of an Undergraduate Mentoring/Retention Program to retain and graduate more students, various Study Abroad learning experiences, and a Summer Bridge Program to assist underrepresented and at-risk students. Teaching innovations like the Fundamentals Laboratory will continue to provide juniors with opportunities to engage in hands-on activities that demonstrate fundamental principles associated with each of the core chemical engineering courses.

At the graduate level, the school will increase fellowships to recruit top students and fund the Graduate Student Seminar Program, where some 25 diverse guests deliver technical lectures on cutting-edge research topics to the graduate students each year.

Scholarship Invests in the Future of Engineering

The James H. Rust Scholarship in Chemical Engineering was established in January 1998 and endowed in 2006 by chemical engineering alumnus, James H. Rust (BS '58, PhD NE '65, OChE 2006).

As an educator, Jim Rust always planned to fund future engineering scholarships. "Engineering is one of the most important higher education fields for the U.S.," Rust says. "I feel it is a patriotic duty of American engineers to make a small sacrifice by increased savings to fund scholarships for future engineers," he explains. "In 1989 I started endowing a scholarship for members of

Triangle Fraternity, a social fraternity of engineers and architects," Rust explains. By 1997, Rust had established a Charitable Remainder Unitrust (CRUT) with the Purdue Research Foundation, designating that the eventual remainder would go to the School of Chemical Engineering. Since the CRUT will not provide funds for chemical engineering students until the future, Rust has also been making an annual \$5,000 gift to fund his scholarship.

The endowment was established in 2006 and today its value exceeds \$110,000. "Endowing the scholarship is important to insure its survivability," says Rust. "Doing so has made me feel good, but it is a small part of my plans for financial assistance for chemical engineering."

Alum Honors Parents through Scholarship

The Kenneth J. and Shirley E. Henry Scholarship in Chemical Engineering was established in 2007 by chemical engineering alumnus, David Henry (BS '89).

"Following completion of my own donation to the School of Chemical Engineering as part of The Campaign for Purdue, I wanted to explore other giving opportunities," says Henry, who started a scholarship in his parents' honor.

"The final concept came to me while sitting in the stands during the 4th quarter of the Central Michigan game last September," Henry recalls. "Suddenly the idea of the scholarship, in my parents' honor, popped into my mind." His parents had sacrificed quite a bit to send him to Purdue as an out-of-state student a quarter of a century ago.

With a \$25,000 minimum endowment funding level required, Henry chose to fund it over five years. This requires a \$5,000 annual gift, part of which will be made by taking advantage of his employer's (ExxonMobil Foundation) matching gift program.

"My endowment agreement was drafted and signed in early December 2007, so my plan became to present it to my parents at Christmas," says Henry. "They were both very surprised and proud to know that this gift in their name would benefit deserving students for a long time to come." ■ **Shari Schrader**





Students Helping Students

Annual GSO Symposium is organized for students by students

Last fall, students in the School of Chemical Engineering and industry representatives met at the 16th annual Graduate Student Organization (GSO) Symposium. The event, organized exclusively by graduate students, gives students the opportunity to present their research and network with industry professionals.

Nanette Boyle, a doctoral student in chemical engineering and former president of the GSO, believes the symposium is an important resource for students. "It gives our graduate students an opportunity to network with professionals in the field. Senior doctoral students are able to formally present their research to industry representatives, while the full breadth of research activities at Purdue is highlighted in a poster showcase."

Chris Polster and Hari Nair have both presented posters in the past. But, as fourth year PhD students, they look

forward to moving to the stage this August. "This year's symposium will, hopefully, be very helpful to me because I know there are a few companies coming that I am interested in working for," explains Polster.

Nair is leaning towards a career in academia, although that is not going to stop him from presenting. "I am still on the fence about what I want to do, but I wouldn't miss this chance to discuss my research and get valuable feedback," he says.

Boyle agrees. "Even though I may not pursue a career in industry, it is still helpful in improving networking and presentation skills. These skills can help any student at any level, regardless of one's career path."

■ **Kristen Senior**

A Great Finish Indicates a Great Beginning

Rookie driver Will Taber races into sixth place in ChE's first Grand Prix



Will Taber (BS 2008) is now working for Shell Oil in Deer Park, Texas

For years in the Taber household, Sunday mornings meant race day. Will Taber and his father would sit on their couch and cheer as the number 3 on Dale Earnhardt's car whisked by on screen. After years of being an avid race fan, Taber finally had the opportunity to compete as a senior in Chemical

Engineering's first Grand Prix appearance. Taber placed sixth in this year's race, winning the Rookie of the Year award!

The AIChE go-cart, emblazoned with Earnhardt's number 3, which Taber got special permission to use, raced at speeds over 60 mph. "It was a great honor but I never expected to do so well," he says. "I was just trying to qualify."

Taber credits his good friend and fellow chemical engineering senior, Dan Logsdon, for the reason he was able to race. "Dan got it approved by the board and got all of the funding in place for this to be possible. It was his brainchild." Sponsors included Celanese, LyondellBasell, Chevron Phillips, Cargill, and Raydar and Associates.

Taber and Logsdon, with the help of 12 other AIChE teammates, built the cart from the ground up. "It was definitely a challenge getting all the parts in and figuring out how to make it fast, but in the end it all came together," explains Logsdon.

Even though Logsdon and Taber graduated this spring, they plan on making themselves available to teams in the future. "Although we did really well, there were a lot of problems we faced since this was our first year on the track," says Taber.

A few minor mistakes aside, there is no doubt that the standard was set very high this year by the rookie driver and his team. This is not the last you will see of Taber. "I caught the bug," he says, grinning. "It's the most fun I've ever had and I would definitely like to do more racing in the future."

■ **K.S.**



Through the Generations

The Logsdon family proudly claims three generations of chemical engineering students

The Logsdons are no ordinary Purdue alumni. Their enrollment in chemical engineering spans nearly half of Purdue's chemical engineering history and illustrates the changing times.

Ivy Logsdon (BS '58) came to Purdue after serving four years in the U.S. Air Force. "During my service time I became convinced that I needed to get a college education," he recalls. Chemical engineering was a lot different back then. Computers were a concept of the future, so Ivy and his classmates used slide rules. "Every serious engineering student at Purdue had their trusty slide rule swinging from their belt," he recalls.

After graduation, Ivy began a career as a chemical engineer at Eli Lilly. Years later his son, Paul Logsdon (BS '80), went through the same program at Purdue. Ivy always knew that Paul would be an excellent engineer. "I could talk to him about moles," Ivy recalls, "without having to explain that it had nothing to do with yard rodents."

Paul attended Purdue around the time that slide rules were becoming obsolete. "Instead of a slide rule hanging from your belt it was a pouch containing, by today's standards, a boat anchor size calculator," he laughs. Paul has been employed as a chemical engineer in the petroleum business since he graduated 28 years ago. He now works for Husky, a Canadian oil company that is working to process tar sands. Paul plays a kind of middleman between the old and the new technologies, while his son's generation is working on retrofitting the designs from Ivy's generation.

Paul remembers bringing Dan (BS 2008) to his alma mater for a visit: "Dan took one look at the Unit Operations lab and was sold on Purdue," Paul says. "Purdue's excellent engineering co-op program was also important; in addition to being a third-generation chemical engineer, Dan is a second-generation chemical engineering co-op student."

Dan's five semesters as a co-op student proved invaluable. While he was in Tennessee working for DuPont Chemicals one summer, Dan visited a children's hospital. "I realized that I really love children's hospitals, so I took a few biology classes and knew I wanted to go to med school."



Dan Logsdon (center)
with father, Paul (left),
and grandfather, Ivy (right)



The transition into medical school is Dan's next big step after graduation. "Chemical engineering gave me a kind of road map, or way to think creatively about a problem and its solution," he says. "Chemical engineering provides the tools to perform many jobs in a variety of industries," Paul also observes. "The course work helps students look at and understand an entire process, not just one portion. The mass-balance approach is unique to chemical engineers."

No matter what, the Logsdon alumni recognize the value of a chemical engineering education. "Over the past 100 years chemical engineering has really taken off," Dan notes.

"In the long run this country's challenge is to find a long-term renewable, environmentally-friendly energy source," Paul says. "Chemical engineers will be right in the middle of making this happen."

"After you are in the workplace for a while, you will find that you received an exceptional education here," Ivy promises. "You will be proud to say you are a Chemical Engineer from Purdue!" ■ **R.G.**



Advising and Facilitation

Staff members offer more than support to undergrads

As a point of interest, FRNY 1057 has become a kind of haven for all 400 of Purdue's chemical engineering undergraduates. Normally an advising office is the scene for angst-ridden students, behind on registering and unsure of how to cope with their program.

Not so for this serene, tucked-away corner of the Forney Hall of Chemical Engineering, which holds the offices of secretary Sandy Hendryx and Undergraduate Office Administrator and Counselor Veronica Schirm. These remarkable women deftly and efficiently work with students on problems, questions, anxieties, and "how should I approach this?" issues, making the office a welcome sight for many on-edge undergrads.

So how exactly do two staff members manage to set the scholarly careers of hundreds of ChE students on the right track? With grace and apparent ease.

"Our office takes care of anything an undergrad needs," says Hendryx. A veteran of Purdue for more than 28 years, Hendryx, who joined ChE in 1998, enjoys interacting with students. As the first point of contact for all sophomores entering the school, she and Schirm, who transferred from Krannert three years ago, work to reassure students that this program is right for them. "Sometimes parents will be concerned about the size of Purdue, but as far as Chemical Engineering is concerned, we do know the students and they do know the faculty. It's a little bit smaller family," says Hendryx.

"Because ChE is a very marketable degree," Schirm adds, "our students can do food process engineering like Agricultural and Biological Engineering students, but they can also do oil refining, chemical production, or go into pharmaceutical manufacturing or research. It gives students a lot of job opportunities when they graduate." The appeal of such a diverse program has increased enrollment every year for the school, putting pressure on the undergrad office to meet with and schedule hundreds of students during registration.

Does the crunch slow them down? Hardly. "We're here for the students. I very much feel that my job is to do what's best for them," says Schirm, whose workload includes scheduling, mentoring, and advising an average of 24 students a day, as well as working with faculty on



An average of 40 students arrive each day to make appointments, schedule classes, and chat with Sandy Hendryx (left) and Veronica Schirm (right) in their spare time.

curriculum changes and processing the paperwork for new courses. "Students also look to us for any information they need outside of attending classes, like scholarships, industrial roundtables, tutoring, and job opportunities."

Meanwhile Hendryx, who has known hundreds of students graduating with ChE degrees over the years, attests, "The best part of my job is watching students grow and mature, from sophomores until graduation. The first year I did the year-end banquet was tough. You get attached to them!" May 2008 was the first semester that Schirm saw her former sophomores graduating from Purdue.

Although it's easy to miss the advising office, with its simple sign on a corner door, it's impossible to overlook the hard-working staff within. ■ **R.G.**



This colorful collage consists of work by MSE Professor R. Edwin García. It is actually two superimposed simulations of the nucleation and growth process of an undercooled Nickel melt. The background shows periodic tapestry of Ni nuclei during the initial stages of the solidification process. The superimposed structure in the center corresponds to a single solidified Ni-dendrite. The coloring embodies the degree of crystallinity and the orientation of each nuclei. Simulations were performed by Michael Waters (BSMSE 2008). García's work is featured in the current issue of *MSE Impact*.

