

Fall 2011

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Echoes Staff

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SPECIAL ISSUE: **Educate.**Innovate.*Celebrate!*

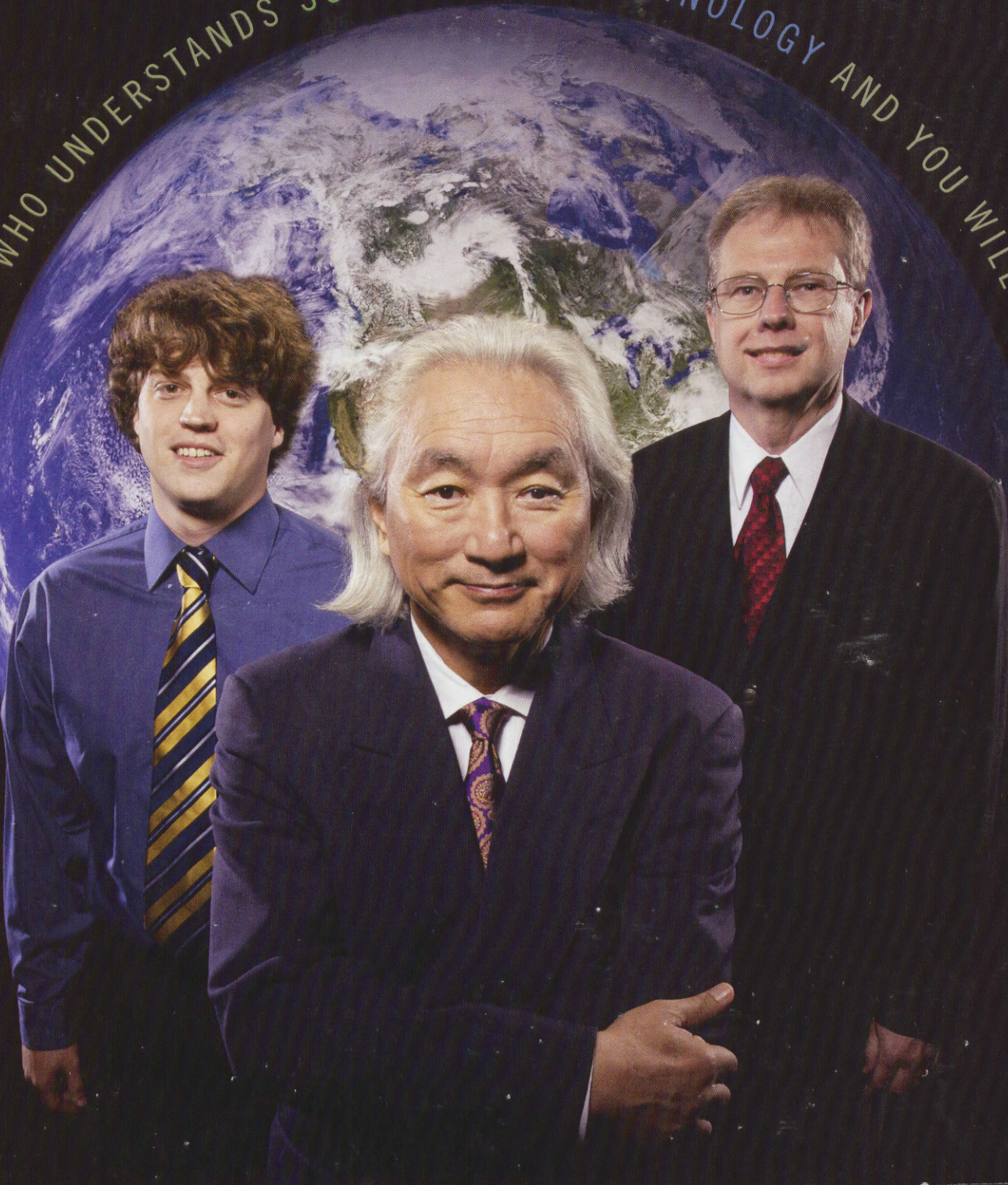
ROSE-HULMAN INSTITUTE OF TECHNOLOGY

# Echoes

FALL 2011

Vol. 2011, No. 3

LIVE LIFE AS SOMEONE WHO UNDERSTANDS SCIENCE AND TECHNOLOGY AND YOU WILL CREATE THE FUTURE.



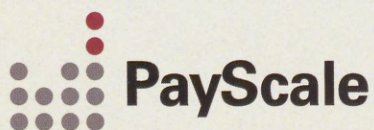




# OUR PRIDE IS IN OUR RANKINGS

# #1

THE  
HUFFINGTON  
POST



## LEADING 'BEST COLLEGES' LIST FOR 13 STRAIGHT YEARS

For the 13th straight year, we have earned distinction as the top undergraduate engineering college in the nation, based on a national survey of deans and senior faculty conducted by *U.S. News & World Report* for its 2012 college guidebook. In addition to the overall top ranking, we also earned No. 1 departmental rankings in chemical engineering, civil engineering, computer engineering, electrical engineering, and mechanical engineering.

## STUDENTS RANK FACULTY IN TOP 10 FOR TEACHING QUALITY

Another important barometer is how students value Rose-Hulman and their educational experience. *The Huffington Post* cited our No. 9 national ranking for "faculty members being valued as good teachers." The ranking was based on *The Princeton Review's* student survey, conducted during the 2010-11 school year. One student stated "our professors are personal and focus on undergraduate education."

## GRADUATES EARN TOP STARTING SALARIES IN ALL CAREER FIELDS

Our graduates enjoy some of the highest median starting salaries upon graduation nationally, based on ranking in the top 10 on PayScale's 2011 College Salary Report. Our graduates were No. 1 among Midwest colleges with a median starting salary of \$60,700. A CBS MoneyWatch.com columnist noted our graduates "enjoy higher salaries than grads of Duke, Johns Hopkins University, and Amherst."

## WE'RE NOW ON GENERAL ELECTRIC'S 'EXECUTIVE SCHOOLS' LIST

Our growing reputation hasn't gone unnoticed by corporations and foundations. General Electric is the latest company to add us to its select Executive Schools list for global recruiting and institutional support. We have joined Stanford University and the University of California-Berkeley on making GE list this year.

Learn More About Rose-Hulman at [www.rose-hulman.edu](http://www.rose-hulman.edu)



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ROSE-HULMAN INSTITUTE OF TECHNOLOGY

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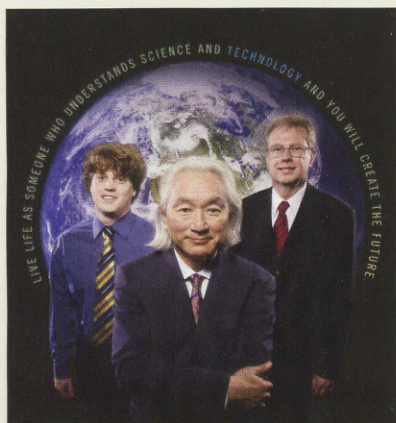
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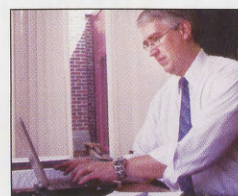
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## ON THE COVER

Educate. Innovate. Celebrate is the theme of this special issue. You will learn about the many exciting and innovative things happening on campus, while highlighting how the campus celebrated this year's homecoming. The cover features Michio Kaku (center), who inspired the campus during the Oscar C. Schmidt Lecture. Joining him is Physics and Optical Engineering Professor Richard Ditteon (PH, '75), and Andrew Bower, a senior physics and optical engineering major who had a summer research experience at the Large Hadron Collider in Switzerland.



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# IT'S TIME TO ASPIRE TO "GREAT"

by President Matt Branam

We saw great vitality in our Rose-Hulman community at homecoming this year. We showed all our guests how we **Educate, Innovate and Celebrate** with a strong sense of our purpose, and a challenge from America's greatest futurist, Michio Kaku, to the great possibilities in a technology-driven future. Many alumni, some of whom have been to every homecoming since graduation, told me that this was the biggest and the best homecoming they had ever experienced.

Once again, we were named the number one undergraduate engineering school in America by the most popular college ranking service—*U.S. News & World Report* magazine. We have achieved "Best in Class" for 13 years running.

With so many years of continued success behind us, it is time we look to the future. It is time our entire community asks "What's next?" Can Rose-Hulman Institute of Technology go from good to best to being a **great** institution? It is time to begin The "Great" Debate on our future.

Throughout our history, even at our founding by Chauncey Rose, we have been vision-driven. Whenever a clear, specific, compelling, and aspirational vision of the future has been laid out for the Rose-Hulman community, we have risen to the challenge and reached beyond our grasp to achieve great things. We have a

remarkable history of engineering a path to meet all our goals. It is in our DNA. It is who we are.

Many of you remember (or were involved in) previous debates about our future. In the late 1970s, when I was a student at Rose-Hulman, the leaders of our college were involved in "*The Institute Commission on Self Study*." This study led to a plan for the future called "*The Blueprint for Excellence*." This strategic plan guided us from 1977 until 1988. With it we set about transforming our good Midwestern engineering school into a good nationally recognized engineering college. It provided energy, momentum, and direction for an entire decade.

In the early 1990s, President Sam Hulbert organized the *Commission on the Future of Rose-Hulman*. The aspirational goals of this commission became the strategic plan known as "*The Vision to Be the Best*." Once again, our community rose to the challenge of new goals, and what was once a good nationally recognized school was set on a course to achieve the seemingly impossible goal of becoming the best in class.

"Talent hits a target that no one else can hit,  
but genius hits a target no one else can see."

— Arthur Schopenhauer



“Imagine what we can accomplish together when we focus on the tasks at hand, solve the problems we will surely encounter, and engineer the next great chapter in Rose-Hulman history.”

— President Matt Branam



We have pursued these aspirational goals for nearly two decades, and have achieved “the best” for 13 years in a row. Our community had a vision. We made a plan. The entire community saw the vision and worked the plan. Therefore, we are number one still today.

It is now our duty to future generations, as clear leaders in engineering education, to stop comparing ourselves to others and look ahead.

What’s next? I believe the answer lies in a natural trajectory—good becoming best, and best becoming great. Great is a goal that no one else but the best can see. Great is required to make history. And, great changes the future.

Imagine what we can accomplish together when we focus on the tasks at hand, solve the problems we will surely encounter, and engineer the next great chapter in Rose-Hulman history.

Over the next year we are going to learn what strengths we have and how we can better capitalize on those strengths.

This is *our* time in history. The entire world wants the graduates we produce. The world is eager to learn how we do it. Why? The world needs to engineer solutions to pressing technological problems, and they see our graduates as being the ones who can solve those problems.

This is illustrated by the 98 percent placement of our graduates within three months of graduation. It is obvious in the fact that our graduates are in the top 10 nationally in starting salaries. We witnessed it at our Fall Career Fair when more than 500 recruiters showed up for a chance to hire one of our 450 seniors in the Class of 2012. And, it is obvious in the requests we get for information exchange programs with delegations from China, Korea, Germany, and India, to name just a few.

As the “Best,” I believe we have a genuine responsibility to lead and to have a positive impact on the future of the world because to whom much is given, much is expected.

**It’s time to aspire to “GREAT.”**

*President Matt Branam is a 1979 Rose-Hulman alumnus. ■*

#### JOIN THE CONVERSATION:

Rose-Hulman will seek feedback from many constituent groups during the next year. Find out more about this exciting initiative on Page 44.





*"This is Where Things Are Happening..."*

## Phil Cornwell Leaves the Classroom, Becomes our Academic Cheerleader

by Dale Long

Phil Cornwell had to borrow a tie for his formal interview to become Rose-Hulman's Vice President for Academic Affairs this summer. He had no need for the neck garment during his 22 years as a mechanical engineering professor:

"When I was a professor I always told my students that ties were evil and somehow cut off the creative thought processes in the brain," he jokes, taking time to playfully tug at his necktie that now has become a part of his campus wardrobe.

Cornwell is Rose-Hulman's academic visionary and cheerleader, hoping to bring support and creative ideas from alumni, corporations, foundations, and academic organizations to ensure the college remains on the cutting edge of educational innovation.

Although Rose-Hulman has taken one of its most dynamic teachers out of the classroom, it has become significantly stronger through Cornwell's leadership skills, attention to detail, charm and appreciation for the educational process.

"Phil's passion for our mission will become instrumental as we develop a better understanding

of Rose-Hulman's place in the dynamically changing environment of higher education," says President Matt Branam of Cornwell's appointment in July.

Cornwell hit the ground running. He has enjoyed learning about the many exciting things happening in all academic departments across campus, contributing to the college's administrative leadership, and helping set a course for an exciting future.

"I don't know of any other college that has a clearer focus on its mission—educating its students—than we do. My job is to ensure that we always have a great mission, great faculty, and great students," Cornwell says. "The primary measure of Rose-Hulman's success should always be the success of its students."

Cornwell is one of a select group of Rose-Hulman professors to have earned the Dean's Outstanding Teacher Award and the Board of Trustees Outstanding Scholar Award. He has had the best paper and presentation in the mechanics division at five American Society of Engineering



Education annual conferences. He also is a former recipient of the Society of Automotive Engineers' Ralph R. Teetor Education Award as an outstanding young engineering educator, and he received the Rose-Hulman Triangle Fraternity's Teacher of the Year Award.

"I miss teaching and the first day of classes this year was a sentimental time for me," he says. "However, I am ready and looking for a new challenge.

"Becoming vice president seemed to be a great opportunity to help the school in a larger role. I'm committed to keeping

business," he said. "We need to help our students be those innovators that make a difference in the future. So, while the basic technical skills that we teach are always going to be important, there are other aspects of a Rose-Hulman education such as international experiences and business acumen that we need to strengthen.

"One of our key challenges as educators is to help our students be lifelong learners. We teach our students a lot of subjects, and we give them lots of great hands-on and project experiences. However,

"There's a lot of excitement about the future on campus," he said. "If you're interested in undergraduate engineering, science and math education, this is *The Best* place to be in the whole world. This is the place where things are happening. If anyone can figure out how to do things better, it will be us." ■

"If you're interested in undergraduate engineering, science and math education, this is THE BEST place to be in the whole world... If anyone can figure out how to do things better, it should be us."

— Phil Cornwell, Vice President of Academic Affairs

us on the cutting edge of educational horizons and being a leader in engineering education," he says.

Cornwell believes that the college needs to have a broader impact on undergraduate engineering, science, and math education through innovation, cross-disciplinary projects, sustainability awareness, and leadership development.

"We produce excellent engineers, mathematicians, and scientists. But the world is changing. Our students need to have a better understanding of the global economy and the international nature of

we need to be more deliberate in how we teach them how to learn. We also need to help them develop even stronger communication and leadership skills than we already do for them to be successful in a highly competitive marketplace," he says.

Cornwell is encouraged by the state-of-the-art products being developed at Rose-Hulman Ventures. He sees the opening of the Student Innovation Center and the Home for Environmentally Responsible Engineering program as new initiatives that will help pave the way for Rose-Hulman's bright future.

## PHIL FILE:

### EDUCATION

- Princeton University, PhD Mechanical & Aerospace Engineering, 1989
- Princeton University, MS Mechanical Engineering, 1987
- Texas Tech University, BS Mechanical Engineering, 1985

### TEACHING EXPERIENCE

- Rose-Hulman Institute of Technology, 1989–2011
- Princeton University, Assistant in Instruction, 1987–88; Assistant in Research, 1988–89

### RESEARCH EXPERIENCE

- Los Alamos National Laboratory, Visiting Faculty Member, 1995–2010
- Los Alamos National Laboratory, Collaborator, 1990–1992

### HONORS/AWARDS

- Trustees' Outstanding Scholar Award, Rose-Hulman, 2001
- Dean's Outstanding Teacher Award, Rose-Hulman, 2000
- Triangle Fraternity's Teacher of the Year, 1994
- Ralph R. Teetor Educational Award, 1993
- National Science Foundation Graduate Fellowship, 1985–88
- Guggenheim Fellowship, Princeton, 1985–86

### FAMILY

Wife, Rachel, and two sons live in Terre Haute.



Phil Cornwell advises graduate student Phillip Rodenbeck.



## First Associate Dean of Global Programs Ready to Develop a Worldview

Over the course of 20 years teaching throughout the world, Luchen Li has seen the need for higher education to meet the growing globalization of business and communications. He has used his passion for cross-cultural understanding, coupled with his knowledge of the humanities and social sciences, to advance the development of global strategies.

Now, the educational innovator is leading Rose-Hulman's enhanced international education efforts as its first associate dean of global programs.

"I know that today, in the global era, the awareness of cultural difference and the ability to work in teams with colleagues from various cultures and nationalities are far more important than in past years. We need to prepare our students for the global work market, the global economy, and the global mindset," Li says.

International education, he later explained, is not simply offering exchange programs, classes in language and culture or traveling abroad. "International education consists of comprehensive programming that leads to increased awareness and understanding of the international community, global opportunities, and diverse world views," Li says.

It's an effort that will not be limited to Li's new position, but will require the cooperation of the entire campus community. "We cannot succeed without a shared vision," he adds.

Included in that vision, Li explains, are traditional global programs, like international student exchange. However,

he sees the goal as "not just attracting more international students, but attracting international scholars."

Li developed similar global strategies as director of international programs at Kettering University.

"Dr. Li brings a vast wealth of experience in the area of international programs. I have no doubt that he will provide the leadership necessary to coordinate, enhance, and expand the global opportunities for our students," says Phil Cornwell, vice president of academic affairs.

Opportunities abound for faculty to participate in research collaboration with colleagues from around the world. Li believes faculty members must engage others in order to address today's energy challenges and other global concerns. "These problems require our faculty members to go beyond the campus laboratory," Li says.

International collaborative efforts, Li explains, will not simply provide faculty and students with an external exposure to other cultures. Global programs, he says, should "reach out to the world with the purpose to internalize a global mindset at Rose-Hulman." He adds: "We cannot do global things within a small box—we must reach out to others."

An educator first, Li pursues the advancement of international education "to make a broader impact upon student learning and help with curricular innovation."

Li earned degrees in English and



Luchen Li

English literature from China's Hebei Teachers University and Suzhou University. He earned a doctorate in modern American literature from the University of Oregon, where he also studied international business strategy, organizational behavior, marketing, and finance. He recently attended the Institute for Management and Leadership in Education at Harvard University. Li is also an internationally recognized Steinbeck scholar. ■

## Student Profile Has Growing International Scope



Rose-Hulman continues to benefit from its growing worldwide reputation, with a record 41 international students in this year's freshman class. A large percentage of this group has come from China (27 students), while others are from India, Mongolia, Nepal, Russia, Saudi Arabia, South Korea, and Turkey. The college received a record 329 international applications for the incoming class. ■



"We're on the cutting edge of this exciting new technology and the possibilities are endless."

— Charles Joenathan, Department Head  
Physics and Optical Engineering



Optical engineering student Nick Anderson is among students participating in the Smart Lighting program.

## Campus Shining Light on Smart Innovations

Physics and Optics Students, Faculty Part of National Initiative

Rose-Hulman could be helping develop the next Thomas Edison by encouraging the next generation of inventors through a national smart lighting initiative.

The Smart Lighting Engineering Research Center (ERC) is dedicated to developing new light-emitting diode (LED) technologies and applications for smarter, better-performing lighting devices and systems.

These smart lighting systems are poised to revolutionize lighting by creating immersive lighting systems that can sense their environment to provide new levels of energy efficiency, health and safety benefits, and enhanced workplace productivity.

Launched in 2008 and funded primarily by the National Science Foundation, the ERC is led by Rensselaer Polytechnic Institute (RPI). Rose-Hulman has been one of the ERC's outreach partners for the past two years, and students and faculty

members will become immersed in more complicated research projects this school year. These projects will create better LEDs, as well as new sensors and systems required to effectively monitor and control them.

"We're on the cutting edge of this exciting new technology and the possibilities are endless. Our students are learning new things every day," said Charles Joenathan, head of the Department of Physics and Optical Engineering.

The department hosted a conference this summer to bring ERC's outreach partners up to date on students' developments in the project. Seven students created education modules to showcase optics technology, assisted by Joenathan and faculty colleagues Rob Bunch and Azad Siahmakoun. These modules will be featured on YouTube in hopes of inspiring high-school and

middle-school students toward careers in physics and optical engineering.

"Rose-Hulman is a valuable asset to our smart lighting initiative. The students have done some great work so far, and we're looking forward to more contributions as the project goes forward," says Ken Connor, an RPI professor and ERC official. "Getting Rose-Hulman involved with ERC, we're getting students at the undergraduate level that have promising futures in optics and physics."

Other educational outreach partners have been Howard University and Morgan State University. Core ERC university partners are Boston University and the University of New Mexico. Industry partners, ranging from major lighting firms to small startup firms, help to guide strategic planning, spur innovation and provide students with first-hand experience in entrepreneurship as well as corporate research and development. ■



## PIANO MAN

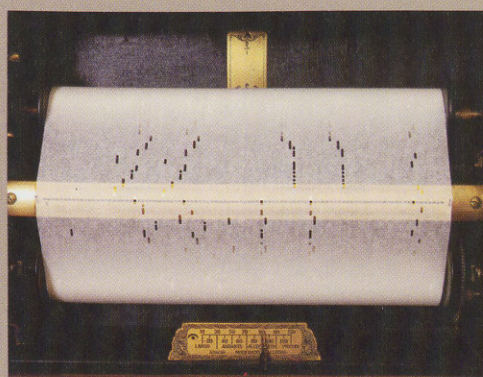
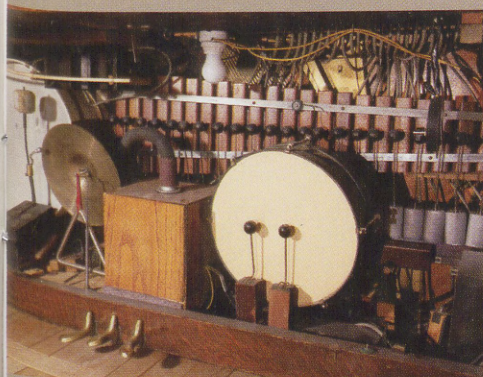
*Collector of Ampicos*

**PROFESSOR  
MIKE KUKRAL**

Preserving History  
& Culture in Rare  
Player Piano Collection

★ by Stacey Muncie ★





One can't help but smile as the notes to Irving Berlin's "Let's Face the Music and Dance" leap brightly from Mike Kukral's living room and through the screen door, before spilling from the porch to the street. The veteran Rose-Hulman faculty member grins as his 1934 Marshall & Wendell Ampico reproducing grand piano plays the beautiful sounds for others to enjoy. "That's the newest one I own," he chuckles. "It's a 1934, so that was near the end of production."

As a kid, Kukral was intrigued by his father's childhood memories of the family's player piano and its mechanical movements.

"My dad always talked about when he was a kid they had a piano that played by itself," he says.

Fascinated, Kukral asked if he could get a player piano. His father advised him to save his money. It was soon thereafter that he bought his first player piano, an old broken down model, at age 12 for \$75.

Now, five pianos fill Kukral's home, including his most cherished piece: a cabinet style 1907 Welte Vorsetzer T-100 red roll reproducing push-up player, made in Germany. Three other pianos are in storage in Ohio.

"Out of all my instruments, the Welte Vorsetzer is the only one that's a museum piece," he says. "It took me forever to find one of these."

Interestingly, the Welte Vorsetzer isn't a traditional player piano, but rather a mechanism housed in a rosewood cabinet which physically plays a piano's keys and pedals using a series of fingerlike pneumatics. In Kukral's home the piano player tickles the ivories on a 1927 Steinway Duo-Art reproducing grand piano.

Cabinet players like this are rare because unlike player pianos, the players are not actually instruments. "When the mechanics in a player piano stopped working, you still had a piano. When this stopped working all you had was a cabinet," Kukral explains.

Another rarity in Kukral's collection is an unrestored coin-operated automatic 1922 Coinola Model X nickelodeon piano, which features percussion instruments conveniently tucked away in a compartment in the bottom of the piano, near where the foot pedals would

be in a conventional piano. Common in speakeasies, this roll-operated orchestrion has a snare drum, bass drum, cymbal, woodblock, and xylophone that enable the instrument to virtually mimic a small dance band with the piano in the lead.

"This is really early robotics," says Kukral, who has served as editor and publisher of *The Amica Bulletin* of the Automatic Musical Instruments Collectors' Association.

Player pianos operate on a pneumatic or reduced air principle through a system of tubes, pouches, valves, bellows, and pneumatics whose piano keys, and in some cases musical dynamics, are directed to actuate both on and off via the perforations in the paper music rolls.

**"I ask students, 'How many songs do you have on your iPod?' Each one of these boxes is one selection. I might have 5,000 or 6,000."**

The reproducing player pianos that Kukral collects use live performance-generated rolls to reproduce the sound, including dynamics, of the songs as they were played by well-known pianists of the time. A standard player piano simply plays

the notes, with no variation in expression. Kukral estimates that only 10 percent of the player pianos built were the high-end reproducing pianos.

"You really have to understand physics and mechanical engineering to restore them, and if you don't understand music, you won't get very good results either," Kukral says.

It's the intricate mechanisms which operate player pianos that fascinate the engineering students, faculty colleagues, and other guests that Kukral regularly

welcomes to witness his collection.

Guests marvel at the pianos, as well as the massive collection of piano rolls that fills a back room of his home. The shelves of alphabetically arranged rolls routinely impress student visitors, until Kukral reminds them that he really has no bigger a musical collection than they do.

"I ask students, 'How many songs do you have on your iPod?'" he says. "Each one of these boxes is one selection, so it's not so many. I might have 5,000 or 6,000."

As a geography professor and former Fulbright Scholar, Kukral not only appreciates the musical facet of his collection, but the cultural component as well. "These are fine musical instruments and it's an aspect of American culture," says the Lambda Chi Alpha fraternity faculty advisor. "The best part of my hobby is to share it with other people. I like to share the history, the technology, but the bottom line is the music." ■



# DITTEON LEADS ASTRONOMY ON SKYWARD TREK

by Stacey Muncie

At the height of the space race of the 1960s, an observatory was constructed on the western edge of campus to give students the opportunity to participate in the Moonwatch program, an amateur science program initiated by the Smithsonian Astrophysical Observatory.

Students like Rick Ditteon (PH, '75) joined amateur astronomers across the country visually tracking the first artificial satellites in the days before radar and automation rendered them obsolete in the mid-1970s.

After Ditteon returned to campus as a faculty member in the 1980s, he was dismayed to learn the newly developed campus master plan did not include an observatory. Its location was prime property that would eventually be home to Percopo Hall's parking lot.

"Our aspirations to be the best undergraduate school in engineering, science, and math wouldn't be achievable without an observatory," Ditteon says.

At homecoming in 1992, Ditteon was introduced to Gene Glass, 1949 alumnus and amateur astronomer. Glass agreed that new, user-friendly equipment would kick-start student enthusiasm for the facility. He donated funds for a CCD camera designed for astronomy.

Ditteon says that contribution turned the tide for the observatory. Soon the Student Government Association supported the Astronomy Club in purchasing a new telescope. The National Science Foundation, citing student interest, chipped in additional funds.

"The only reason we have an observatory is because of student interest," Ditteon observes.

By this time, the observatory had amassed such a collection of equipment that it was bursting at the seams. Enter

Terre Haute's Oakley Foundation, which funded a new observatory on the east side of campus in 1998.

Shortly after its opening in 2000, student astronomers began using the updated equipment at the Oakley Observatory to photographically document main belt asteroids. Students have since discovered 33 new asteroids.

"If you discover a main belt asteroid, you get to propose a name for that asteroid. Remember that alumnus Gene Glass? We named an asteroid after him to thank him for his donations," Ditteon says. Another has been named after President Emeritus Samuel Hulbert. "We still have 21 asteroids yet to name," Ditteon adds.

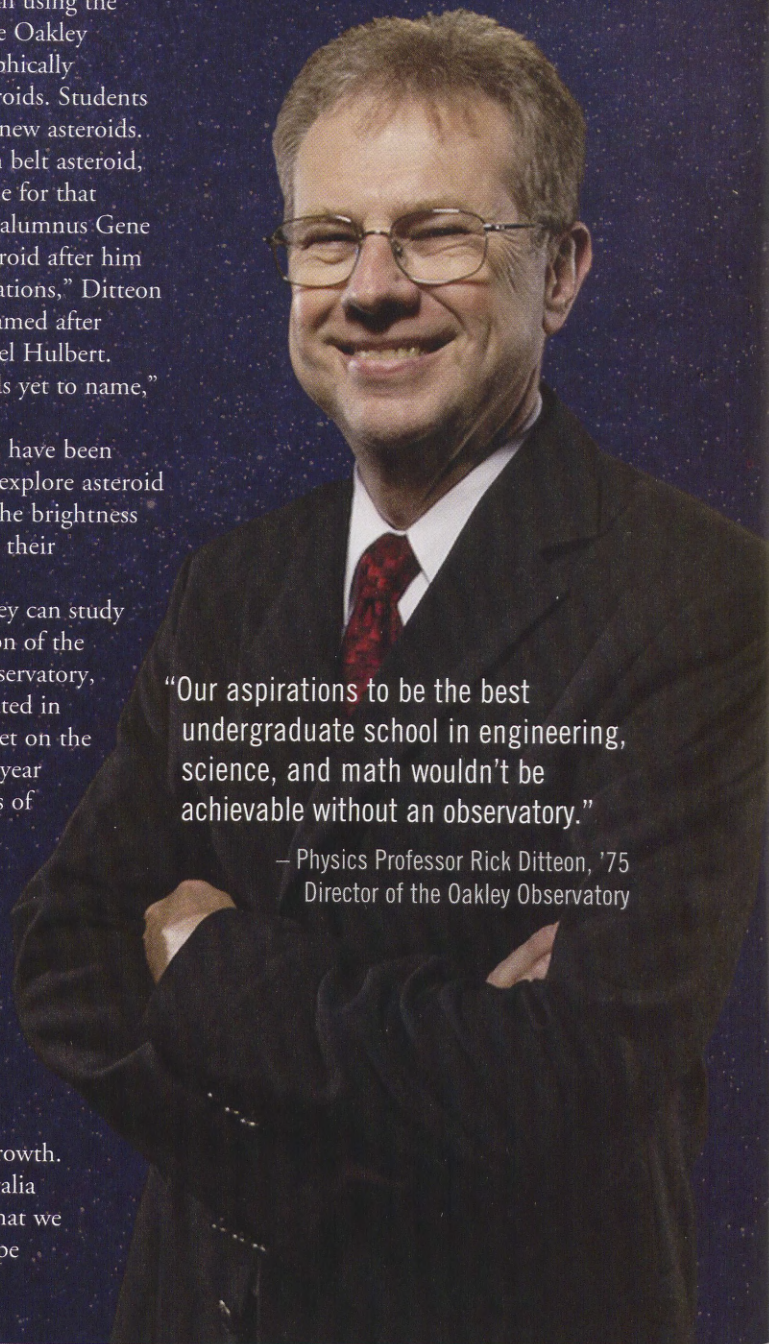
Most recently students have been using the observatory to explore asteroid photometry, measuring the brightness of asteroids to determine their rotation speed.

The amount of data they can study increased with the addition of the Oakley Southern Sky Observatory, an automated facility located in Australia. "We typically get on the order of 20,000 images a year down there," Ditteon says of the remote facility.

Reflecting on the collaboration of students, faculty, administration, alumni, and community which has positively influenced the astronomy program's future, Ditteon is optimistic about the possibility of continued growth. "The observatory in Australia is physically big enough that we could put a bigger telescope there," he says. ■

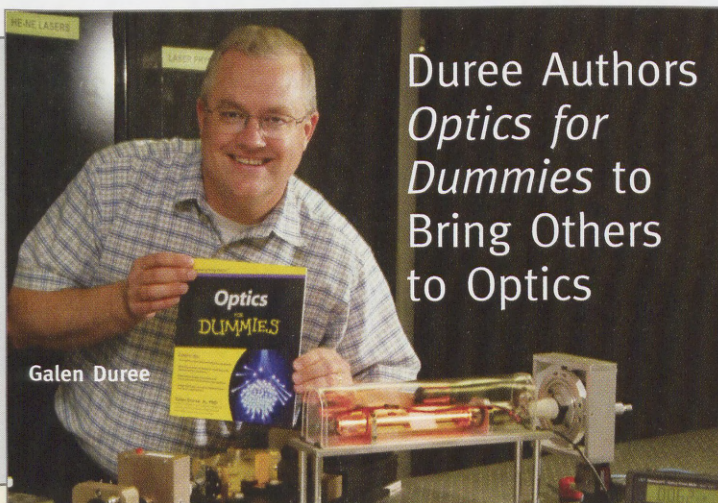
"Our aspirations to be the best undergraduate school in engineering, science, and math wouldn't be achievable without an observatory."

— Physics Professor Rick Ditteon, '75  
Director of the Oakley Observatory





## Rose-Hulman Professors Showcase Their Expertise



### Duree Authors *Optics for Dummies* to Bring Others to Optics

Award-winning physics and optical engineering professor Galen Duree is inspiring others toward careers in optics through his book *Optics for Dummies*, the latest in the popular series of reference and self-help books. He saw it as an excellent opportunity to promote optics by making it easy to understand.

"I was thinking that we really needed something for kids to explain that optics is more than just eyeglasses and telescopes," Duree says. Wiley Publishing had come to the same conclusion and approached the Rose-Hulman professor to author the book. It can now be found online and in bookstores throughout the country. ■

### Husband-And-Wife Team Examining Breast Cancer Detectors

Few cancer survivors are in the position to change the way cancer is diagnosed, but that's what the husband-and-wife faculty team Lorraine Olson and Bob Throne are doing. Olson, professor of mechanical engineering, and Throne, head of the Department of Electrical and Computer Engineering, have conducted research and created math models in hopes of developing a new system for the early detection of breast cancer. The research could be key to the development of a device which will mimic manual breast palpations, while enabling doctors to record accurate data about the underlying tissue. The device won't replace mammography, but Olson says the less invasive method could be an affordable and effective tool. ■



Lorraine Olson and Bob Throne



Fred Haan

### Tornado Expert's Research May Lead to Designing Stronger Public Buildings

When *USA Today* needed someone to explain the destructive forces of tornadoes affecting Midwest cities this past summer, they turned to an expert in the field: Fred Haan. The mechanical engineering professor has been studying the effects of extreme winds on structures for more than 15 years. He helped establish a state-of-the-art tornado simulator at Iowa State University, and returns to Ames each summer to conduct further research. Haan's findings may bring national standards on how to build stronger public buildings. Haan has been featured in the *Kansas City Star*, the *Houston Chronicle* and *Minneapolis Star Tribune*, to name just a few. ■

### PLANT SPECIALIST UNCOVERS NEW BACTERIA AFFECTING WILDFLOWERS

Peter Coppinger has used his expertise as a plant biotechnology specialist to help discover a new species of bacteria that's infecting and killing the beautiful Midwestern wildflower, Trillium. That he was able to make this discovery with Rose-Hulman sophomore applied biology student Nathan Wheeler was "like hitting the jackpot."

The duo determined that a new form of phytoplasma, a micro bacteria that affects plants, was turning Trillium's naturally white petals into shades of green.

However, there were no matches of phytoplasma. Their discovery was



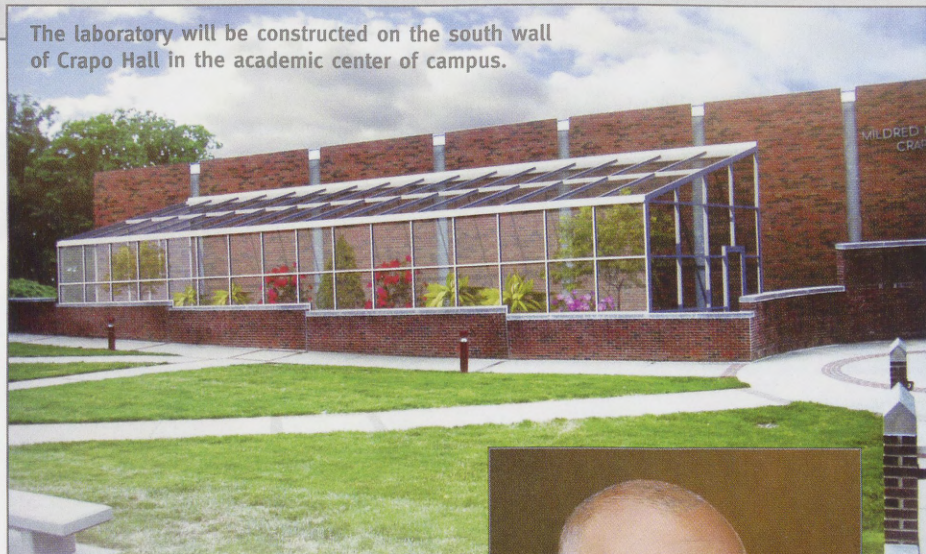
Nathan Wheeler and Peter Coppinger

confirmed late this summer. Now, the professor and applied biology student are sequencing the bacteria to determine ways to protect other wildflowers. ■



# BIOSCIENCE RESEARCH LABORATORY ENHANCES WILLIAM COOK'S LEGACY

The laboratory will be constructed on the south wall of Crapo Hall in the academic center of campus.

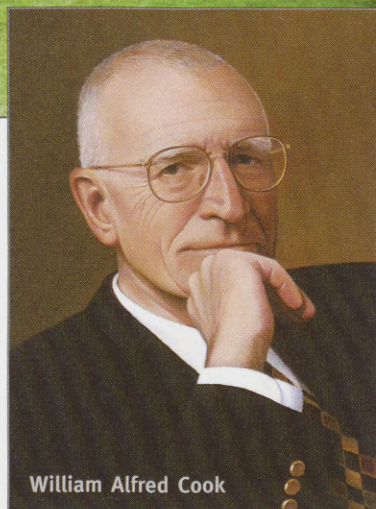


The legacy of William Alfred Cook will be further enhanced on campus through a new laboratory for bioscience research bearing the name of the life sciences pioneer.

William Alfred Cook Laboratory for Bioscience Research will allow students to develop knowledge of the biological sciences through hands-on education in plant life. The 1,350-square-foot facility will be constructed on the south wall of Crapo Hall, and will become the visual focal point in the academic center of the campus.

"This spectacular facility will serve as a living laboratory experience for our students, showcasing our commitment to the life sciences, and helping us produce graduates who can combine superior problem-solving abilities with an awareness of the role of biology and botany in technical solutions," says President Matt Branam.

A \$500,000 donation making the laboratory possible came from Carl Cook, chief executive officer of the Cook Group global network of companies and Rose-



William Alfred Cook

Hulman trustee, in honor of his late father and company founder. A noted philanthropist, William Alfred Cook and his family were involved in numerous charitable activities, and have supported the expansion of the biosciences at Rose-Hulman.

Over the past 10 years, there has been the establishment of the Department of Applied Biology and Biomedical Engineering, expansion of the Department of Chemistry and Biochemistry, and addition of research programs in biofuels, biochemistry, biology, and botany.

"My father was a cross-disciplinary

inventor who used engineering technology to solve complex problems in the field of internal medicine," says Carl Cook in announcing the Rose-Hulman donation. "Our family is proud to help advance this cross-disciplinary approach to learning and experimentation in the new William Alfred Cook Laboratory for Bioscience Research. In this facility, students will explore the roles of biology, botany, chemistry, and engineering in finding solutions for complex problems."

The biological sciences continue to play an increasing role in innovative solutions to technical challenges. Research into alternative energy sources has included the development of algae to produce biodiesel fuel. Similarly, remediation of releases such as oil spills has been achieved using bacteria that consume oil as a food source. Also, pharmaceutical companies continue to investigate innate plant and animal properties for the creation of new drugs.

"Knowledge of the biological sciences has opened the door to innovative technical solutions," says Michael Mueller, head of the Department of Chemistry and Biochemistry. "This new laboratory will offer our students—whether they are majoring in the biological sciences or any of the engineering disciplines—the plant materials and laboratory experiences that will ensure a hands-on education that is the hallmark of Rose-Hulman."

The laboratory will be constructed by Garmong Construction Services and fabricated by the Winandy Greenhouse Company, led by Hank Doherty (CE, '79). The lead structural engineer will be Michael Waldbieser (CE, '93). ■



# \$27.8M Siemens Software Gift Puts Future Technology in Students' Hands

Students will be able to rapidly develop three-dimensional solid models for product development and use state-of-the-art industry standard computer software through a partnership with Siemens, a global powerhouse in electronics and electrical engineering.

A \$27.8 million in-kind software gift will provide Rose-Hulman and its students with the latest advanced hands-on training tools to lead the next generation of engineers for innovative, high-tech careers. The gift is the largest in-kind corporate donation in Rose-Hulman history.

Siemens software programs and systems will be used by students to develop cutting-edge technology for the U.S. Department of Energy's EcoCAR2: Plugging In to the Future advanced vehicle development competition.

"This generous gift from Siemens PLM software definitely takes our students to a new level and surpasses any design collaboration software currently available on campus," said Zac Chambers, associate professor of mechanical engineering and director of Rose-Hulman's Advanced Transportation Systems program.

Freshman mechanical engineering students will use the Siemens Solid Edge modeling software to get first-hand knowledge about the latest design techniques. Teamcenter software is a lifecycle management tool allowing students to link Microsoft Office products to the development of a solid object. Not only will this process verify if a designed part will fit into the finished product, but there will be documentation about important product requirements such as material type and loading condition. This saves time throughout the product design

and development process, according to Chambers.

"The software provided will complete the suite of product life management tools and enable our students to leave Rose-Hulman with experiences on the forefront of industry product development," said Chambers.

The software grant will include NX software, the fully integrated computer-aided design, manufacturing and engineering analysis solution, and Teamcenter software, the world's most widely used digital lifecycle management solution. These additions complement Rose-Hulman's long-standing use of Siemens PLM Software's Solid Edge software, the most complete mainstream hybrid 2D/3D CAD system.

"Siemens PLM Software provides

Rose-Hulman students access to PLM technology which otherwise would be out of reach for the academic community, giving students a distinct advantage by being able to use the same PLM technology widely used by leading multi-national manufacturing companies around the globe," says Bill Boswell, senior director of partner strategy for Siemens PLM Software. "The experience gained in the use of these tools better prepares students for today's highly competitive manufacturing jobs requiring full knowledge of modern technologies and tools."

Siemens is the world's single-source leader of automation technology products engineered and manufactured for all industrial sectors. ■



Using Technology: Professor Zac Chambers helps students design parts for the EcoCAR2 project.





## *GE-Reagan Scholarship Helps Freshman Achieve Lifelong College Dream*

by Stacey Muncie

Even as she collected her Rose-Hulman-issued laptop and finished moving on campus, freshman Erin Campbell was still incredulous that she was actually attending her first-choice college. It had long been on her wish list, but being one of seven children of a pastor who doesn't believe in carrying personal debt, she was forced to set her sights on other educational options.

"I had applied to 13 colleges, including two military academies," Campbell says. Her dad kept a chart with all of the colleges, paying close attention to their costs, scholarships, and grants.

Campbell had applied to Rose-Hulman at the behest of 1974 alumnus Bill Finley, her dad's best friend and someone Campbell considered a mentor. "He knew that I was interested in engineering and he knew that Rose-Hulman was the best engineering school," Campbell says.

Finley, who had been diagnosed with pancreatic cancer, urged Campbell to apply to Rose-Hulman because of his own experience at the college. She did, and was

accepted. But the financial issue remained a heavy burden.

Then Campbell received the GE-Reagan Foundation Scholarship, a \$40,000 award to students demonstrating exemplary leadership, drive, integrity, and citizenship.

At 18 years old, Campbell has completed more hours of humanitarian and service work than most people will in a lifetime. There's the two week-long trips to rehabilitate homes after Hurricane Katrina, the weekly volunteer shifts at a local hospital, the summer internship with a humanitarian organization, the stint tutoring a third grader in reading, the hours of roadside trash pick-up, and the experiences volunteering in a soup kitchen and crisis pregnancy center. Family and faith instilled in Campbell a desire to help others.

Campbell is also a member of the Civil Air Patrol, has recently earned her pilot's license, sings in an a capella women's ensemble, is SCUBA certified, and plays Celtic harp.

The Rose-Hulman student was an ideal choice for the scholarship, according to Stewart McLaurin, executive director of the Ronald Reagan Presidential Foundation.

"Ronald Reagan believed in educating and inspiring the future leaders of tomorrow," he stated. "The GE-Reagan Foundation Scholarship Program enables us to continue this tradition and keep his spirit alive among the youth of today. The Reagan Foundation is so pleased that Erin Campbell is among those deserving award recipients."

Campbell is pursuing a degree in biomedical engineering with the intention of continuing to medical school. "My goal is to help people in third-world countries. I think there's a need out there for Christian doctors to be able to help people physically and spiritually," she says.

Sadly, Finley did not live long enough to see Campbell attend Rose-Hulman. But, she reflects, "He'd have definitely been thrilled if he had known I was here." ■



## STUDENT GETS UNIQUE RESEARCH EXPERIENCE AT SUPERCOLLIDER

When researchers at Europe's CERN shocked the science world with news that neutrinos can travel faster than light, disputing Albert Einstein's special theory of relativity, Andrew Bower wasn't surprised.

The senior physics and optical engineering student had spent the summer at Europe's main particle-physics laboratory. He was one of a select few American college students to participate in the Research Experiences for Undergraduates (REU) program.

The famed Large Hadron Collider (LHC), located near Geneva, Switzerland, draws researchers from all over the world. "It's a big collaboration of physicists working at the frontier of physics," Bower explains. He was one of the few undergraduate students participating

in the research project, operated by the University of Michigan.

Bower joined students and scientists in conducting experiments and collecting data in the quest to find the elusive Higgs Boson particle, the theoretical particle that is believed to give all matter in the universe mass. He says that the REU student scientists analyze the large amounts of data generated, each doing his or her part to advance the research.

Working on the project was a dream come true for Bower, who has been fascinated with the supercollider since first reading about it as a child.

"I was just so excited the whole time. I just had this big smile on my face," he says.

However, 12 weeks at the world's largest atom smasher did more than

expand Bower's scientific horizons. He says that the program also provided a valuable cultural experience.

Though his research group consisted mainly of graduate students from the University of Milan, Bower says he enjoyed connecting with science-minded people from all over the world.

"What surprised me was the way the theorists worked with the experimentalists," Bower recalls. "The LHC itself is the perfect example. When they planned it, people said it couldn't be done. Now, they're doing it." ■



Andrew Bower

## Opportunities Abound as Companies, Recruiters Flock to Career Fair

The demand for engineers, scientists, and mathematicians is so robust that recruiters outnumbered graduating seniors at this year's Fall Career Fair.

"The opportunities are aplenty so far," says Kevin Hewerdine, director of career services and employer relations. "Thirty more companies attended over last year's fall fair. Companies know they need engineers, scientists, and mathematicians to develop new products and drive future business success."

Company representatives aggressively seek Rose-Hulman job candidates because of the college's excellent national reputation, the students' keen problem-solving skills, and the role that graduates have played in their organization's success. Alumni are immediate contributors to their companies' bottom lines.

"The freshman interns we get from Rose-Hulman are able to contribute to product design, development, and testing after just one year of school," says Remy International Recruiter Kyle Phillip.

Meanwhile, Toyota and Frito-Lay seek Rose-Hulman students because the college produces graduates who easily transition into valued employees.

"Rose-Hulman students have done very well at Toyota in an aggressive, competitive environment," commented recruiter Scott Howard of Toyota.

"Adaptability is a key," explains Frito-Lay's Corey Richmond. "Frito-Lay is an ever-changing environment and we need engineers who are able to meet challenges head-on." ■

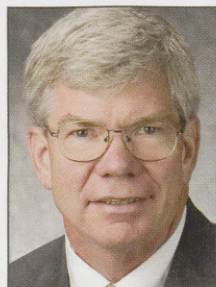


### BY THE NUMBERS:

- **183** companies attended the Fall Career Fair
- Over **500** recruiters sought candidates at Fair
- Over **1,300** interviews conducted during the next day
- **98%** job placement for Class of 2011



## Industry Leaders Added to Trustees



Michael Evans



Melendy Lovett



Maria Vaz



Ben Giant

Leaders in life sciences, business, and education will help set Rose-Hulman's future course as members of the Board of Trustees. New trustees include Michael Evans, founder and president of AIT Laboratories; Melendy Lovett, senior vice president of Texas Instruments; Maria Vaz, provost of Lawrence Technological University; and Ben Giant, the new young alumni representative.

Evans' risk taking, innovation, and leadership helped lead AIT Laboratories to becoming a premier testing and research institution, and a leader in the life sciences industry. He brought 20 years of experience in toxicology and medical training to founding the company. He also has served as a college professor and researcher. Evans received an honorary degree from Rose-Hulman last spring.

Lovett is president of worldwide business for Texas Instruments. She was previously vice president in the company's human resources organization, and

leads an initiative of TI women who are working to improve math and science education for girls in elementary through high school.

Vaz has been one of most versatile leaders in engineering and science education, having served in multiple leadership roles, including interim dean of the Lawrence Tech's College of Arts and Sciences and College of Engineering. She has led the college's efforts to develop programs for the innovative University High School. Vaz earned a Ph.D. in physics at Kent State University.

Giant, a 2003 mechanical engineering alumnus, is vice president of client services for ORS Inc., a leader in the hospital and health care industry. He spent the first four years of his career as a sales executive for Schneider Electric. Giant earned the Herman Moench Distinguished Senior Commendation in 2004 after serving as president of the Student Government Association. ■



## MOENCH HALL HALLWAYS GET FACELIFT

The oldest and most used academic building, Moench Hall, underwent substantial interior changes this summer. The most striking difference is a new color scheme, carpeting, lighting, and plants for the hallways on the top two floors. New furniture and additional electrical outlets were installed in The Commons Area, while all eight restrooms were totally renovated with sustainable fixtures. ■



The new residence hall will become another campus landmark.

## NEW RESIDENCE HALL TO ENHANCE STUDENT LIFE EXPERIENCES

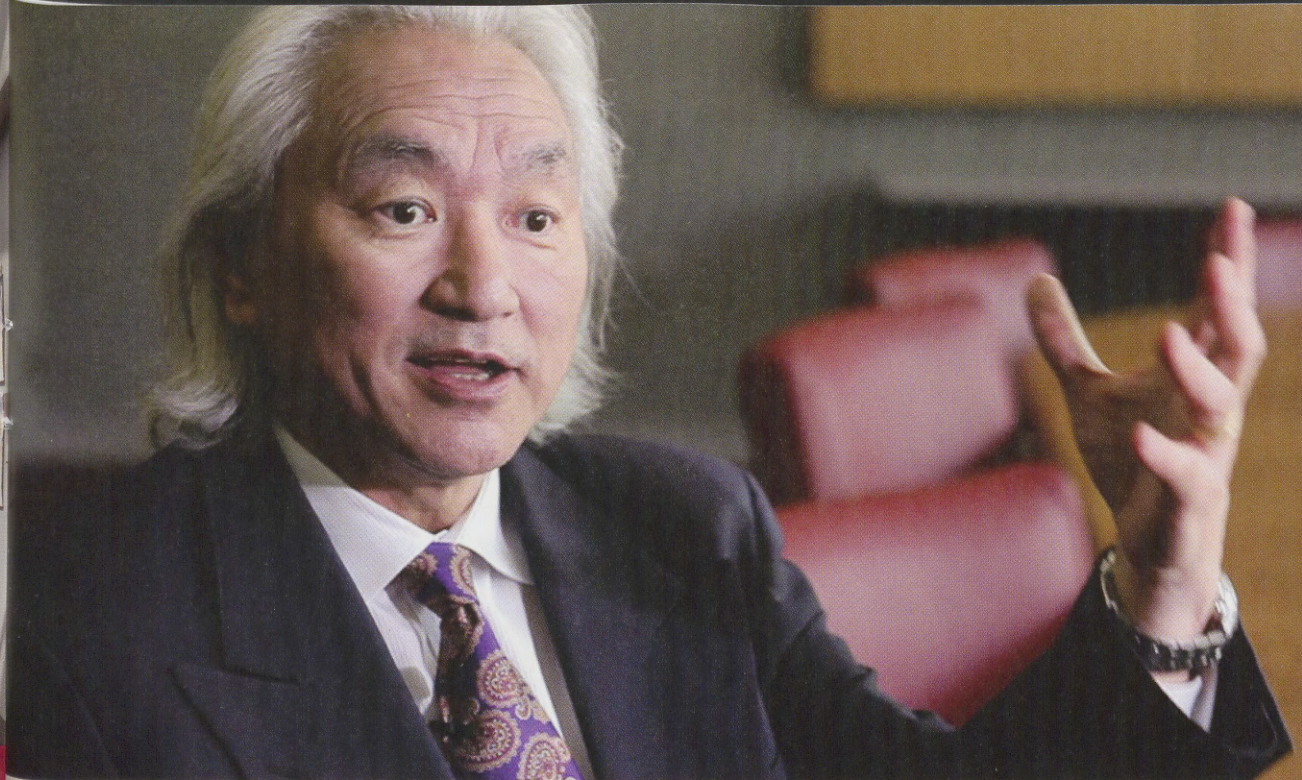
Construction has started for a new residence hall that will help satisfy the demand of upper-class students who want to live on campus.

The 240-bed, 75,000-square-foot residence hall will be located near the present apartment-style residence hall on the west edge of campus and provide space for upper-class students who currently must live off campus because of space

limitations. The new structure is planned to be open next fall.

The new four-floor residence hall will offer the latest amenities in residence living arrangements, with apartment- and suite-style rooms. It will be the first structure on campus that meets Leadership in Energy and Environmental Design (LEED) Silver Certificate standards, and reflects Rose-Hulman's commitment to sustainability. ■





# SCIENCE IS THE ENGINE OF PROSPERITY...

**Famed Physicist/Futurist Michio Kaku Provides Glimpse into How Science Will Pave Pathways to a New Civilization** by Dale Long

Engineers, scientists, and mathematicians will be the creative minds sparking the innovations leading the next technological wave that will create wealth and an exciting new civilization.

That's the vision of theoretical physicist Michio Kaku, the world's foremost authority on the future, who presented the Oscar C. Schmidt Memorial Lecture during this year's homecoming convocation. The event filled Hulbert Arena of the Sports and Recreation Center with students, faculty, staff members, alumni, and community residents.

Kaku, co-founder of string field theory, interviewed 300 of the world's top scientists for his *New York Times* best-selling book, *Physics of the Future: How Science Will Shape Human Destiny and Our Daily Lives by the Year 2100*. He discovered science comes in waves, sparked by a few key inventions.

"Science is the engine of prosperity, but innovation is the rocket fuel of science. Without innovation you get stagnation. We need more innovation," Kaku says. Steam-generated machines and the locomotive created the first technological wave, during the 1800s, and great wealth from the Industrial Revolution, he outlines. Advances in electricity and automobiles provided the frontier of the second wave in the early 1900s. Computing, satellites, lasers, and

telecommunications caused the third wave in the late 1900s.

Kaku believes it won't take another 100 years for the next technological wave to take place. In fact, in many cases, it has already started. This fourth wave will be based on a combination of four scientific areas: biotechnology, computers/telecommunications, artificial intelligence, and nanotechnology/material science.

This wave will feature the Internet being incorporated into every aspect of people's lives, available through eyeglasses and contact lenses; computers being as thin, flexible, and cheap as paper; transparent screens bringing 3D technology to home televisions; driverless cars, using GPS and radar; nanoparticles the size of molecules will locate and kill cancer cells; smart toilets will monitor personal health; persons will use thought waves to control machines, robots, and computers; and a "human body shop" will allow for the growth of new body organs from a person's cells, greatly increasing life expectancy and quality of life.

"These are some of the most exciting times to be a scientist," Kaku says. "As a physicist we rank civilizations by energy. We're now at a Type 0 civilization, getting our energy from dead plants

*Educate. Innovate. Celebrate!*



(coal and oil). A Type 1 civilization is truly planetary, mining the oceans and harnessing the power of hurricanes and volcanoes. Type 2 is stellar, a civilization that harnesses the power of two nearby stars. Type 3 is galactic, harnessing the black holes and the galaxy.

"If I was an engineer today, I would be excited about the fact that we're witnessing the birth of the greatest step in human civilization, the transition from a Type 0 to a Type 1 civilization. It might be 100 years away, but every headline I see points to the birth of this Type 1 society," he adds. "This Type 1 civilization will speak English, the first planetary language. The Internet is a Type 1 telephone system. Rock-n-roll is the beginning of a Type 1 youth culture. Chanel and Gucci are the beginning of fashion that's planetary. So, the steps are in place for this monumental shift toward a new type of civilization."

A theoretical physicist, Kaku's goal is to complete Einstein's dream of a "theory of everything"—a single elegant equation that unifies the fundamental forces of the universe. His two radio programs, "Explorations in Science" and "Science Fantastic," focus on topics such as frontiers in physics, black holes, time machines, hyperspace, the human genome project, and genetic engineering.

In an exclusive *Echoes* interview, Kaku discussed a variety of current topics about science and engineering, including:

**Keeping America's High-Tech Edge:** "America needs another 'Sputnik Moment' so that we can compete against China and India. We could be losing that edge as other countries realize that high tech is the meal ticket. You don't need to tell China and India that high tech is their meal ticket, but we need to get this message to the American people. It will be difficult to create 'Sputnik Moments' if we keep slashing science programs, like NASA."

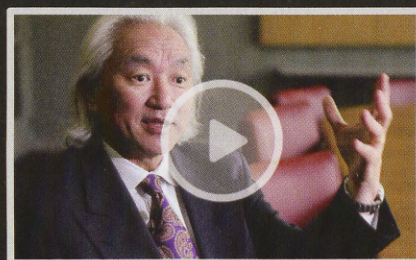
**Nurturing Future Innovators:** "There are three ingredients necessary to creating a scientist and engineer: parental support, having mentors and role models, and being motivated to succeed. Institutions like Rose-Hulman can play a significant role in providing the right environment to nurture the engineers and scientists of the future."

**It's Not All About Money and Success:** "Sometimes you have to follow your star. The perfect job is to get paid for what you love. Scientists and engineers need to love what they do. They shouldn't be encouraged to go into the field because of the high salaries. With great ideas comes great wealth. But the idea comes first." ■

### 'Rose-Hulman is a Jewel of a University': Kaku

Renowned physicist Michio Kaku knows where the most creative and innovative ideas will come from: Leading educational institutions like Rose-Hulman.

"Rose-Hulman is a jewel of a university," states Kaku while on campus. "So many universities snuff out that flower of curiosity in innovation in their students. Studying becomes a grind, becomes a chore rather than being a delight in the pursuit of knowledge. What we have (at Rose-Hulman) is a 'hot house', a hands-on university that



really unleashes the creativity and initiative of kids, rather than squashing them and turning them out like computer cards." ■

View excerpts of Kaku's interview and convocation at [www.rose-hulman.edu](http://www.rose-hulman.edu).



### Kaku Gets Innovation Award, Honorary Degree

Rose-Hulman recognized the career achievements of Michio Kaku by bestowing the Excellence in Innovation Award and an honorary degree upon the internationally known theoretical physicist during this year's homecoming convocation. He joined Indiana Governor Mitch Daniels in receiving the innovation award, which honors people with visionary leadership, passion, and a proven track record of success in engineering, science, and mathematics.

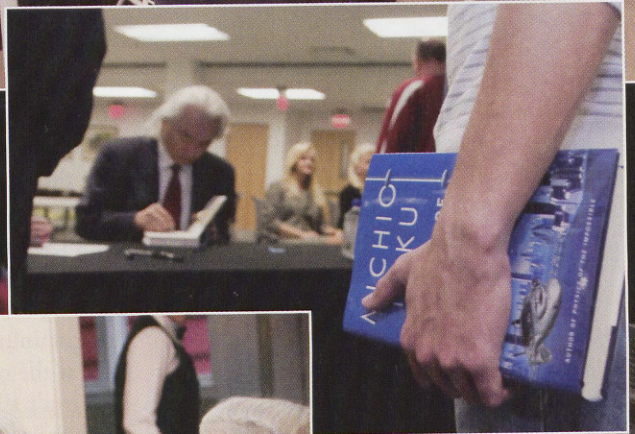
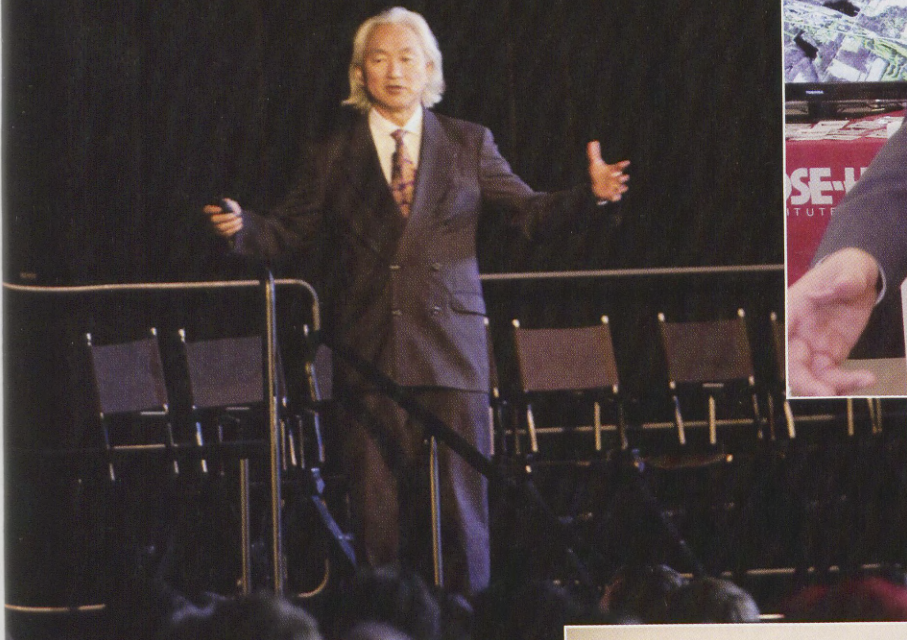
Kaku helps people understand the most fascinating and complex ideas in science through his best-selling books, award-winning Discovery Channel television program "Sci-Fi Science," radio programs, and guest appearances on *Late Show with David Letterman* and *Tonight Show with Jay Leno*.

Kaku received a bachelor's degree (summa cum laude) from Harvard University in 1968, graduating first in his physics class. He went on to the Berkeley Radiation Laboratory at the University of California-Berkeley and received a Ph.D. in 1972. He is now the Henry Semat Professor of Theoretical Physics at the Graduate Centre of the City University of New York. ■



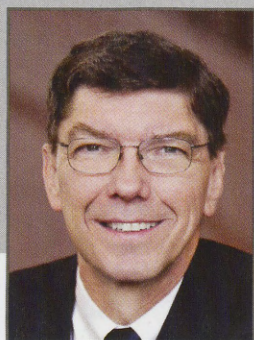


## KAKU'S CAMPUS VISIT

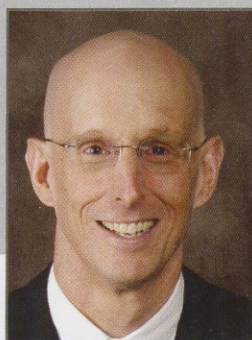




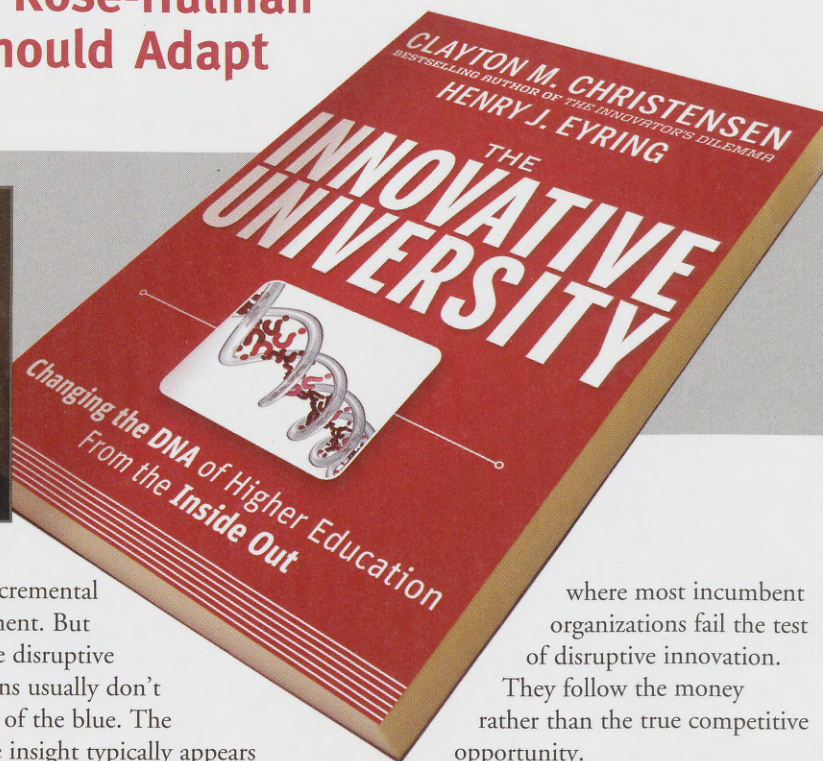
## Authors Suggest How Rose-Hulman and Other Colleges Should Adapt to Changing Times



Clayton Christensen



Henry Eyring



In their best-selling book *The Innovative University*, Clayton Christensen and Henry Eyring analyze the traditional university and how it needs to change for the future. They decipher how universities can find innovative, less costly ways of performing their uniquely valuable functions.

Christensen and Eyring responded to questions from Rose-Hulman administrators and faculty members who have contributed in the past to Innovation Workshops, an experience examining how higher education and engineering can provide innovative solutions to meet future challenges.

### What do you consider the core truths and the major myths regarding innovation?

Innovation is paradoxical: some of the core truths actually refute generally accepted myths. For example, it's natural to think of innovation as a breakthrough moment of sheer inspiration. Yet most innovation is of the "sustaining" kind, methodically planned and executed improvement of existing products and processes. Occasionally, someone hits on an innovation that "disrupts" the trend of

steady, incremental improvement. But even these disruptive innovations usually don't come out of the blue. The disruptive insight typically appears when a producer who can't afford to play the sustaining innovation game decides to look at the needs of would-be consumers who can't afford the over-engineered products and services that result from a long series of sustaining innovations.

Both types of innovation require methodical analysis and execution. What makes an innovation disruptive is not so much creative genius, but a new way of looking at things—through the lens of non-consumers who would be happy with a relatively crummy product or service that they can afford. The genius required to recognize this sort of opportunity is the simple ability to imagine how such a product or service could be steadily enhanced, through sustaining innovations, to the point that it could outperform existing offerings.

There's another kind of "genius" required to exploit such an opportunity: the discipline to trade the high profit margins of the existing offerings for this chance of disrupting the status quo. That's

where most incumbent organizations fail the test of disruptive innovation. They follow the money rather than the true competitive opportunity.

### What are the essential components of an educational experience designed to produce innovative graduates, and how would you measure success?

To produce innovative graduates an educational experience must be innovative. The traditional college is designed to convey information to students, not to foster innovation. Lectures, textbook readings, and written quizzes and exams motivate memorization. Innovation is much more likely to be fostered by nontraditional forms of learning. These include students teaching one another via peer instruction techniques in the classroom and out-of-class tutoring systems such as Rose-Hulman's Homework Hotline. Students also need to engage in real-world problem solving, as they do through engineering projects, competitions, and Rose-Hulman Ventures. Learning engagement with alumni and corporate partners is also



key, as happens via the Advanced Transportation Systems Program and similar programs.

The traditional curriculum also needs to be delivered in more innovative ways.

**"To produce innovative graduates an educational experience must be innovative."**

— Clayton Christensen and Henry Eyring  
Authors, *The Innovative University*

Online learning is more than a cheap alternative to face-to-face learning. Even the brightest students can learn some things better online than they can in the classroom. Sal Khan, founder of Khan Academy, is right about the need to invert the traditional instructional paradigm: lectures should be consumed at home, and homework—or the application of knowledge to problems—should be done in class. Especially when online learning is computer adaptive, a student can receive customized preparation for face-to-face learning experiences of the highest Socratic quality.

Initially, success measures should focus on these processes required to nurture innovative graduates. In time, success will be reflected in graduates' achievements, as measured by graduate school admission and employment rates, starting salaries, career achievements, and alumni giving.

**The model of a "research university" has been established for decades. Is there a place for a new institutional model, an innovation college or university, where innovation as both process and product is woven throughout the institution's operation, its learning environment, and the education it provides?**

Not only is there a place for such an institutional model, financial and competitive pressures will soon require the vast majority of college and universities to adopt this model or face extinction. That will be true even of many research universities, whose external funding will be squeezed between exploding health care and other entitlement costs and a federal debt ceiling that can't continue to rise indefinitely.

All institutions must—and can, thanks to new technologies—innovate in ways that allow them to continuously provide more and better educational opportunities with a given amount of resources. That has always been the key to survival and success in most industries, and it's becoming essential in higher education as well.

**Why do you believe innovation is not just the latest management fad, but rather is a fundamental organizational principle?**

Innovation is the only way to sustainably outperform the competition. Heretofore, colleges and universities have competed on the basis of prestige, which is an asset of limited supply that the elite institutions claimed more than 100 years ago. In the absence of measures of what students actually learn, the most prestigious schools attracted the most capable students and naturally produced the most capable graduates. The top-ranked schools of 100 years ago are the top-ranked today. That is set to change.

Christensen and Eyring addressed other questions from Rose-Hulman. See their answers at [www.rose-hulman.edu/echoes](http://www.rose-hulman.edu/echoes). ■

## Alumni and Faculty Give Opinions on Innovation

"It's moving to the forefront of the next generation of technology rather than following what others are doing."

— **Ralph A. Kirkpatrick**,  
Mechanical Engineering '74  
Vice President/Chief Engineer,  
Energy Engineering  
Division, General Electric



"It's the intersection of something that is, something that could be, and something that's needed."

— **Jeff Ready**,  
Computer Science '96  
Founder/Chief  
Executive Officer,  
Scale Computing



"Innovation could mean the invention of a new product, manufacturing process and/or functional procedure. It could also mean taking an existing concept and applying it in a different fashion. However, what's most important is the restlessness and/or curiosity an individual has to make something better."

— **Joe Matthews**,  
Electrical Engineering '91  
Purchasing Manager, Gentex



"At its heart, innovation is asking questions and challenging assumptions, never fully satisfied with the answers you get. Innovation exercises the muscles you use to react to change. It is a restless, continuous dissatisfaction with the way things are. It is at the heart of engineering."

— **Jeff Gilbert**,  
Mechanical Engineering '85  
President, Software  
Engineering Professionals





# INNOVATION

## IS PART OF OUR CAMPUS CULTURE

by Stacey Muncie

Engineering academic department heads, deans, and professional societies were recently asked, "Which colleges or universities are considered leaders or innovators in engineering education?" The 2,000 educators cited Rose-Hulman more times than any other institution for having innovative engineering practices.

Rose-Hulman has been at the forefront of innovation in higher education for nearly 20 years. It was among the first colleges to provide students with laptop computers, adapted the sophomore year curriculum, implemented computer tablets to laboratory practices, and developed the ground-breaking RosE-Portfolio student assessment tool.

Bill Kline, Interim Dean of Faculty, is leading the current charge for campus exploration and pursuit of innovation. This has featured annual summer Innovation Workshops, monthly Innovation Hour campus convocations, and innovative hotbeds like Rose-Hulman Ventures.

Kline sees the topic of innovation as a holistic philosophy involving the entire campus community. It is also, according to Kline, not a static state or a goal to be achieved, but rather a process of continual effort toward improvement. Building on Rose-Hulman's foundation of academic excellence, innovation involves an ever forward-moving evolution of the educational process.

"Innovation has been an intriguing topic for us. First, we've tried to understand whether innovation is real or whether it's just a fad," Kline says, "I think innovation is real and a priority for all types of organizations."

The concept of innovation in an



**Learning About Robotics:** Students have learned how to program robots to pick up and move chess pieces around the game board. Robotics education is an expanding area on campus.

academic and university setting is receiving wider attention and has recently been explored in the book *The Innovative University* by Clayton Christensen and Henry J. Eyring. (See story on Page 20-21.) The authors advocate the integration of nontraditional methods into the traditional university setting in order to foster innovation in the classroom.

As part of the 2010 Summer Innovation Workshop, one faculty group worked to develop an understanding of the skills required to call someone an innovator. "We need to ask: what's the academic foundation for innovation? What are the core skills innovators need to learn? We need to develop ways to teach those skills," Kline says.

Then, groups at the 2011 Summer Innovation Workshop examined activities

which could help develop the core competencies needed by students to produce innovation.

"The Innovation Workshops have been a great way to encourage faculty to work together on topics of common interest. The new Home for Environmentally Responsible Engineering program, focused on sustainability education, emerged from the first workshop," Kline says.

Faculty collaboration includes brainstorming to find the best projects, activities, and teaching methods to create innovative minds within the student body. The exchange of ideas is a key part of the process, even if many of those ideas never are implemented.

"We've got to be creative a whole bunch of times before we come up with an innovation," explains Don Richards,



professor of mechanical engineering and director of the Center for the Practice and Scholarship of Education.

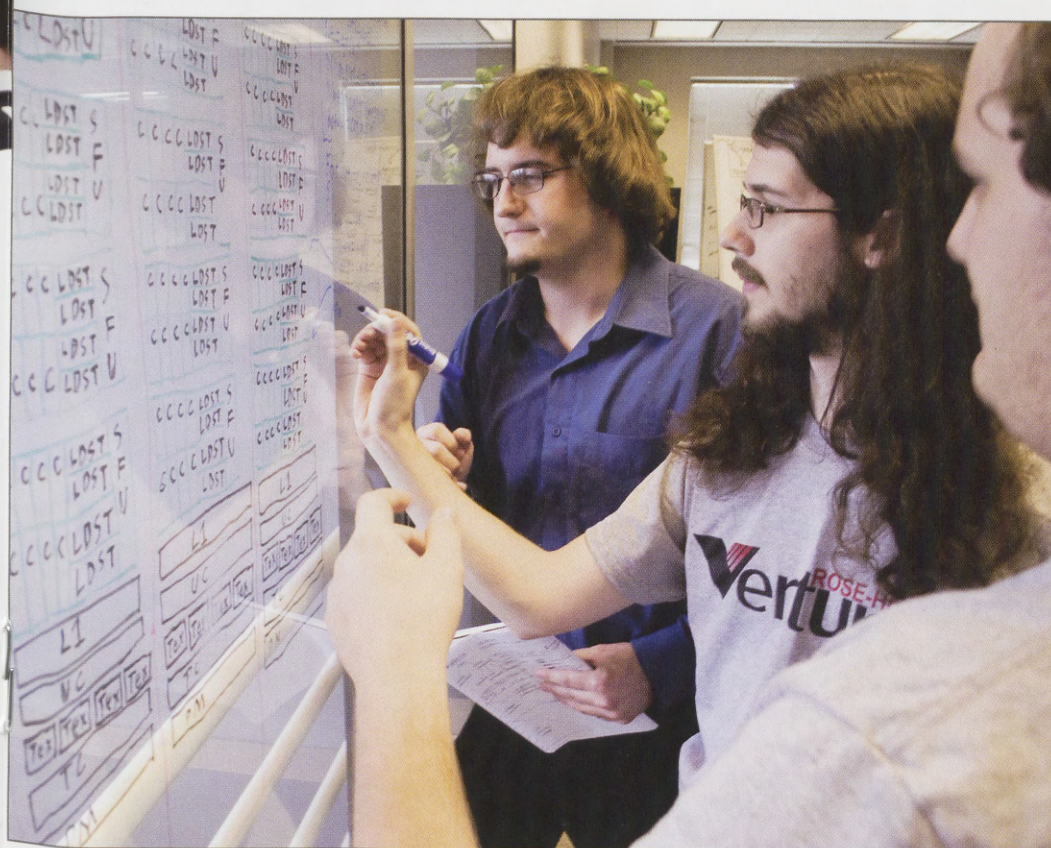
Kay C Dee, professor of applied biology and biomedical engineering, believes risk taking is inherent to the innovative process. She adds that one of the keys to encouraging student innovation is creating an environment where it's okay to fail.

"I've worked very hard at sending the message that it's okay to try something," Dee says. She tells her students, "Go big. I don't want you to make something safe that you know how to make. I want you to try something and fail spectacularly. I guarantee that if you document that well, and you tell me what you learned, you can do an excellent job on design."

Kline adds: "The companies employing our graduates are looking for those extra

abilities graduates have as innovators and leaders. Those abilities are nurtured in the great hands-on project opportunities we provide from Rose-Hulman Ventures, competition projects, and other project experiences across campus where students work on real-world, complex problems."

Innovation must be more than just a classroom experience; it must permeate the campus culture, Kline asserts. "The innovation theme becomes this way of thinking about the whole institute—how we teach, what we teach, and how we run the institute," he says. "It suggests that we all have the opportunity to think about innovation and we are all expected to change. It's the invitation to get involved and create the future of Rose-Hulman." ■



**Figuring Things Out:** Rose-Hulman Ventures gives students the opportunity to explore their problem-solving skills on real-world projects.

## Alumni and Faculty Give Opinions on Innovation

"You don't need to be an inventor or entrepreneur to be innovative—you simply need to focus on a process or area in your life whose performance can be enhanced, identify positive change that can impact it, then act on that change. Much like faith without works is dead, so is innovation without action."

— **Dustin Sapp,**

Computer Engineering '01  
Co-founder, TinderBox



"Innovation is the dynamic process of transforming the paradigm of people, functionality of products, sequences of processes, and purposes of environments into entities of new value."

— **Craig Downing,**

Interim Department Head &  
Associate Professor of  
Engineering Management



"Invention is the creative spark of what could be a better solution, while innovation is the proven better solution."

— **Paul Sechrist,**

Chemical Engineering '79  
Senior Fellow, Research and  
Development, UOP



"Innovation is the invitation to dream, the opportunity to reach, and a requirement for any organization to survive and prosper."

— **Bill Kline,**

Interim Dean of Faculty and  
Professor of Engineering  
Management





# STUDENT INNOVATION CENTER PUTS



Famed physicist, futurist, and author Michio Kaku cut the ribbon on Rose-Hulman's new Student Innovation Center during the 2011 homecoming celebration. The 16,000-square-foot facility is now home to several student competition teams which are part of the college's Advanced Transportation Systems (ATS) Program.

President Matt Branam, Board of Trustees Chairman Bill Fenoglio, Trustee David Hannum, Vice President and Chief Administrative Officer Rob Coons, and Vice President for Academic Affairs Phil Cornwell joined Kaku in the grand opening celebration.

Rose-Hulman's EcoCAR2, Human Powered Vehicle, Rose Efficient Vehicle, Rose Grand Prix Engineering, and Team Rose Motorsports competition teams will now be housed under one roof in this leading-edge, dedicated facility. It was constructed with room to grow which will provide space for future senior design projects, and other student innovation pursuits.

Previously, such teams were scattered among various locations, including Rose-Hulman's South Campus. The addition of the Student Innovation Center to the main campus will allow students to more easily access their projects.

"We are very excited to have this new flexible workspace. It was designed from the outset for team synergy," says President Branam. "Now, students will have a large

"Don't forget that this is a 'garage' and a lot of cool things happen in a garage."

— David Hannum, Trustee and '81 Alumnus





# S CREATIVITY UNDER ONE ROOF

by Stacey Muncie



area on campus where teams can work together at all hours. Tools, large lifts, and overhead cranes can be moved around and easily shared between teams to allow for greater collaboration. Teams will also have the opportunity to watch each other at work, provide feedback, and gain inspiration from each other."

Terre Haute native and third-generation alumnus, David Hannum, encouraged the students to use the space to the fullest, even if that means getting the shining new facility a little messy. "Don't forget that this is a 'garage' and a lot of cool things happen in a garage," Hannum says.

In addition to highlighting the Advanced Transportation Systems teams, the grand opening also provided a venue for showcasing innovative projects from other academic departments, as well as Rose-Hulman Ventures.

The facility was completed in record time. The project broke ground at the close of the 2010-2011 academic year, and construction and facilities staff, along with ATS team members and faculty, pulled together to ensure that the space was finished and all teams and projects were in place for the grand-opening celebration.

Zac Chambers, associate professor of mechanical engineering and director of the Advanced Transportation Systems Program, noted that the new facility would enhance students' hands-on experience.

"The new Student Innovation Center is a bold step forward for Rose-Hulman's already stellar education focus," Chambers states. "Allowing teams to be in close proximity and to share ideas, skills, and resources will help them become the technical innovators of tomorrow," he adds. ■



## Kirkpatrick Helping to Continue Edison's Legacy at GE

As Vice President and Chief Engineer for GE Energy, Ralph Kirkpatrick is at the forefront of innovation in one of the largest and most diverse companies in the world.

The 1974 mechanical engineering alumnus develops technical career path strategies, including professional oversight for all engineers. He is also responsible for product safety and reliability engineering, design processes and practices, technical training, and development.

"The energy industry has seen particularly dramatic shifts in the last decade," notes Kirkpatrick, who lives in Greenville, S.C. "Our business has transformed from a conventional power generation focus to a broad product portfolio via strategic acquisition and investment in new products."

Innovation has been ingrained in the company's culture since the days of Thomas Edison, Kirkpatrick says. From the light bulb to the world's first high-definition CT scanner, he says, "we recognize and encourage people to create things."

GE Energy continues Edison's spirit of innovation as it meets the world's energy challenges with gas turbine, wind turbine, solar, petroleum, and other energy solutions. "The world's demanding more and better products—more efficient, more environmentally friendly," he states, "and another piece of innovation is tying it to the direction the world is going."

Kirkpatrick stresses that Rose-Hulman's small size, faculty-student interaction, and emphasis on fundamentals gave him the background necessary to meet the demands of an ever-changing marketplace. "Engineering is an excellent foundation for almost anything you do," he adds. ■

## Zielke on Cutting Edge of Robotics Innovation

The marriage of tradition and technology is a hallmark of Rose-Hulman. Thus, it shouldn't be surprising that alumnus Jason Zielke is bringing innovation to a sport that dates back to medieval times.

Zielke, a 2000 mechanical engineering graduate, is President and Chief Operating Officer for Precise Path Robotics, an Indianapolis company that has developed the world's first commercially available robotic greens mower for golf courses. The company earned the Indiana Innovation Award earlier this year.

Precise Path's RG3 device is powered by the company's exclusive software and sensor technologies, which allow it to move precisely and safely while maintaining a consistent cutting height as it travels, unmanned, across the green.

"I see innovation as the successful implementation of a new idea that provides significantly more benefit than anything previously available in a specific industry," Zielke explains. "Many people see innovation as developing from completely new concepts, but for me, I see it more often coming from combining different previously successful ideas from a variety of diverse areas in a unique way to create value in a new space."

Zielke, who added a master's degree in engineering management from Rose-Hulman in 2002 and served as an Innovation Fellow at Rose-Hulman Ventures, adds, "Rose-Hulman provided the technical and leadership foundation for my career path, along with instilling the confidence that no challenge was too difficult to overcome, and the passion to always persevere." ■



Keep up with the latest alumni news at [www.alumni.rose-hulman.edu](http://www.alumni.rose-hulman.edu)



Ralph Kirkpatrick



Paul Sechrist



Tori Wenger



Jason Zielke



## Sechrist is a Prolific Inventor with Many Ideas

When it comes to innovation, alumnus Paul Sechrist is a repeat offender. The 1979 chemical engineering graduate and senior fellow at UOP's Research and Development Department in Chicago may be the single most prolific inventor among Rose-Hulman alumni.

Sechrist has invented or co-invented more than 60 patented items and processes during his career at UOP, the leading international supplier and licensor for the petroleum refining, gas processing, petrochemical production, and major manufacturing industries.

"Our company's lifeblood is innovation. The only products that we sell are based on ideas. We develop solutions

to improve profitability for oil refining, petrochemicals, and gas processing by licensing our technology," he explains.

During his career at UOP, Sechrist has made a difference for the environment as well as his employer. "One innovation that I am proud of is a process that has been commercialized to provide a greener solution to a waste stream," he notes.

Sechrist credits Rose-Hulman faculty with fostering a spirit of innovation among him and his classmates. "They were always passionate about the subject matter, and would use many techniques to get us to think about how to address the problem, rather than just work through a formula," he says. ■

## Wenger Helps Keep Rockwell Collins on Cutting Edge

Tori Wenger has used her computer programming and problem-solving skills to have a leadership role in avionics technology with Rockwell Collins. The Iowa-based company is a pioneer in the design, production, and support of innovative solutions for the aerospace and defense industries.

Wenger, a 2004 computer science alumna, is on the front lines of innovation in flight-deck avionics, cabin electronics, mission communications, information management, and simulation. She was recently awarded a patent for her work on a project that examined Methods of Combining Terrain Sources into an Avionics Terrain Database.

"There are several programs at Rockwell

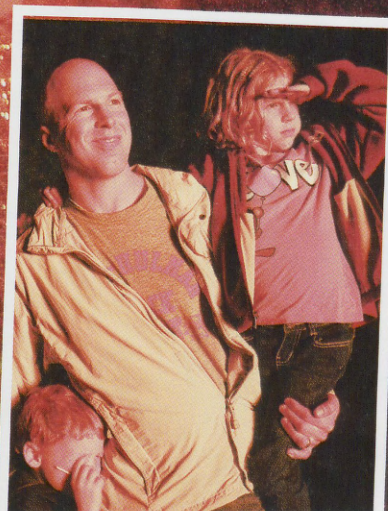
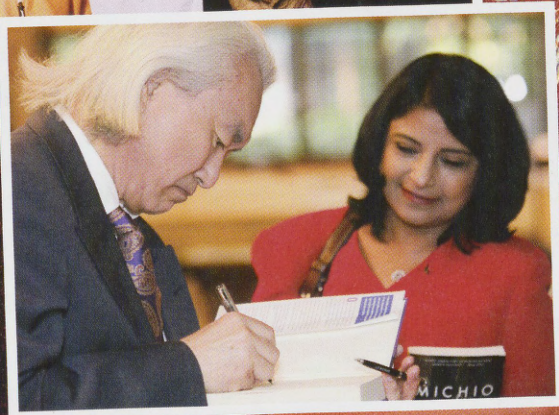
Collins that are industry-leading," Wenger explains, citing the company's recent rollout of a new integrated avionics system for Boeing's 787 Dreamliner as an example. "That was the first air transport class flight deck that used model-based development technology," she adds.

Wenger considers her Rose-Hulman education a springboard that has boosted her career skyward. Though she began her career with Rockwell Collins as a software engineer, she soon moved into leadership positions within the company.

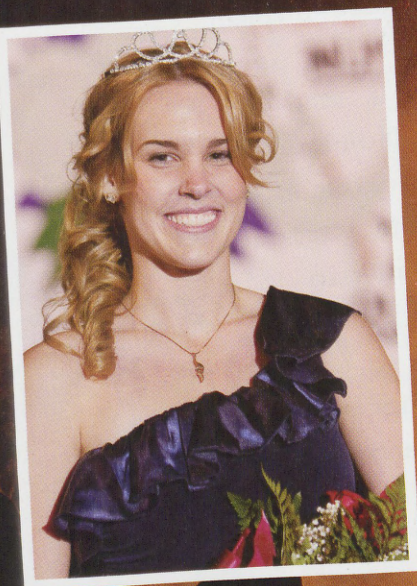
"The skills I gained at Rose-Hulman in team collaboration and project management really set me apart from my peers in industry," she says. ■



HOMECOMING PHOTO ALBUM







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# COMING HOME

## FRIENDSHIPS, MEMORIES AND GOOD TIMES BRING ALUMNI BACK FOR HOMECOMING

by Stacey Muncie

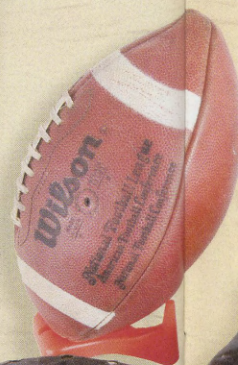
Campus buzzed with activity as alumni returned for this year's homecoming celebration. From the Class of 1938 to the Class of 2011, alumni of all ages gathered to reconnect with classmates, see the exciting new changes to campus, and visit with faculty and staff.

For many, it is an annual fall pilgrimage for them and their families. For others, it was their first time back in years. For all, homecoming provides a step back in time to the memories and traditions that made their Rose-Hulman experience unique.

Several beloved traditions are still thriving. Freshmen still built the bonfire. A homecoming queen was crowned, the Fightin' Engineers won the football game, and various alumni classes had reunions. There were also academic open houses, tailgate parties, and lots of good times.

This year, members of the Class of 1961 were inducted into the 50-Plus Club before singing a rousing rendition of "Dear Old Rose."

So, why do alumni return for homecoming? Let them tell you in their own words.







# ROSE TECH

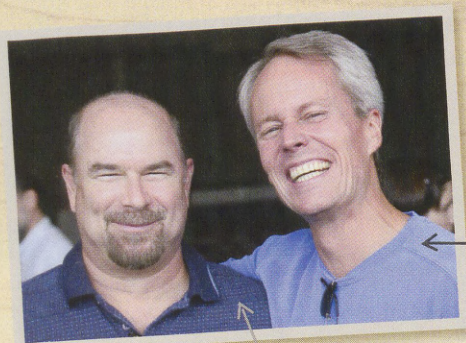
"I like to connect with my friends, talk to the professors, and see all the changes on campus."

- Erin Gawron '99



"I'm nostalgic for the school. Homecoming is just absolutely marvelous."

- Gene Glass '49



"It's fun to see the campus. It's beautiful. Everything looks great. The facilities are gorgeous. The campus is gorgeous."

- Bob Froetscher '80

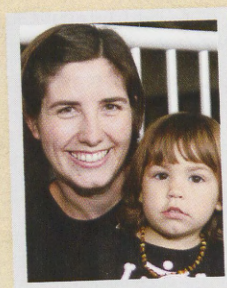
"I come to see my buddies from 30 years ago. I'm an Alpha Tau Omega and soccer alumnus, and I know lots of guys from three years behind me and three years ahead of me."

- Kevin Giles '81



"I come back to participate in the activities and keep contact with the faculty that I can. I'll be the oldest one here (for the Golden Gala)—I'm 95."

- Bob Dispennett '38



"I came back to see friends. I have family who are students now."

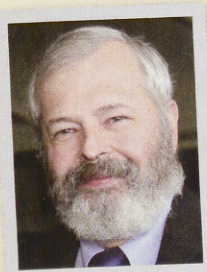
- Sarah Nelson '02



# HOMECOMING TRADITIONS



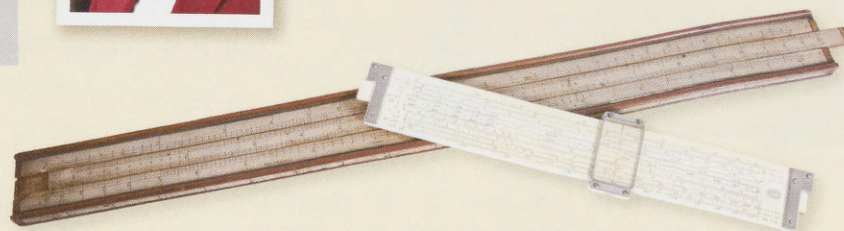
"I look forward to seeing all my friends. It's nice to see our underclassman friends, too."  
- Stephanie Drenten '11



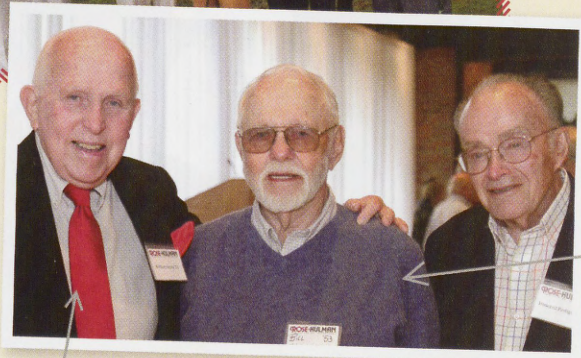
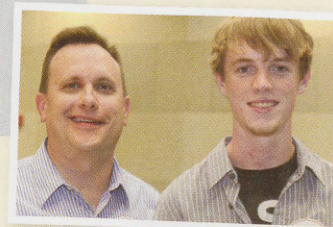
"I came back to see the changes on campus. It's a lot bigger—there were only 700 students when I was here!"  
- Mike Ayres '71



"I return to see my classmates. I have had a son and grandson that have graduated from here."  
- Bill Perkins '60



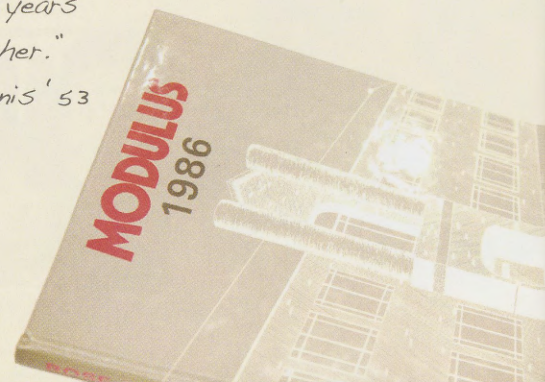
"I came back to see good friends I haven't seen in 25 years. Now my son (Kris) is a student."  
- Kirk Caraway '86



"I come back to see my buddies. This makes 51 years we've played golf together."  
- Bill Ennis '53

"I come back to see my classmates. We have a foursome that plays every year in the golf tournament. I think we're the oldest ones there."

- Bill Stewart '53





# Family Ties

## Moravec Siblings are a Family within 'The Rose Family'

by Dale Long

**All In The Family:** The Moravec family is pictured when all were attending Rose-Hulman last spring. The group includes (from left) Katherine, Patricia, Matt, Christina, and Leah.

The Rose-Hulman experience has been five times as sweet for the Moravec family, whose five siblings have appreciated the opportunities to learn about themselves and their futures in college.

It's a fascinating family within the Rose-Hulman Family, and possibly the most members of one family ever to attend the college at one time.

First, there's Matt, a junior computer engineering major who arrived in 2009. Then, there's the sophomore fraternal quadruplets that came last fall: Leah, a biomedical engineering major; Katherine, a chemical engineering/chemistry major; Patricia, a mechanical engineering/physics student; and Christina, who attended for one year before leaving campus this fall.

The remaining four are getting fully immersed into Rose-Hulman, becoming residence life leaders, competing on athletic teams, joining Greek organizations, and extending the family with newfound friends, faculty members, and staff colleagues.

"We have different personalities and

different goals, but the same family values," says Leah.

Patricia quickly interjects, "Most importantly, we're always supportive of each other. When we're having one of those frustrating days on campus, it's nice to have family here. We get together and share a good laugh."

The Moravec sisters also shared the same differential equations course last spring and are members of the same sorority, Delta Delta Delta. Other than that, the siblings rarely see each other on campus. They lived across three residence halls during the 2010-11 school year, are members of different student organizations, and rarely share the same personal schedules.

"There may be days in which we don't see each other. So, we have had the opportunity to create our own lives and spaces, despite attending the same college," says Katherine. "We cherish those rare times when we do get together. That's our quality 'family time.'"

Christina adds, "Last year was a learning

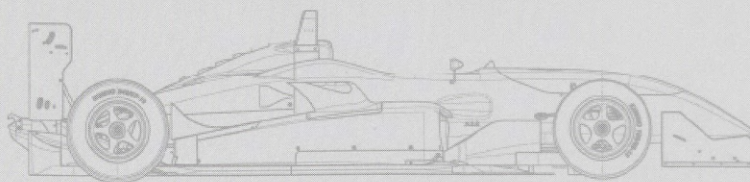
experience about what is important to me: family. Also, I have learned to take care of myself and be proud of my work no matter the grade. I have grown as a person and had the opportunity to have my family here to enjoy the experience."

Matt warmly accepted his sisters to Rose-Hulman despite originally encouraging them to attend different colleges. It's a coincidence that they all chose Rose-Hulman. In big brother fashion he stated, "I wanted them to be happy. I don't see them much on campus. I have my own life, friends, and responsibilities. However, it's nice knowing that they're here."

Also welcoming the arrangement has been the siblings' parents, Sue Wiethoff of Seymour, Ind., and Anthony Moravec of Columbus, Ind. This allows them to visit four of their children in one trip.

"We have always been close," says Patricia. "We know that the time is coming for us to go our separate ways. So, we're cherishing all the time we have now." ■





## BRANAM AND STUDENTS VISIT ITALY MOTORSPORTS

**Campus Group Gets Valuable Lessons from Dallara and Ferrari during Trip to Italy**

Gian Paolo Dallara (right), founder and owner of Dallara Automobili, passes along advice about motorsport vehicle design to Rose-Hulman President Matt Branam, Mechanical Engineering Assistant Professor Patrick Cunningham, and Grand Prix Formula SAE team member Matt Kennedy (left).



Mechanical engineering students and faculty members accompanied President Matt Branam and Indianapolis Motor Speedway President and Chief Executive Officer Jeff Belskus, vice chair of Rose-Hulman's Board of Trustees, on a trip to Varano, Italy this fall to visit some of the best innovation in Italian industry.

The educational trip came at the invitation of Gian Paolo Dallara, founder of Dallara Automobili, who is known to all Italians and motorsports aficionados by his nickname, "The Engineer." Dallara Automobili is the most successful international motorsports vehicle design company. The company provided the six-day, all-expense-paid trip, and Gian Paolo Dallara shared his philosophy for innovation and success while accompanying the group during a tour of Dallara Automobili's facility.

Rose-Hulman leaders hope to establish an internship program for students to learn motorsports design at Dallara Automobili's production facilities in Italy and Indianapolis.

"We are very proud of our association with The Engineer (Gian Paolo Dallara) and the fine people of Dallara Automobili, and we have high expectations for increased collaboration with his company," says Branam. "The most important message that we have brought back is that we learn by doing, but with whom we do it may determine our success in the future."

The student members of Rose-Hulman's Grand Prix Engineering (RoseGPE) Formula SAE motorsports team also toured the state-of-the-art facilities of Barilla Pasta and Ferrari. The trip included motorsports team faculty advisers Zac Chambers, associate professor of mechanical engineering and director of the college's Advanced Transportation Systems program, and Patrick Cunningham, assistant professor of mechanical engineering.

The students also had the opportunity to meet with international counterparts at a Formula SAE competition in Varano. "Even though we're from all these different backgrounds, we have so much in common," team member Daniel Watson says of his interaction with students from Israel, India, Germany, and elsewhere.

**"The most important message that we have brought back is that we learn by doing, but with whom we do it may determine our success in the future."**

— Matt Branam, Rose-Hulman President

Members of Rose-Hulman's student group were impressed by the cooperative spirit among the teams. Although they were competitors, the racers also reached out to one another to offer assistance, spare parts, or equipment that was needed.

"Our delegation was thrilled to see the energy and enthusiasm of young people in Italy for the pursuit of the limits of today's technology," says Branam.

Dallara's pursuit of excellence, and their philosophy of learning from failures as a tool to generate greater success, creates an environment of innovation, team spirit, and employee pride in their work.

"Our students were inspired to see the mathematical modeling and simulation of vehicle dynamics at Dallara Automobili, and to meet the young people involved in this work every day," Branam says. "I know our students brought these inspirations back to their studies here." ■





Bob Jacobs

## JACOBS TAKES OVER MANAGEMENT OF SHERATON & WESTIN BRANDS

What might seem as the road less traveled has allowed Bob Jacobs to combine his unique problem-solving abilities, people skills, and creativity. He was recently named vice president of brand management for Starwood Hotels & Resorts Worldwide's North American operations of Sheraton and Westin Hotels.

"For me, marketing is the perfect combination of the right brain and

left brain working together," the 1990 chemical engineering alumnus explains.

Jacobs had more than 20 years of brand management and marketing/communications experience at Procter & Gamble. He organized innovative marketing programs and was a pioneer in the use of digital, public relations, and shopper marketing on some of P&G's biggest brands, including Pampers, Crest, Duracell, Pantene, and Tide.

"Bob's experience leading global brands combined with his marketing communications background make him

the perfect choice to lead the marketing efforts for Starwood's two largest brands here in North America" says David Marr, senior vice president of brand management for North America.

Jacobs has brought an engineering approach to marketing and business. Just as engineers employ the scientific method, "the business world operates very much the same way—applying a data-driven, methodical approach to brand management," he says. ■

## Industry Experts Pass Along Valuable Advice

"You plan your work and you work your plan. And, you do it aggressively." That's the advice alumnus and trustee James Baumgardt (ChE, '70) gave student interns, faculty, and staff members in launching this year's speakers series at Rose-Hulman Ventures.

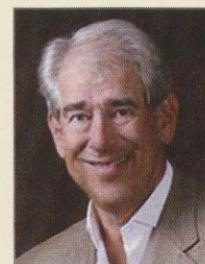
It was most appropriate that Baumgardt gave the opening speech: the series has been named in honor of the life sciences entrepreneur.

Baumgardt is the chairman of the

board for the NICO Corporation, is director of Neochord Inc., and is a partner of Twilight Ventures. He is the former executive director of business development at Eli Lilly and Company, served as president of the Guidant Foundation, was president of Guidant Sales Corporation, is the former director of Laserscope, and helped co-found Suros Surgical Systems.

Other alumni lending their business, leadership, and technical expertise to

this year's series were Ralph Kirkpatrick (ME, '74), vice president and chief engineer for GE Energy; and Wes Bolsen (EE, '00), chief marketing officer and vice president of government affairs for Coskata Inc., a biology-based energy company. ■



James Baumgardt



Erik Jansen

## Jansen Advising Treasury about Face of Future Coins

Erik Jansen has found the perfect avenue for his love of coin collecting, his expertise in finance and business, and background in metallurgy: He's helping the United States Mint determine how your money looks.

Jansen (EE, '78) has started a four-year term on the Citizens Coinage Advisory Committee (CCAC), an 11-member group that advises the Secretary of the Treasury on theme and design proposals relating to circulating coinage, bullion

coinage, Congressional Gold Medals, and other commemorative issues produced by the U.S. Mint.

In the coin world, being selected to the CCAC is akin to being drafted from an office softball team to play for the New York Yankees, according to Jansen.

"It is a huge responsibility and something that I, and the other committee members, take very seriously," Jansen says. "After all, the images on our coinage represent what we, as a culture, hold dear. Sitting at the design table with the best artists and sculptors in the country is the stuff of fantasy—until the day comes when you

get one of the coins you helped design in pocket change."

The U.S. Mint strikes almost 10 billion coins a year. "We often have as many as three dozen drawings submitted for a single coin to be made—from which we have to select just two as the CCAC recommendation for striking. From there the Secretary of the Treasury makes the final decision and then the Mint cranks up production. It's a pretty heady ride for a coin geek like me."

Jansen, a lifelong coin collector, is one of three CCAC members who represent the interests of the general public. ■



# Bailey Challenge

By Professor Emeritus Herb Bailey

I was pleased to get so many solutions to the summer challenge. Was there more time? Was it easier? Was it more interesting?

The problems for this issue are finding counterfeit coins that are mixed in with some genuine coins, using a pan balance. The **warm-up problem** is shown in the figure. There are many versions of this problem and I may have used one in this column several years ago. My interest was recently renewed by a problem posed in *The College Mathematics Journal*, problem 954. I am proud that I was able to solve this problem. I was embarrassed that it took me about 50 hours over a period of five weeks, and furthermore my solution was not elegant. Problem 954 is the super bonus below.

## FALL PROBLEM

Given four look-alike coins with two of them genuine and two slightly heavy, find the heavy ones using two comparisons on a beam balance.

## BONUS PROBLEM

Given four look-alike coins with two of them genuine, one slightly (1 gram) heavier and one slightly (1 gram) lighter. Find the counterfeit ones using three comparisons on a beam balance.

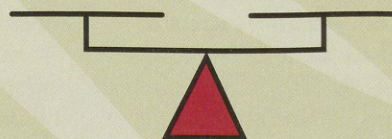
## SUPER BONUS PROBLEM

Given 12 look-alike coins, with 10 of them genuine and two slightly heavy, find the heavy ones using four comparisons on a beam balance.

## WARM-UP PROBLEM



THREE GOLD COINS.  
ONE HEAVY, FIND IT  
USING BALANCE ONCE



**SOLUTION TO THE SPRING ISSUE PROBLEM:** Let  $MA + MA + MA = EEL$ , where the letters represent distinct digits with E and M not zero. You found many ways to determine all the possible solutions. Since  $EEL = 3(MA)$ , then EEL is divisible by 3 and therefore the sum of its digits is divisible by 3. Also since  $E > 0$  and  $3(MA) < 300$ , then  $110 \leq EEL < 300$ . Thus  $E = 1$  or  $E = 2$ . Hence the only candidates for EEL are 111, 114, 117, 222, 225, and 228. Since  $L \neq E$ , we rule out 111, and 222. If  $EEL = 225$ , then  $MA = 225/3 = 75$  and  $A = L$  which is excluded. This leaves 114, 117, and 228 as the only possible values for EEL.

$$\begin{array}{r} MA \\ MA \\ + MA \\ \hline EEL \end{array}$$

Send your solutions to [Herb.Bailey@rose-hulman.edu](mailto:Herb.Bailey@rose-hulman.edu) or to Herb Bailey, Department. of Mathematics, Rose-Hulman Institute of Technology, 5500 Wabash Ave., Terre Haute, IN 47803. If you are an alumnus, please include your class year.

There were 71 solvers of the Summer Challenge and they are listed on page 43.



## PHOTO ALBUM



**GE Key Executives:** Ralph Kirkpatrick (center), ME '74, and Chris Anderson, ME/MA '99, are proud to welcome Rose-Hulman to the select list of General Electric's Executive Schools. Kirkpatrick is vice president and chief engineer for GE Energy, while Anderson is an executive for GE Aviation.



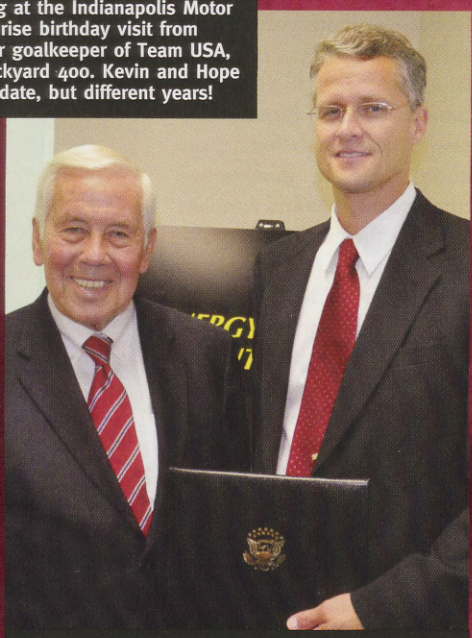
**Surprise Birthday Visit:** Kevin Forbes (CE, '85), director of engineering at the Indianapolis Motor Speedway, got a surprise birthday visit from Hope Solo, star soccer goalkeeper of Team USA, during this year's Brickyard 400. Kevin and Hope share the same birth date, but different years!



**Making More Memories:** Lambda Chi Alpha alumni Mike McPherron (CHE, '79) and Mike Persinger (ME, '81) put the finishing touches on a brick walkway for the fraternity house. More than 50 alumni returned to campus for this summer's activity.



**Airborne Engineer:** James Baxter, ME '06, prepares for takeoff in U.S. Air Force pilot training. He hopes to earn his official wings in June.



**Energy Award Winner:** Ed Fancher (right), ME '92, president of Energy Management Solutions, accepts the Lugar Energy Patriot Award from U.S. Sen. Richard Lugar. Fancher is the 30th recipient of the award.



**Hitting The Links:** Alumni playing in this summer's Scholarship Golf Scramble included (from left) Eric Tryon, ME '97; Todd Holthaus, EE '94; Jeff Schwegman, ME '97; and Kyle Curry, ME '96.



# CLASS NOTES

## Class Notes

**1967**

**Bill Holmes (ME)** authored the article *Energy Monitoring 2.0: How the Web Will Save Our Bacon* published this August on Sustainable Planet, a website devoted to advancing the sustainability of manufacturing on a global basis. It includes references to classmates Dick Osborn and Jim Grundy. Bill founded Holmes Energy LLC and developed the AutoPilot Monitoring System in 1979. He is the recipient of a Department of Energy Award for Energy Innovation and was named Indiana Energy Manager of the Year in 1990. He is now finishing his doctorate in industrial engineering and management at Oklahoma State University.

**1968**

**Robert Casey (ME)** is Curator of Transportation at the famous Henry Ford Museum in Dearborn, Michigan. He has supervised a makeover of the museum's Automobile in American Life exhibit, one of the most significant exhibitions of its kind in the world. Driving America is a new part of the exhibit, opening in time for the Detroit Auto Show in January. Rose-Hulman will be a part of this new section—thanks to Bob's efforts—as it will include a photo of an electric-powered Commuta Car that was renovated by Rose-Hulman senior Chad Conway. The photo features Chad taking his date to the prom in the car.

**1974**

**Chris Georgakas (ECON/MA)**, senior vice president of investments for Wells Fargo Advisors, has been designated a member of the firm's "Premier Advisors Program," a distinction that reflects Chris' achievement

of professional success through a consistent commitment to client service. This program represents the best of the best of advisors at Wells Fargo Advisors. He has been a financial advisor with Wells Fargo Advisors for three years and has 25 years of experience in the brokerage industry. He lives in Bellbrook, Ohio.

**1976**

**Patrick Noyes (ME)** received Rose-Hulman's Honor Alumnus Award at Homecoming. He is the founder, president and chief executive officer of Grenadier Energy Partners. He formerly was chairman and president of Stroud Energy, and vice president for Mitchell Energy Company. *See photo on page 40.*

**1977**

**Richard W. Butwin (CE)** has returned to Ghafari Associates as vice president of Indiana operations. His 30 years of experience in the A/E industry encompasses leadership and management experience for a variety of manufacturing, commercial, transportation, government, and gaming projects. He previously spent more than 15 years at Ghafari's Michigan headquarters and Indianapolis office.

**1978**

**Erik Jansen (EE)** is the newest member of the U.S. Mint's Citizens Coinage Advisory Committee, an 11-member national panel which helps determine how money looks. *Find out more on page 35.*

**1982**

**Jud Alexander (ME)** has been promoted to the newly created position of executive vice president of Continental Fan Manufacturing Inc. He will direct

the engineering and marketing departments, along with the sales and customer service portfolios. He joined the company in 2004 and has more than 25 years of experience in the HVAC industry with Continental Fan, Trane, Titus, and Penn Ventilation. He lives in Dayton, Ohio.

**1983**

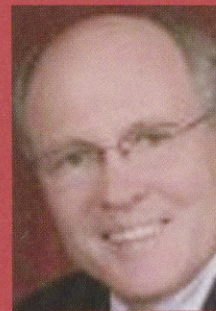
**Chester Crow (EE)** received the Honor Alumni Award from the Alumni Association for his career achievements and support of his alma mater. Crow is president of PowerSource and opened the new venture Quantum Development Corp. He has supported the Department of Chemistry and Biochemistry's algae biodiesel research efforts.

**1984**

**Doug Carlton (ME)** has been promoted to vice president of standards for Click Bond, Inc., being in charge of the engineering and drafting department. He has been with the company since 1992. He is a member of the National Aerospace Standards Committee and Aerospace Fastener Standards Advisory Committee.

**Ed Sammond (CE)** is business development manager for Whitford's Flexible Finishes-North America division. Whitford is the maker of the world's largest line of fluoropolymer coatings. Ed has more than 25 years of experience in automotive technical and business areas. He spent six years overseas, dividing his time between Japan and Europe. This time abroad helped him to understand international business methods and culture, as well as becoming fluent in Japanese.

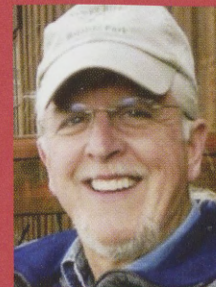
Richard W. Butwin



Doug Carlton



Bill Holmes



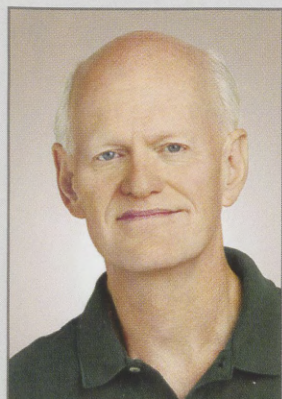
Matthew Lovell



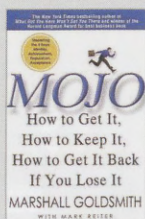
Rob Tiller







**Marshall Goldsmith** ('70, MA), a world authority in helping successful leaders get even better, has written another *New York Times* best-selling business book, *MOJO: How to Get It, How to Keep It, and How to Get It Back When You Lose It!* It builds off the success of his *What Got You Here Won't Get You There* (2007), winner of the Harold Longman Award for Business Book of the Year. Marshall has been recognized as one of the 15 most influential business thinkers in the world by *The (London) Times* and *Forbes*, and the American Management Association named him as one of 50 great thinkers and leaders who have influenced the field of management over the past 80 years. He has regular blogs at HBR.org, BusinessWeek.com and HuffingtonPost.com. ■



**1988**

**Rob Tiller (ChE)** was awarded the 2011 Halford Award for Leadership in Humane Education by the South Carolina Area Health Consortium, through the Medical University of South Carolina. The award recognized Tiller for outstanding contributions as a role model and teacher of family medicine to students and residents in training for careers in primary health care in South Carolina. He has been a professor of family medicine for the past 10 years at the Self Regional Healthcare Family Medicine Residency program in Greenwood, S.C. He earned his medical degree from Indiana University.

**1989**

**Scott Jaeger (EE)** was recognized for serving as immediate past chairman of the Terre Haute Chamber of Commerce's Board of Directors. He is general manager of Toyota of Terre Haute.

**Chris Shadday (ChE)** has been appointed president of Viance, a joint venture between Rockwood Holdings and The Dow Chemical Company. It specializes in microbial control technologies for the treated wood market segment. He formerly was business segment manager at Rohm and Haas.

**1990**

**Bob Jacobs (ChE)** has been named vice president of North America brand management for Sheraton and Westin Hotels by Starwood Hotels and Resorts Worldwide, Inc. He is overseeing marketing, advertising, brand management and strategic positioning for Starwood's two largest, upper-upscale brands in the United States and Canada. *Find out more on page 35.*

**1991**

**Chad Elmore (CHEM)** has been promoted to global head of isotope chemistry for AstraZeneca Pharmaceuticals. He is responsible for the coordination of the preparation and use of compounds labeled with stable isotopes and long-lived radioactive isotopes. Chad and his family have relocated to Mölndal, Sweden.

**1992**

**Ed Fancher (ME)** was the 30th recipient of the Lugar Energy Patriot Award, presented by U.S. Sen. Richard Lugar. Fancher founded Energy Management Solutions, which provides monitoring and measuring services for commercial and industrial clients. Lugar saluted Fancher's leadership and initiative in taking action to improve America's energy security. *See photo on page 37.*

**1994**

**Rob Rogers (CE)** was recently awarded a second patent for software relating to synchronizing 4D technology and Global Positioning System networks. He is an independent software developer.

**1995**

**Rich Miller (ME)** has joined the faculty at the University of Dallas as a tenure-track professor in operations management. He is the coordinator for the supply chain concentration in the university's MBA program. He earned his Ph.D. in operations management from Cleveland State University in 2010.

**2000**

**Eric Haenlein (CE)** received Rose-Hulman's Honor Alumni Award during homecoming. He has been an award-winning project manager

for Indianapolis-based Wessler Engineering. He was a founding member and past-president of the Rose-Hulman Alumni Association's Young Alumni Council. *See photo on page 40.*

**2001**

**Dustin Sapp (CPE)** was recognized as a Distinguished Young Alumnus during Rose-Hulman's homecoming. He is an Indianapolis-based entrepreneur whose latest venture is TinderBox. *See photo on page 40.*

**2002**

**Kyle Allen (ME/ECON)** is assistant professor of biomedical engineering at the University of Florida. He is building a new research program in musculoskeletal disease and pain. Kyle formerly was assistant research professor at Duke University after earning his Ph.D. in bioengineering from Rice University in 2006.

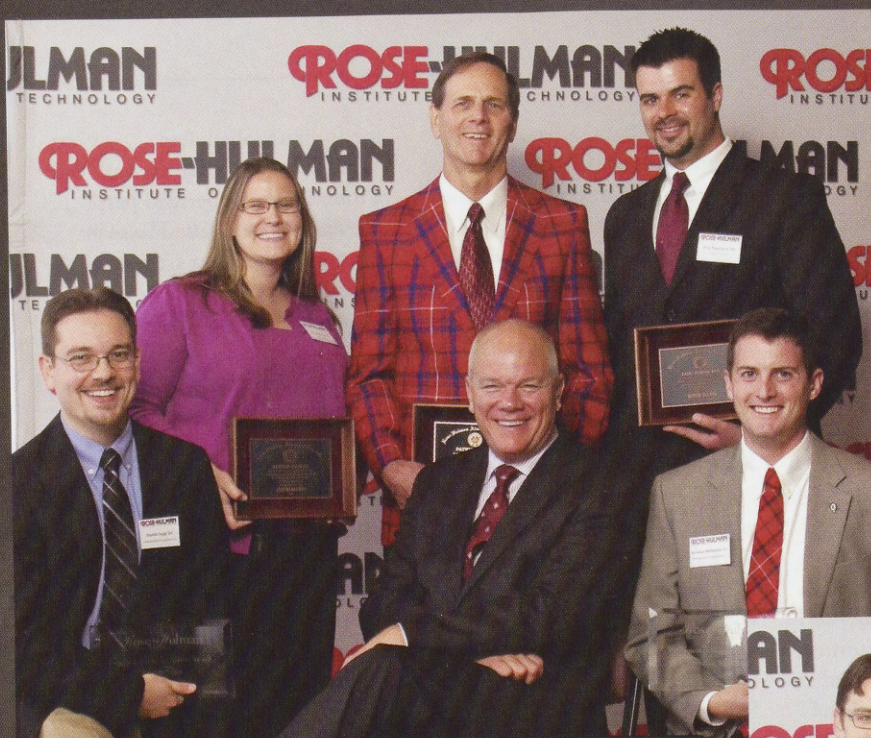
**2003**

**Alison Bailey (EE)** received Rose-Hulman's Honor Alumni Award during homecoming. She is a flight test engineer for Northrop Grumman Electronic Systems, earning over 2,000 flight hours on experimental aircrafts. She received Northrop Grumman's Presidential Award for Excellence for her work in delivering aircraft for the Royal Australian Air Force. *See photo on page 40.*

**Daniel Gallagher (ME)** is now the manager of proposal development at Raytheon Technical Services Company in Indianapolis.



## HOMECOMING AWARDS



Alumni Award Winners: Joining President Matt Branam were this year's Distinguished Young Alumni Award winners Dustin Sapp '01 (front, left) and Brendan McKiernan '07 (right). In the back row are Honor Alumni Award Winners Alison Bailey '03, Patrick Noyes '76, and Eric Haenlein '00. Not pictured is Chester Crow '83.



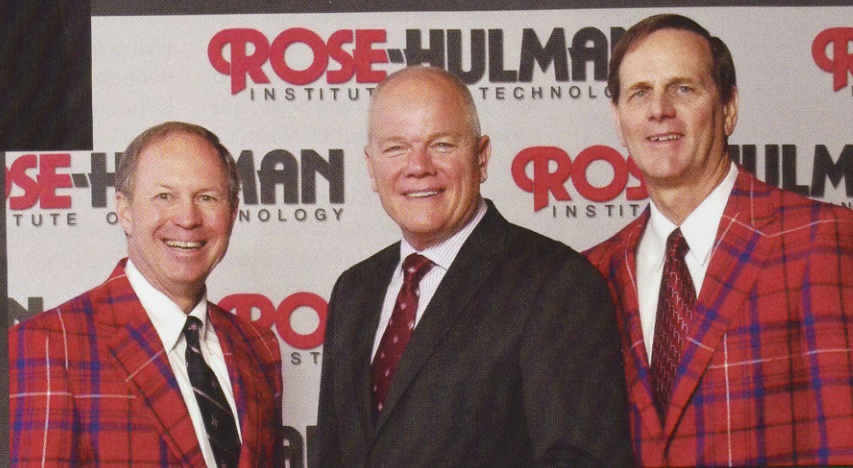
Honorary Alumni: Given honorary status in the Alumni Association were Kevin Sutterer, head of the Department of Civil Engineering, and Gary Waite, a fabricator for the Office of Facilities Operations. Both have had children earn Rose-Hulman degrees.



Joining President's GOLD Circle: President Matt Branam thanked young alumni (from left) Nathan Carlson '07, Alison Bailey '03, and Greg Gotwald '01 for supporting Rose-Hulman through the President's GOLD Circle.



Outgoing Alumni President: Dick Neal '77 (center) is congratulated by President Matt Branam and Rickey McCurry, vice president of institutional advancement, for his service as Alumni Association President during the past year.



Earning Plaid Jackets: President Matt Branam welcomed 1976 classmates Jim Gidcumb (left) and Pat Noyes into the Chauncey Rose Society. Not pictured was Carol Borgan, wife of alumnus/trustee Jeff Borgan '77.



**David Honan (CE, '05)** has combined his love of trains, engineering, and photography into an award-winning hobby. He won first-place honors in *Trains Magazine's* 2009 Photography Contest and placed runner up in 2010. This first-place photo, "Bridging the Gap" (right), depicts "an engineering solution for overcoming an obstacle," according to Honan, rail project engineer for HDR Engineering in the northwest United States. He captured the photo after driving into the heart of the Cascade Range, directly into the path of a blizzard headed for Stevens Pass. He originally intended to capture night images in the snow around the Foss River Bridge above Skykomish, Wash. Long after sunset, David waited for the night's third eastbound train when he was amazed to realize at 9:30 p.m., in the midst of a blizzard, that a three-quarter moon had turned every snow flake into a tiny mirror. This set the scene aglow with a diffused grey light. A few minutes later, an eastbound train burst out of the trees, its headlights infusing the freshly-fallen snow with a golden glow. Honan has received several honorable mention awards in the Australian Powerhouse Museum's Trainspotting Photo Contest and regional



Puget Sound Photo Contest. See more of David's outstanding photography work at [flickr.com/photos/dwhonan](http://flickr.com/photos/dwhonan). ■

#### 2004

**Jeff Keacher (EE)** has taken his love of hockey on a cross country journey to play a hockey game in all 50 states, as well as Canada's 10 providences, before Christmas. He began the journey on June 20 in Winnipeg, Manitoba. Keacher, who earned a master's degree from Stanford, abandoned a software consulting business (and \$125,000 annual salary) for his personal goal. "I wish more people would make the opportunity for themselves and do things like this instead of having it be a wish," he told the *St. Paul Pioneer-Press*.

**Christopher I. Meyer (ChE)** earned his a law degree from Washington University's Law School in May. He has joined the intellectual property practice group of Dinsmore & Shohl in Dayton, Ohio. Chris also has a master's degree in biomedical engineering (2006).

**Dianna (Artigue) Overmyer (ChE)** is a project engineer at Clarke Engineering in Fishers, Ind. She and her husband, Kyle Overmyer (ME, '09), live in Indianapolis.

#### 2005

**Dave Olecki (ME)** earned an MBA from the University of Notre Dame in May and is now a product manager for Grundfos.

**Nick Snyder (ME)** is the lead engineer for IndyCar driver Alex Tagliani with Sam Schmidt Motorsports. He started the 2011 IndyCar season as engineer for driver Mike Conway with Andretti Autosport and was engineer for Tony Kanaan with Andretti in 2010.

**Joe Steinocher (ME)** was promoted to plant manager for Schreiber Foods at Richland Center, Wis. He formerly was an expansion/production team leader at the company's plant in Shippensburg, Pa. He also received the company's President's Leadership Award in 2009.

#### 2006

**James Baxter (ME)** has started pilot training at the U.S. Air Force base in Enid, Okla. He is flying five days a week in a joint class alongside Marines and Navy pilot trainees in preparation for a cross-country

trip and completion of first phase training in November. He hopes to graduate and earn his official wings in June. *See photo on page 37.*

**John Harmon (ME)** received his MBA from the University of South Carolina in May.

**Matthew Lovell (CE)** has returned to Rose-Hulman as assistant professor of civil engineering. He earned a master's degree and Ph.D. at Purdue University, where he helped manage the George E. Brown Network for Earthquake Engineering Simulation.

#### 2007

**Robert Baldwin (CE)** passed the new 16-hour Structural Exam. He is now qualified as a professional engineer and structural engineer.

#### Brendan McKiernan (BE)

earned Rose-Hulman's Distinguished Young Alumni Award during homecoming. He teaches math to inner-city youth in New Orleans through Alliance for Catholic Education program. *See photo on page 40.*

#### 2008

**Gregory Dopka (CPE)** was one of 48 referees selected for the U.S. Youth Soccer National Championships in Phoenix—out of 140,000 registered referees in the U.S. Soccer Federation. He was also one of 30 referees invited to the FIFA Member Association course in conjunction with the U.S. Soccer Federation's Development Academy Finals. Greg hopes to become a FIFA and Major League Soccer referee.

#### 2009

**Kyle Overmyer (ME)** is a mechanical engineer at Moore Engineers in Carmel, Ind. He and his wife, Dianna (Artigue, '04, ChE), reside in Indianapolis.

#### 2011

**EJ Oruche (BE), John McLaughlin (BE) and Kyle Rawn (ChE)** are first-year Robert E. Orr Fellows, learning about entrepreneurship and small-business practices at Indiana companies. Oruche and McLaughlin are spending the next two years at Scale Computing, while Rawn is at Fifth Gear. ■



## 2011 Athletic Hall of Fame Class Inducted

The Athletic Hall of Fame now has five new members following this year's induction ceremony. The group featured:

**Eric Gappa (MA, '96)**—The former football career receiving record holder with 22 touchdown catches, he still ranks in the top five in school history with 113 receptions for 2,042 yards, and set a then school record with 192 receiving yards against Hanover in 1993. He is now a math teacher at North Judson-San Pierre High School in Indiana.

**William Rumbley (ME, '43)**—"Big Bill" was a three-year starter for football teams that finished 17-4 in his career, including an 11-1 mark in 1941 and 1942. He earned three all-Little State honors as a tight end, and also set a school record in the high jump in track. He died in 2004 after a distinguished career that included service with General Electric and the family-owned Rumbley Trucking Company.

**Woody Stroupe (ChE, '60)**—Woody was Rose-Hulman's first Academic All-American, a four-year letter winner, and a two-year captain for the football and basketball teams. He was a wide receiver, outside linebacker, and kicker for the 1958 undefeated football team. He has enjoyed a successful post-graduate career with the U.S. Army Corps of Engineers and work in the nation's nuclear engineering program.

**Andy Tochtermann (ChE, '01)**—He was a baseball threat as a hitter and pitcher, with a .351 career batting average, a school record 11 triples, and 157 strikeouts. Andy earned all-conference and all-region honors. He has spent the past decade working with the Guidant Corporation (now Abbott Laboratories) in engineering, marketing, and sales.

**A.J. Wilkerson (ME, '97)**—A.J. ranks fifth in school history with 2,553 career rushing yards, highlighted by 914 yards and nine touchdowns as a sophomore in 1994. He earned all-league honors in 1994 and 1995 as part of the top statistical rushing offense in school history. Today, A.J. is part-owner of Validated Custom Solutions and Open Control Solutions. ■



**New Inductees: The Athletic Hall of Fame 2011 Class featured (from left) Eric Gappa, Andrew Tochtermann, Elwood "Woody" Stroupe and A.J. Wilkerson.**

## Marriages



**2004**

**Jennifer Shafer (ME)** married Mark Hepp on April 30 in Santa Rosa Beach, Fla. Both are employed at Wright-Patterson Air Force Base and reside in Dayton, Ohio.

**2006**

**Adam Gossmann (ME)** married Natalie Wilson on September 10 in Kansas City. He holds a professional engineer's license and is employed by Kiewit Engineering in Kansas City.

**2007**

**Rachael Hannum (BE)** married Thomas Lynch on July 16 in the White Chapel at Rose-Hulman. She is employed as a program manager while Thomas is attending Indiana University's School of Dentistry.

**Drew Lopshire (CE)** married Jennifer Richardson on August 27 in Terre Haute. He is employed by General Electric.

**2008**

**Jennifer Gordon (ME)** married Daniel Braus in September

of 2010. The couple met while working at Beckman Coulter. Jenn is Lean Leader of all product development for Beckman Coulter in Indianapolis. She plans to attend Harvard Business School in 2013 to earn a Master's of Business Administration.

**2010**

**Michael Burris (ME)** married Katie Fitzgerald on June 4 in Terre Haute. The couple lives in Orlando, Fla. ■

## Rosebuds

**1999**

**Dan (ChE) and Nellie Hohne (ME)** recently moved from France to Newburgh, Ind. While in France, they welcomed their second child, Everett, in May of 2010. Big sister, Jaclyn, is now 4½ years old. Dan is the validation manager for Bristol-Myers Squibb's facility in Mt. Vernon, Ind.

**2003**

**Jacob Meyers** and wife, Anna, welcomed their first child, Abigail Maria, on June 3 in Clearwater, Fla.

**2004**

**Christopher Strain (EE)** and his wife, Jana, added their first child, Chase Branson, to the family on May 20. The family



resides in Terre Haute, where Christopher works for Danisco.

**2005**

**Matthew Johnson (CPE)** and wife, Heather, welcomed their first child, Adelaide Lily, on August 16. ■



## Obituaries

**1936**

**Paul D. Bennett, Sr. (CE)** died on July 11. He was a retired colonel in the U.S. Army Reserve. After graduation, Paul instructed ROTC cadets at Rose-Hulman. He then volunteered and served with the Army Corps of Engineers from 1940-46 as a leader with the 336th Combat Engineer Battalion. After the war, Paul taught several courses at Rose-Hulman before accepting a position with J. L. Simmons Company construction in Indianapolis.

**1942**

**Robert King (ME)** died on July 7 in Lake Forrest, Calif. He was a retired post engineer at Fort Huachuca, Ariz, was a World War II veteran, and had several U.S. patents. Survivors include his wife, Amelia; daughter, Janet; and son, Randel.

**1943**

**Robert K. Drake (EE)**, died on June 11 in Hendersonville, N.C. He worked for General Electric from 1959 until his retirement in 1983. He was preceded in death by wife, Jody. He is survived by his daughters, Sonja Waddel and Cindy Waugh; five grandchildren; and five great-grandchildren.

**1947**

**Charles R. Dill (ME)** died on June 11 in Evansville, Ind. He worked in the engineering department for Whirlpool Corporation for 35 years. He is survived by his wife, Shirley; daughter, SuzeAnn Goedicke; son, Scott Dill, and two grandchildren.

**1951**

**Howard L. Scott (ME)** died on July 12 in Raytown, Mo. He was employed with Western Electric for 33 years, retiring after serving as the machine

design departments chief of the plant in Lee's Summit, Mo. He was preceded in death by his wife, Carole. He is survived by three children; sweetheart of 12 years, Georgene Stinnett; seven grandchildren; and four great-grandchildren.

**1956**

**John M. Newgent (CE)** died on June 1. His engineering and building skills were applied nationwide for American Bridges, over 30 years, and Tylk & Wright (now TGRWA), for 12 years. He is survived by his wife, Myrna.

**1973**

**Robert A. Fleming (BIO)** died on June 17 in Dallas, Texas. He worked for IBM for more than 30 years.

**1974**

**Ron Davis (CHEM)**, died on July 12 in Las Vegas. He was director of technical regulatory,

environmental, and quality control affairs in the aerosol products industry, starting in 1987. He was chairman of the aerosol products division of CSPA for two two-year terms in 1994 and 2007. He is survived by his wife, Claudette; one son, Jim Davis; and one granddaughter.

**1983**

**Eric "Ric" Miles (ME)** died on July 20 in Brighton, Mich. He was owner of Astrum Property Group. He is survived by his wife, Lisa; sons, Evan and Chad; and daughter, Nicole.

**1994**

**Michael Kohlmeier (CS)** died on July 12 in Indianapolis. He was recently employed by Eli Lilly after working for Commonwealth Edison in Chicago and Navistar in Indianapolis. Survivors include his wife, Angela; and children, Renee and Justin. ■

**We Want Your News—Promotions, Achievements, Weddings, and Birth Announcements!**  
Submit articles and photographs to [dale.long@rose-hulman.edu](mailto:dale.long@rose-hulman.edu)

## BAILEY CHALLENGE Solvers of problems from last issue are:

*Continued from page 36*

**ALUMNI:** W. Cornell, '47; J. Hurt, '48; D. Camp, '55; B. Hall, '55; R. Runyan, '55; A. Sutton, '56; H. Benam, '57; C. Cooper, '57; P. Cella, '58; C. Hirschfield, '58; J. Oakes, '58; D. Bailey, '59; J. Tindall, '61; C. McCoy, '62; J. Snyder, '62; C. Divine, '67; R. Horton, '67; J. Rynard, '68; J. Albertine, '69; R. Dutton, '69; K. Metz, '69; J. Born, '70; S. Jordan, '70; K. O'Sullivan, '72; L. Marinko, '73; P. German, '75; J. Turner, '75; M. Bailey, '76; J. Schroeder, '76; P. VandeMotte, '77; J. Koechling, '80; J. Skinner, '80; M. Tallman, '80; J. Farrell, '81; B. Lonnberg, '81; K. Borgman, '82; K. Leikhus, '82; M. Taylor, '82; B. Dudley, '83; R. Schmidlin, '84; C. Wilcox, '85; L. Cramer, '86; J. Hoffman, '87; D. Johnson, '87; M. Nigrovic, '87; C. Adbnour, '89; A. Murray, '89; S. Barndt, '90; B. Burger, '91; P. Kimmerle, '91; R. Antonini, '93; P. Swickard, '98; P. Maurer, '01; P. Baker, '06; T. Perme, '06; E. Reyes, '06; and C. Cole, '11

**FRIENDS:** Z. Bailey, K. Bailey, T. Cutaia, T. Dunn, L. Gaintner, M. Gerken, A. Kittleson, J. Ley, B. MacDonald, J. Marks, J. Nichols, M. Rosene, D. Voltmer, and E. Wern



## Advancement Leader Reaching Out to Alumni

The first thing you notice is his broad smile. Then, there's the firm handshake, the caring attitude, and the confident tone to his voice.

It's hard not to notice and like Rickey McCurry, the new Vice President for Institutional Advancement. He brings skills and experience that will be valuable assets to the campus and administration as the course is set for future objectives, including endowment growth, which will keep Rose-Hulman on the cutting edge in higher education.

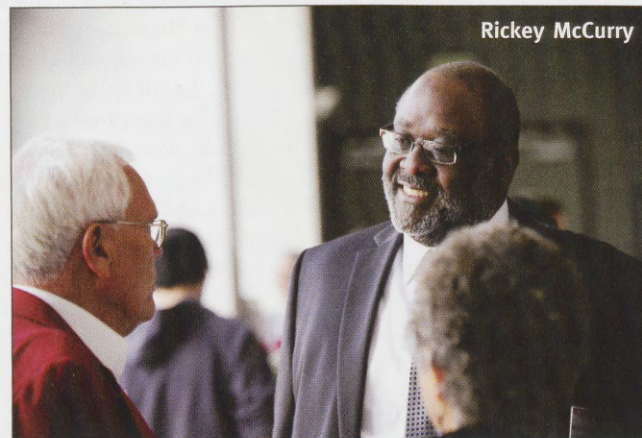
"My goal is to insure that our advancement program (alumni affairs and development) shares the same commitment to excellence as the institute's proud academic mission," McCurry says. "We want to create an atmosphere where all alumni and friends feel connected and involved with the institute.

"We want to bring alumni to campus and want to take Rose-Hulman on the road," he continues. "We need to reach

out to our alumni, friends and supporters to seek their assistance in growing our endowment, creating new scholarships for our students, enhancing our facilities, and securing additional financial support to assist our students, faculty and staff."

McCurry spent the last 11 years as Vice Chancellor for Institutional Advancement and Chief Executive Officer of the Southern Illinois University Foundation. He led the college's first comprehensive campaign (raising \$106 million) and increased the endowment and foundation assets.

"Rickey brings skills in constituency development that will be valuable assets to our institutional advancement division



and my administration," states Rose-Hulman President Matt Branam.

McCurry earned the Commonfund Institutionally Related Foundation CEO of the Year Award from the Council for the Advancement and Support of Education (CASE) and is chair-elect of CASE's District V Board of Directors. He has a law degree from North Carolina Central University's School of Law. ■

## ROSE-HULMAN IS CONSIDERED "BEST IN CLASS" AS AN INSTITUTION OF HIGHER LEARNING...



Now we are defining a path beyond being "The Best in Class" to become "Great." Rose-Hulman has launched a year-long process to collect feedback from groups of people with many affiliations to Rose-Hulman, including alumni of all ages, to begin to draft our next strategic goals in guiding the future of the institute.

**You are invited to join the conversation of how to become "Great."**

- Alumni telephone surveys will begin in December
- Alumni visits will be conducted:

Houston – December 3	Indianapolis – March 10	Chicago – April 14
Naples – January 14	Washington, D.C./	Indianapolis – April 21
Los Angeles – January 21	Baltimore – March 17	San Francisco – June 9
Dallas – February 11	Detroit – March 24	New York – June 16

Watch for more details and please participate in the process. We want your perspective.



# Extending Our Tradition of Excellence to the Next Generation

We have a lot to be proud of at Rose-Hulman:

- We're the country's #1 undergraduate engineering college 13 years running
- Our faculty and staff are recognized as experts in their fields
- Our campus hosts renowned speakers like Dr. Michio Kaku
- And we continue to attract some of the best and brightest minds from around the world

Building on our successes, we continue to pursue comprehensive improvement as we aspire to greatness. One essential area to our pursuit of greatness is financial assistance to our students through scholarships. We must ensure that financial concerns do not keep the best and brightest from seeking a Rose-Hulman education.

We need your support. Every contribution is important, and there is a giving program to fit every budget.

**Can we count on you to support the next generation of Rose-Hulman students?**



"Rose-Hulman was my first choice, and the scholarship money I received made it possible for me to come here."

**Sarah Traucins,**

*Sophomore Biomedical Engineering Student*

## SCHOLARSHIP GIVING OPPORTUNITIES:

**Named Endowed Scholarship Fund** – A perpetual scholarship fund named in honor or memory of someone. (Minimum gift \$50,000 payable over 5 years)

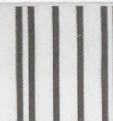
**Gateway Initiative** – Seeks 1,000 alumni who will give \$1,000 each to raise \$1,000,000 for scholarships.

**Annual Scholarship Fund** – An unrestricted gift to support general scholarships.

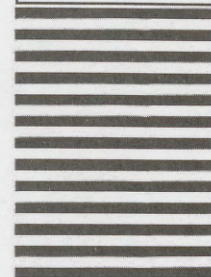
**For more information on scholarship giving opportunities, contact the Office of Institutional Advancement at (812) 877-8453.**



**THANK YOU FOR YOUR GIFT!**  
**Rose-Hulman Institute of Technology**  
Office of Institutional Advancement  
5500 Wabash Avenue  
Terre Haute, IN 47803  
www.rose-hulman.edu  
tollfree: 1-800-248-7448, ext. 8159



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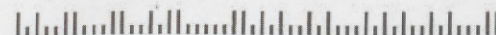
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## YES, I WANT TO SUPPORT ROSE-HULMAN. ENCLOSED IS MY GIFT.

Name \_\_\_\_\_ Class Year \_\_\_\_\_ Phone Number \_\_\_\_\_

Address \_\_\_\_\_

E-mail \_\_\_\_\_

I'm making a gift of \$ \_\_\_\_\_ by (please choose one option):

☐ **Check** (payable to Rose-Hulman Institute of Technology)

☐ **Credit Card** (one-time or recurring): ☐ Visa ☐ Mastercard ☐ American Express ☐ Other

\_\_\_\_\_ This is a one-time gift of \$ \_\_\_\_\_ (whole dollars only)

\_\_\_\_\_ This is a monthly recurring gift of \$ \_\_\_\_\_ (each month)

Start Date \_\_\_\_\_ Stop Date \_\_\_\_\_

Account Number \_\_\_\_\_ Exp. Date \_\_\_\_\_

Authorized signature \_\_\_\_\_

To make your gift online, please visit our secure Web site [www.rose-hulman.edu/give](http://www.rose-hulman.edu/give).

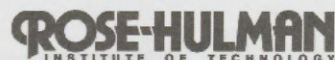
☐ Credit this gift equally to my spouse (spouse's name and class year, if applicable) \_\_\_\_\_

### Multiply Your Dollars

If you or your spouse is affiliated with a company that has corporate gift match, please indicate:

Name of Company \_\_\_\_\_

☐ Form enclosed ☐ Completed form online



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### Please direct my gift to:

☐ The Annual Fund

☐ The Endowment

☐ Scholarships

☐ Other \_\_\_\_\_

### For Additional Information:

☐ I have Rose-Hulman in my estate plan.

☐ I am interested in information regarding planned giving.

☐ I am interested in learning more about corporate and foundation giving.

☐ I would like to speak to someone regarding making a gift to Rose-Hulman.

ECHOES Fall 2011



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Terre Haute, IN 47803



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## PARTING SHOT

### Showing Patriotism on Gridiron

Football players Austin Davis (3) and Andrew Couch (44) proudly carry the American flag onto the field for the Charity Bowl XIII game between the Engineers and Austrian National Team this summer in Vienna. This patriotic gesture was very special to Couch, a member of the U.S. Marine Corps Reserves who served the United States in Djibouti.