NUTS, BOLTS AND NEUTRONS

KANSAS STATE UNIVERSITY FALL 2016 COLLEGE OF ENGINEERING

KANSAS STATE UNIVERSITY | College of Engineering
Department of Mechanical and Nuclear Engineering

FROM THE DEPARTMENT HEAD

Dear friends of MNE,

Wow — we have gone through some significant change of late! With the completion of the Phase IV building, now named Engineering Hall, MNE has expanded to new space in Rathbone and Ward halls.

The next two facts are astounding: Undergraduate enrollment in MNE this fall is expected to be in excess of 1,050 — higher than ever before, and the number of Ph.D. students expected this fall is above 50, almost 70% higher than last year. We are continuing to grow, and grow significantly. Steve Eckels, our graduate program administrator, and Stefan Yates, our academic program coordinator, deserve incredible credit for the growth in the Ph.D. program.

In the last year, we have hired three new faculty members: Amir Bahadori, assistant professor; Zayd Leseman, associate professor; and Mingjun Wei, associate professor and Neff chair. We are excited about the talent these three bring to our department. We have also hired Shawna Lang as an accounting specialist. But It has not been all growth as Garth Thompson, professor, and Sherry Donahey, administrative specialist, both retired this year. We now have 28 faculty members, up from 21 in 2013, and Dean Dawson has given us two new faculty positions to fill next year.

Late last year, we opened our new Advising and Recruitment Center (ARC) in 3014 Rathbone. There is now a central point for first- and second-year students to be advised, and for prospective students to begin their recruitment visits. If you are ever in the area, feel free to stop by for a visit.

The department is establishing the Kansas State MicroAnalysis Laboratory (KSMAL) under Douglas McGregor. This will incorporate analytical equipment already in the department, plus a field-emission scanning electron microscope that had been purchased by the university but could find no home until our department offered the space.

MNE at K-State is now ranked 51st among public mechanical engineering departments and 19th among all nuclear engineering departments. We continue to grow and expand our already highly regarded reputation. We are K-State proud.

William L. Dunn
Professor and Department Head
Steven M. and Kay L. Theede Chair in Engineering

NUTS, BOLTS AND NEUTRONS

KANSAS STATE UNIVERSITY FALL 2016 COLLEGE OF ENGINEERING

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Invest in student success and join Innovation and Inspiration: The Campaign for Kansas State University. Call 785-532-7609, email engineering@found.ksu.edu or log on to inspire.k-state.edu to learn more.

On the cover

STEFAN YATES WORKS WITH STUDENTS IN NEWLY REDESIGNED ADVISING AND RECRUITMENT CENTER

Nuts,Bolts and Neutrons

is published by the department of mechanical and nuclear engineering,
Kansas State University College of Engineering, Manhattan, KS 66506-5200.

Fall 2016
Editing and design by Engineering Communications
Contributing to content — KSU Foundation, K-State Communications and Marketing

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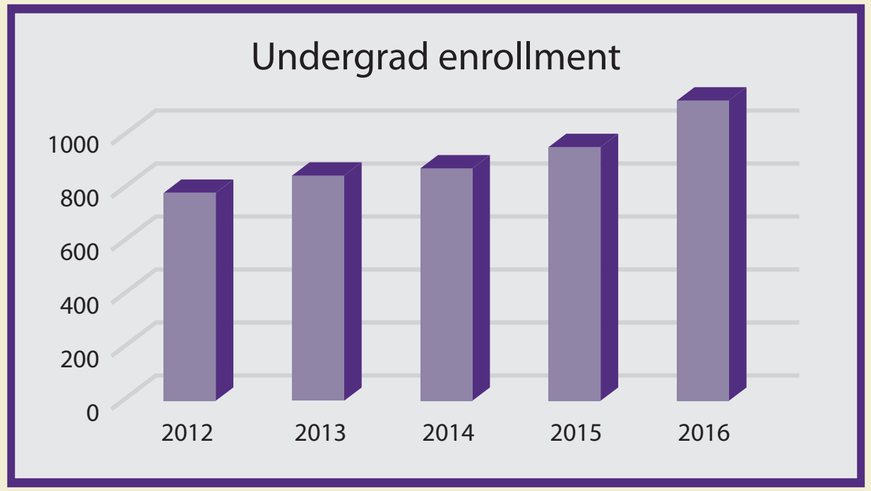
MNE department on track to exceed enrollment goals

This fall the department of mechanical and nuclear engineering is on track to enroll more than 1,000 undergraduate students. This milestone will mark the first time in the history of the department that we have had this number of undergraduates, which will exceed our 2016 goal by almost 8 percent. MNE enrollment accounts for 25 percent of the students in the College of Engineering.

We owe this growth in part to the continued excellence of our faculty, the dedication of our academic advisers, the College of Engineering's recruitment team and to our student ambassadors — who provide prospective students with individual personal tours of our department.

This period of growth has been financially supported by the University Engineering Initiative Act, or UEIA, which was created in 2013 to increase the number of engineering graduates in Kansas by 60 percent over a 10-year period. The K-State College of Engineering has set goals to grow the student body by at least 750 students, expand faculty by an additional 35 positions and increase our facilities by more than 100,000 square feet.



New MNE advising center provides access for students

As part of the Phase IV expansion at the College of Engineering, MNE has acquired new office space, four new lab spaces, and renovated many of the rooms and workspaces currently in use.

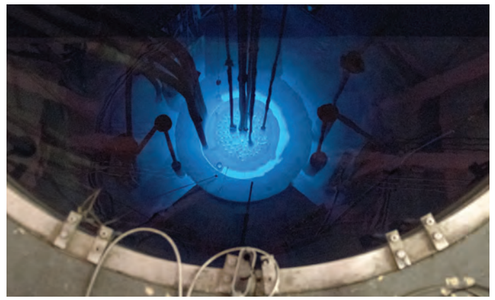
Included in the renovation is a new space in Rathbone Hall for the MNE professional advising staff. This new advising center offers a central location for students to access information and learn about upcoming opportunities, and provides privacy for confidential discussions. With the help of their advisers, Stefan Yates and Mitzi Farmer, students can understand expectations, create an achievable plan for their academic career, and make the most of their Kansas State University experience.

STEFAN YATES, LEFT, MNE ACADEMIC ADVISER, MEETS WITH STUDENT IN ADVISING APPOINTMENT.

MITZI FARMER, MNE ASST. ACADEMIC ADVISER, ASSISTS STUDENT WITH ACADEMIC SCHEDULE.

University's nuclear engineering program uses $1.5 million grant to upgrade reactor equipment

Kansas State University's nuclear reactor control console in Ward Hall will be getting a much-needed upgrade, funded by a $1.5 million Nuclear Engineering University Partnerships grant from the U.S. Department of Energy.



BLUE GLOW OF TRIGA MARK-II NUCLEAR REACTOR

The entire reactor console will be replaced, including cabling and neutron detectors used to monitor reactor power. While the core and control rods will remain the same, plans include replacing some of the auxiliary monitoring equipment such as conductivity meters and radiation detectors to improve compatibility with the new console.

The existing control console in the mechanical and nuclear engineering department reactor facility was procured second hand from the U.S. Geographical Survey reactor facility following an upgrade to its console in the 1990s.

"Researchers and educators in the College of Engineering will be able to more easily access data from the reactor data loggers for use in lab experiments," said Jeff Geuther, nuclear reactor facilities manager and principal investigator of the grant. "The reactor console will feature more redundancy with regard to required safety functions, which will improve safety and reliability."

Many of the current console components are obsolete and difficult to repair, causing frequent reactor downtime due to console reliability issues. The vendor for the original console does not always have ready replacements for broken parts.

ORIGINAL CONSOLE GOES ONLINE OCT. 16, 1962.

"Another reason to upgrade the console, aside from increased reliability," Geuther said, "is that we will be able to improve the interface for operators by incorporating controls and indicators for auxiliary equipment into the main console. We also plan to increase the number of data outputs for classes and experiments."

The objective in the replacement process is to select a bid by January 2016, followed by approximately 18 months for design and construction of the console. Completed installation is set for September 2018. A one-month reactor outage for console replacement is planned for summer 2018 to minimize interruption for classes that use the reactor.

CLOCKWISE, TOP LEFT, GEUTHER AND STUDENT CHECK RADIATION LEVELS IN REACTOR BAY; TRIGA MARK-II NUCLEAR REACTOR; CURRENT CONSOLE, INSTALLED IN THE 1990s.

Three new faculty join MNE department

BAHADORI

Amir Bahadori received bachelor's degrees in mechanical engineering with a nuclear engineering option and mathematics from Kansas State University, and a master's degree and Ph.D. in medical physics from the University of Florida.

Bahadori was awarded a NASA Graduate Student Research Program fellowship in 2009, and in summer 2010 worked as an intern at the NASA Johnson Space Center in the radiation health officer group. He accepted a full-time position as a NASA contractor in October 2010. Bahadori transitioned to civil service in January 2013 with the space radiation analysis group at the NASA Johnson Space Center. In his time as a NASA contractor and civil servant, he substantially upgraded the tools used to calculate astronaut risk from medical exams involving ionizing radiation, coordinated astronaut radiation risk reporting, led accelerator-based data collection and served as principal scientist for the Advanced Exploration Systems RadWorks Radiation Environment Monitor project. In December 2015, Bahadori joined the department of mechanical and nuclear engineering as an assistant professor.

Bahadori is director of the Radiological Engineering Analysis Laboratory at K-State. His research is focused on the characterization of radiation environments and the response of the human system to radiation exposure. He teaches courses related to nuclear engineering.

LESEMAN

Zayd Leseman received his bachelor's and master's degrees from the University of Illinois Urbana-Champaign (UIUC). After obtaining his M.S., he started his own company in which he designed, fabricated and patented a novel inkjet print head. Upon conclusion of his entrepreneurial adventure, he returned to UIUC and completed his Ph.D. in May 2006. From 2006-16, Leseman was at the University of New Mexico as an assistant and associate professor. While there, he was awarded an NSF CAREER Award as well as more than $5 million in research funding. Currently, he is an associate professor of mechanical and nuclear engineering at Kansas State University.

Leseman's research focuses on understanding the mechanical, thermal and electrical properties of nanostructured materials by integrating experimental and computational techniques.

WEI

Mingjun Wei received his bachelor's and master's degrees in modern mechanics from the University of Science and Technology of China, a master's degree in mechanical engineering from the University of California Los Angeles, and his Ph.D. degree in theoretical and applied mechanics from the University of Illinois at Urbana-Champaign.

Wei's research interests are broadly defined, but centered on applying computational science for simulation, modeling, control and optimization in fluid mechanics. His current research efforts include high-performance computation for the simulation of incompressible and compressible flows involving interaction with solid structures, developing model order-reduction methods to apply on complex fluid-solid systems to achieve low-order models for real-time computation and autonomous control, and developing an adjoint-based approach for sensitivity study and optimization of fluid problems with large control space and moving/morphing solid boundaries. With these mathematical and numerical techniques, Wei's research group has studied problems with various application backgrounds such as flying mechanism of insects and small birds, autonomous control of micro air vehicles, simulation and modeling of underbody blasts, jet noise reduction and others.

STUDENTS HAVE STRONG SHOWING AT AMERICAN NUCLEAR SOCIETY STUDENT CONFERENCE

Undergraduate nuclear reactor operator Max Nager, junior in mechanical engineering, and reactor operator Matthew Myers, won Best Presentation in the Accelerator Applications Division for their paper, "Effectiveness of BLOXR as an X-Ray Shielding Material," at the 2016 American Nuclear Society Student Conference, March 31-April 2, in Madison, Wisconsin. Both were advised by Jeff Geuther, nuclear reactor facilities manager in the mechanical and nuclear engineering department.

Also receiving recognition at the conference was Richard Reed, graduate student in nuclear engineering, who was awarded Best Graduate Presentation in the Education, Training, and Workforce Development Division for his paper, "Updating a PWR Simulator in Python."

The paper was co-authored and co-presented with Jacob Hayhurst, junior in mechanical engineering. Shravan Gangadhara, graduate student in computer science, was a third co-author but did not attend the conference. The team was advised by Jeremy Roberts, assistant professor of mechanical and nuclear engineering.

A total of 23 mechanical and nuclear engineering students from K-State attended the conference.

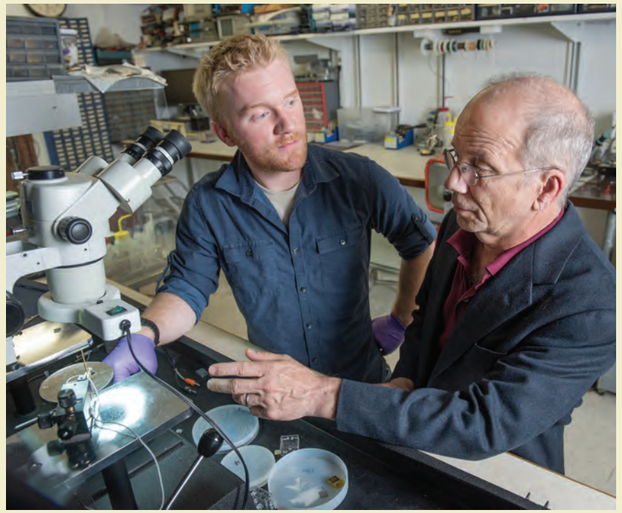
Kansas State University research team wins R&D 100 Award for second year in a row

McGREGOR

For the second year in a row, a Kansas State University research team has won a prestigious R&D 100 Award from R&D magazine for developing one of the year's 100 top technologies.

The university's group, led by Douglas McGregor, university distinguished professor of mechanical and nuclear engineering, along with six other organizations from academia, industry and government, developed a hand-held neutron detector that can locate and identify sources of neutron radiation as well as provide radiation dose information. Currently, there are two commercial versions of the hand-held invention, the Antero and the Shavano.

R&D 100 Awards, sometimes called the "Oscars of invention," are given to the top 100 most innovative technologies and services each year. McGregor and colleagues were cited in the analytical test category. Other categories for the award are IT/electrical, mechanical devices/materials, process/prototyping, and software/services.



ABOVE, LEFT, RYAN FRONK, DOCTORAL STUDENT, WORKS WITH DOUGLAS McGREGOR ON NEUTRON DETECTORS. RIGHT, STUDENTS CONDUCT RESEARCH IN SMART LAB.

This is the fourth time McGregor has won the award and he credits the team in his Semiconductor Materials and Radiological Technologies, or SMART, Laboratory and other Kansas State University collaborators for their roles in developing the instrument: Ken Shultis, professor of mechanical and nuclear engineering; Tim Sobering, director of the Electronics Design Lab; Brian Cooper and Ryan Fronk, doctoral students in nuclear engineering from Manhattan; and Steven Bellinger, research associate in mechanical and nuclear engineering. Colleagues at the University of Missouri's Kansas City and Columbia campuses, led by Anthony Caruso, assembled and wrote the software that runs the device.

The invention has garnered one U.S. patent, with a second patent pending. Award co-recipient Paul Scott, chief technology officer at U2D Inc., has commercialized the neutron-detecting device.

The U.S. government is the research group's major sponsor, including the Office of Naval Research and the Defense Threat Reduction Agency.

Many groups are in need of devices that detect sources of dangerous radiation, such as all branches of the military, radiation safety workers and NASA astronauts.

"People can use the detectors we build in many radiation measurement applications," McGregor said.

The detector is an advancement because it's smaller, lighter and much less expensive than previous units, McGregor said. The initial idea came in 2005 when Shultis produced calculations demonstrating that stacking detectors sequentially inserted in a cylinder of moderating material could identify unique signatures and solve the difficult problem of identifying the type of neutron source. The new technology was enabled by the development of compact microstructured semiconductor neutron detectors, invented and developed in the Kansas State University SMART Laboratory and now available commercially through Radiation Detection Technologies Inc., of which Bellinger is president.

Through the years, the Kansas State University and University of Missouri, Kansas City research teams have refined the basic design behind the Antero and Shavano detector capabilities.

"Where it used to be an entire rack of equipment, we have now squeezed all of the electronics needed to support the microstructured semiconductor neutron detectors sensor technology into one space directly underneath them," Sobering said.

In addition to improving the devices, the group aims to ensure its innovations are practical rather than making one working prototype and then celebrating success.

"We design radiation detectors for mass reproducibility in the future," McGregor said.

For the graduate students in the group, the experience of working in the SMART Laboratory is an important educational experience.

"We participate in all aspects of fabrication, design, electronics, how the sensors operate," Fronk said. "From start to finish, the students know how to work on these things. We make, design, test and package the detectors."

Cooper said the award is meaningful to potential employers.

"As a graduate student, it's a very nice accolade because there's the experience of working on a project and learning. Everyone in industry understands that I have had some part on an R&D award," he said.

Mechanical engineer builds 'ready-to-go' battery electrode with glass-ceramic

A paperlike battery electrode developed by a Kansas State University engineer may improve tools for space exploration or unmanned aerial vehicles.

Gurpreet Singh, associate professor of mechanical and nuclear engineering, and his research team created the battery electrode using silicon oxycarbide-glass and graphene.

The battery electrode has all the right characteristics. It is more than 10 percent lighter than other battery electrodes. It has close to 100 percent cycling efficiency for more than 1000 charge discharge cycles. It is made of low-cost materials that are byproducts of the silicone industry. And it functions at temperatures as low as minus 15 degrees C, which gives it numerous aerial and space applications.

The research appears in Nature Communications article "Silicon oxycarbide glass-graphene composite paper electrode for long-cycle lithium-ion batteries."

SINGH

Singh's research team has been exploring new material combinations for batteries and electrode design. It has been difficult to incorporate graphene and silicon into practical batteries because of challenges that arise at high mass loadings — such as low capacity per volume, poor cycling efficiency and chemical-mechanical instability.

Singh's team has addressed these challenges by manufacturing a self-supporting and ready-to-go electrode that consists of a glassy ceramic called silicon oxycarbide sandwiched between large platelets of chemically modified graphene, or CMG. The electrode has a high capacity of approximately 600 miliampere-hours per gram — 400 miliampere-hours per cubic centimeter — that is derived from silicon oxycarbide. The paperlike design is made of 20 percent chemically modified graphene platelets.

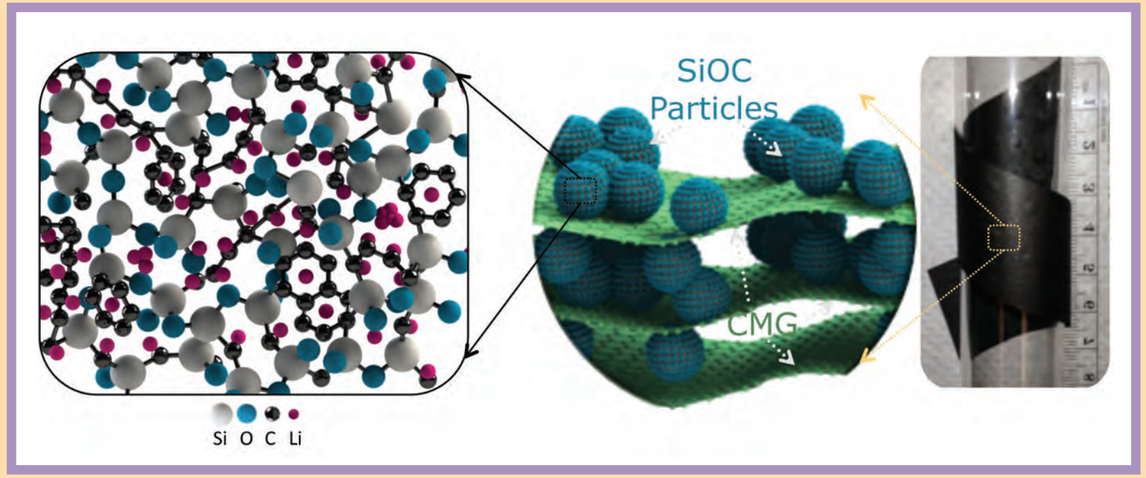
"The paperlike design is markedly different from the electrodes used in present day batteries because it eliminates the metal foil support and polymeric glue — both of which do not contribute toward capacity of the battery," Singh said.

The design that Singh's team developed saved approximately 10 percent in total weight of the cell. The result is a lightweight electrode capable of storing lithium-ion and electrons with near 100 percent cycling efficiency for more than 1000 charge discharge cycles. The most important aspect is that the material is able to demonstrate such performance at practical levels, Singh said.

The paper electrode cells also are able to deliver a capacity of 200 miliampere-hour per gram even when kept at minus 15 degrees C for about a month, which is quite remarkable considering that most batteries fail to perform at such low temperatures, Singh said.

"This suggests that rechargeable batteries from silicon-glass and graphene electrodes may also be suitable for unmanned aerial vehicles flying at high altitudes, or maybe even space applications," Singh said.

The silicon oxycarbide material itself is quite special, Singh said. It is prepared by heating a liquid resin to the point where it decomposes and transforms into sharp glasslike particles. The silicon, carbon and oxygen atoms get rearranged into random 3-D structure and any excess carbon precipitates out into cellular regions. Such an open 3-D structure creates large sites for reversible lithium storage and smooth channels for lithium-ion transportation. This structure and mechanism of lithium storage is different than crystalline silicon electrodes. Silicon oxycarbide electrodes are expected to be low cost because the raw material — liquid resin — is a byproduct of the silicone industry.



GURPREET SINGH AND HIS RESEARCH TEAM DEVELOPED A PAPERLIKE BATTERY ELECTRODE USING SILICON OXYCARBIDE GLASS AND GRAPHENE.

Moving forward, Singh and his team want to address practical challenges. Singh's goal is to produce this electrode material at even larger dimensions. For example, present-day pencil-cell batteries use graphite-coated copper foil electrodes that are more than one foot in length. The team also would like to perform mechanical bending tests to see how they affect performance parameters.

"Ultimately, we would like to work with industry to explore production of lithium-ion battery fuel-cells," Singh said. "Silicon oxycarbide can also be prepared by 3-D printing, which is another area of interest to us."

The research received funding from the National Science Foundation, including Singh's $500,000 CAREER award.

Other Kansas State University researchers involved include Lamuel David, 2015 doctoral graduate in mechanical engineering, Oak Ridge, Tennessee; Romil Bhandavat, 2013 doctoral graduate in mechanical engineering, Hillsboro, Oregon; and Uriel Barrera, 2015 bachelor's graduate in mechanical engineering, Olathe.

CONGRATULATIONS MECHANICAL AND NUCLEAR ENGINEERING GRADUATES

M.S. and Ph.D. graduates

December 2015

Rahmani, Nasim - Ph.D.
Herrman, John Adam - M.S.
Pokharel, Prajwal - M.S.
Werth, Galen - M.S.
McCulloch, Richard Chet James - M.S.

May 2016

Pahwa, Saksham - M.S.
Schmidt, Aaron James - M.S.

B.S. graduates with Nuclear Option

December 2015

Chadwick, Jesse Logan
Heitmeyer, David
Tiner, Christopher Noel

B.S. graduates

December 2015

Becker, Nathan G.
Bosworth, Benjamin Lloyd
Botkin, Westin Alan
Byrd, Charles Taylor
Champlin, Dustin Conrade
Clark, Caitlin M.
Dunshee, Jacob Lisle
Fan, Hanxiong
Figurski, Adam Christian
Gonzalez, Jose R.
Grant, Brian William
Grittman, Mason D.
Hager, Hayden William
Howard, Ethan Carl
Jarred, Justin Tyler
Joyce, Jason Patrick
Larson, Kristine Nicole
Legleiter, Conner James
McDaniel, Travis Wade
Moore, Robert Andrew
Morris, Coady
Morris, Kale Kolton
Motley, Austin Renick
Petrie, Nathan William
Pierce, Collin James
Pietrocola, Grant Stephen
Reimer, Jake Adam
Revard, Daniel Kenneth
Rice, Taylor
Roberts, Kaelan Cordell
Salvatorelli, Nathan Louis
Schmaderer, Josh
Shrestha, Jashuna
Song, Sicheng
Tamosiunas, Alan James
Terhune, Paul Michael
Valdes, Joseph Miguel
Van Bebber, Josh
Walker, Colton Powell
Waters, Matthew David
Withers, Albert
Wu, Alexander
Yang, Guang
Yang, Yang

B.S. graduates with Nuclear Option

May 2016

Bogner, Kimberly Lea
Falk, Henry Wolfgang
Laramore, Diego
Pfeifer, Mike
Robins, Chris Michael
Rosenwald, Carl Ray
Weiser, Casey B.

B.S. graduates

May 2016

Ackley, Alexander Charles
Al-Thafiri, Abdulrahman FMS
AlHunaiyyan, Abdullah
Alba, Gregory Paul
Anderson, Colten Ray
Arnote, Jared Ray
Baker, Jared Keith
Beyer, Todd Henry
Bish, Steven David
Boyer, Bryce Justin
Briggs, Sarah J.
Chapman, David Isaac
Darrah, Ian David
Dawson, Cameron Thomas
Dix, Phillip Duane
Feldhausen, Thomas Aaron
Ferrel, Grant Anthony
Figger, Bryan David
Fischer, Tyler Reed
Ford, Christian
Garcia, Cesar Crisostomo
Habluetzel, Grant Wesley
Heide, Grahm Taylor
Hillegeist, Dustin Wayne
Hines, Nathan
Hoberecht, Jace W.
Huber, Ryan Andrew
Jennings, Kyle Alan
Kamm, Ben
Kimble, Zachary Alex
Klein, Kevin Daniel
Koch, Benjamin David
Koch, Scott Kenneth
Koelzer, Derek Henry
Krehbiel, Daniel Ray
Kuttes, Jonathan Charles
Lansdon, Ryan Paul
Lim, Yu Xian
Lindstrom, Jordan Randall
Lisk, Buddy Lee
Liu, Binghui
Madden, Luke Alan
Mancillas, Chad Anthony
Marietta, Thomas John
Massey, Adam
McDonald, Brian
McKinzie, Joel Steven
Meng, Mike
Merkel, Karson Douglas
Molleker, Adam Michael
Moore, Corbin C.
Morgan, Bradley Daniel
Morris, Evan Kyle
Murowchick, Benjamin James
Nguyen, Duc Hoang Minh
Oberheu, Mason D.
Omana, Michael Alexis
Pachta, Ryan
Passafaro, Paige Theresa
Patry, Thomas Christopher
Peterson, Benjamin Lee
Pham, Nguyen
Poe, Kendall Dane
Robinson, Richard Merton
Rohleder, Brian Patrick
Rusher, Tyler Joseph
Schmitz, Tyler Matthew
Schnefke, Robert Luke
Simmons, Devyn Russell
Singleton, Tyler Scott
Smith, Colten Taylor
Smith, Joshua David
Sperling, Spencer
Stegman, Patrick Wayne
Strahler, Ryan Joseph
Strunk, Jordan Neal
Studley, Eric David
Szczesny, Angela Marie
Thoman, Benjamin Drew
VanCamp, Nicholas Aaron
Vaske, Alex
Vo-Le, Hai T.
Wan, Fang
Weisbrod, Matthew William
Wells, Ethan Jefferson
Wells, Richard
Whelchel, Keith James
Williams, Brett Karl
Winterscheidt, Thomas Hennigan
Wolf, Tanner William
Wolford, Andrew Davidmiles

Mechanical and Nuclear Engineering
HONOR ROLL OF GIVING
July 1, 2015, to June 30, 2016

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$50,000 - $99,999
Marlin Breer and Joan Russell

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Dave and Anne Braun
Timothy Etzel
Don and Linda Glaser
Jim Hengelfelt*

$5,000 - $9,999
Sylvia Apple
Charles and Linda Kuhn
John and Mildred Lindholm
Barry and Marcia Robinson

$1000 - $4999
Norman and Malinda Anderson
Duane Babcock
Eric Cunningham
Raymond and Nancy DeLong
Brad and Diane Eckhoff
Patrick and Rita Ervin
Jack Farr
Joe and Nancy Farrar
Ken and Cynthia Habiger
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Justin Kaeberle
William and Rebecca Kennedy
Bill McKinney
Tom and Joan Mistler
Tim and Kathleen Mourlam
Mike Rogers
Brian and Ann Sullivan
Peggy Taylor
Randy and Frieda Weis

$500 - $999
N K and Veena Anand
Martin Barker
Shane Boden
Orrie Bogner
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Paul and Cheryl Cook
John and Jenny Curtis
Charles and Joan Dorgan
Jerry and Sara Duncan
John and Mary Ensz
Chris Erickson
Jon and Belinda Greiner
Brent and Bonnie Heidebrecht
Bruce and Kim Letellier
Bryan and Angie Long
Robert McGriff
Philip Morton
Donald Tonn
Brian and Cheryl Wichman

* = deceased

Every effort has been made to produce a comprehensive listing of donors for the calendar year July 1, 2015, to June 30, 2016. We apologize for any incorrect listings, misspellings or omissions, and extend our sincere thanks for our support. Questions about the donor list should be directed to Brett Larson, Senior Director of Development, College of Engineering, Kansas State University Foundation, 1800 Kimball Ave., Ste 200, Manhattan, KS 66502; 785-532-7519 or 800-432-1578.

We sincerely thank you for your generosity and support.

New design suite puts student teams on fast track to success

The Kansas State University students on Powercat Motorsports design-build team are enjoying their home in the newly opened Engineering Hall. With a gift to name the student design team suite, Alan and Jan Levin helped elevate the student team experience and create new opportunities.

For the Powercat Motorsports team, which designs, builds, tests and races a car under Formula SAE competition rules, the new space will make all the difference.

"Because we now have a space on campus, students can stop in and work for an hour in between classes and have more access to departmental and college resources," said Kevin Wanklyn, instructor in mechanical and nuclear engineering and advisor for the Powercat Motorsports team. "There will also be better synergy between the different student teams working in that space, to see if we can share resources and be more economically efficient."

Levin, a 1969 mechanical engineering graduate, said the College of Engineering gave him "a home and a goal in life," and he hopes to pay it forward to the next generation.

"There are so many people out there who can succeed if they just have someone give them a helping hand," Levin said. "And if they succeed, then that's just a benefit to us all."

Each year, the Powercat Motorsports team benefits from donated time and materials from dozens of corporate partners. That support makes it possible for the team to enter an international competition each year in Brooklyn, Michigan.

"We can't build this car from the ground up every year without help from our sponsors. That is pivotal for our group," Wanklyn said. "We are thankful."

Gifts to support the department of mechanical and nuclear engineering also advance Innovation and Inspiration, the $1 billion campaign for Kansas State University. Through investment from alumni and friends, the campaign will help the College of Engineering and K-State reach new heights.

ALAN LEVIN, PICTURED WITH WIFE, JAN, TESTS THE POWERCAT MOTORSPORTS CAR OUTSIDE THE ALAN AND JAN LEVIN STUDENT DESIGN TEAM SUITE IN THE NEWLY OPENED ENGINEERING HALL.

To learn how you can invest in the department of mechanical and nuclear engineering, please contact the engineering development office at 785-532-7609 or engineering@found.ksu.edu.

Dunn receives radiation science and technology award

Bill Dunn, professor and head of the mechanical and nuclear engineering department, and the Steven M. and Kay L. Theede chair in engineering at Kansas State University, has been selected to receive the 2015 American Nuclear Society Radiation Science and Technology Award.

Established in 1967, the award recognizes outstanding creative applications of radiation sciences and engineering principles. Qualification of recipients is based on meritorious scientific and engineering achievement that has important implications for radiation science and technology.

The award is recommended by the society's Isotopes and Radiation Division to the Honors and Awards Committee, and will be presented to Dunn during the American Nuclear Society winter meeting Nov. 8-12 in Washington, D.C.

Dunn was named mechanical and engineering department head in 2014 after serving as interim department head since 2013. He also directs the Radiation Measurement Applications Laboratory, where he and his students conduct research into nondestructive testing, quantitative analysis, threat detection and other applications of ionizing radiation.

University honors MNE professor with Commerce Bank and W.T. Kemper Foundation Outstanding Teaching Award

Kevin Wanklyn, instructor of mechanical and nuclear engineering, was recognized with the 2016 Commerce Bank and W.T. Kemper Foundation Outstanding Teaching Award for making a difference in the classroom.

Sponsored by the William T. Kemper Foundation and the Commerce Bancshares Foundation, and coordinated through the Kansas State University Foundation, the award includes a $2,500 honorarium.

"Commerce Bank and the William T. Kemper Foundation partnered with K-State nearly two decades ago to support undergraduate teaching excellence," said Tom Giller, community bank president of Commerce Bank, Manhattan. "We are pleased to continue the tradition with the university to honor exceptional educators for their dedication to teaching."

Wanklyn has earned several teaching awards, including the 2014 Presidential Award for Excellence in Undergraduate Teaching, the 2014 Dean of Engineering Award for Excellence, the 2014 James L. Hollis Memorial Award for Excellence in Undergraduate Teaching, the 2015 American Society of Engineering Education Midwest Section Outstanding Teaching Award and more. He obtained his bachelor's, master's and doctorate degrees from Kansas State University.

INNOVATION & INSPIRATION
THE CAMPAIGN FOR KANSAS STATE UNIVERSITY

ENGINEERING THE FUTURE

Your philanthropic investment in engineering education helps develop the strongest industry leaders, and advances the $1 billion Innovation and Inspiration Campaign for Kansas State University. Visit www.found.ksu.edu/give/mne to make your secure online gift today or complete and mail the contribution card below. You may also contact the engineering development office at 785-532-7609 or engineering@found.ksu.edu for more information. Thank you for investing in the future!

KANSAS STATE UNIVERSITY

MECHANICAL ENGINEERING EXCELLENCE FUND

Here is my check or credit card authorization for a gift of:

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ENGINEERING HALL, THE FINAL PHASE OF THE ENGINEERING COMPLEX, RIBBON-CUTTING EVENT APRIL 1, 2016