Dean's Welcome

This issue of eDimensions highlights three examples of ways in which our School continues to leverage both internal and external partnerships to support extraordinary student success.

I know you will enjoy reading more about the in-kind gift we recently received from Siemens PLM Software Inc. A myriad of industries are using product lifecycle management (PLM) concepts at various levels of maturity and integration in their enterprise. All of these entities are attempting to take advantage of virtual digital flows from product conceptualization, through design, testing, manufacture, and maintainability of complex systems throughout their lifecycle. The knowledge and abilities acquired by our students in academic programs that include PLM will help industry take full advantage of the capabilities that the PLM framework offers when they hire our students as interns, as well as employees after graduation. Our students' skill set will be refined through experiential learning in areas such as advanced manufacturing technologies and processes.

The month of May is always an exciting time in Indianapolis. This past May was no exception with the ribbon-cutting event for the advanced vehicle dynamics simulator in Speedway. The location of IUPUI within minutes of Dallara's facilities will ensure that our faculty and students will have the opportunity to translate research into practice. Some of the research and development activities at IUPUI that will be pursued using the simulator include the following: i) the correlation of simulator data to both track-test data and driver qualitative feedback; ii) the extension of simulator capabilities to other racing applications, such as short-track sprint cars by developing new models to simulate appropriate track conditions; and iii) applying the simulator to non-racing applications, such as advancing technology to prevent crashes involving vehicles and pedestrians.

We know that faculty members who maintain an active research program bring additional insight and context into the undergraduate student experience, which enables extraordinary student success. Our faculty's research often has relevance to the K-12 community too. The news about our latest award from the National Science Foundation (NSF) to bring nanotechnology research experiences to K-12 teachers tells more.

Thanks to the outstanding work of our faculty, staff, and students, our School has increased its awards from NSF from approximately $300K in 2009 to over $1.8M in the last fiscal year. The increase in awards from NSF complements our success in grants from other highly competitive federal sponsors, including the National Institutes of Health, Department of Defense, and the Department of Energy.

As always, thanks for your steadfast support of our students and programs as we continue our ascent to one of America's premier urban schools of engineering and technology.

David J. Russomanno, Ph.D.

IUPUI receives in-kind software grant from Siemens PLM Software

INDIANAPOLIS -- Indiana University-Purdue University Indianapolis on Tuesday, May 20, 2014 announced that it has received an in-kind software grant from

Siemens PLM Software, with a commercial value of $538 million.

“This partnership is a tremendous opportunity for IUPUI students to benefit from having access to state-of-the-art technology that will help prepare them for an evolving 21st Century advanced manufacturing economy,” said IUPUI Chancellor Charles R. Bantz. “We thank Siemens for their vision and commitment and look forward to realizing the great potential of this collaboration.”

The in-kind grant gives students access to the same product lifecycle management PLM technology that companies around the world depend on every day to develop innovative products in a wide variety of industries including automotive, aerospace, machinery, shipbuilding, high-tech electronics and many more. Graduates with this type of software training are highly-recruited candidates for advanced technology jobs.

“This partnership enables us to meet the needs of employers and prepare students for these significant high-paying STEM careers,” said David J. Russomanno, dean, Purdue School of Engineering and Technology.

The in-kind grant was provided by Siemens PLM Software’s academic program that delivers PLM software technology to more than one million students yearly at more than 12,000 global institutions. The software provided is used at every academic level – from grade schools to graduate engineering research programs.

The initiative, jointly spearheaded by the Purdue School of Engineering and Technology and the Office of the Vice Chancellor for Research at IUPUI, will incorporate the state-of-the-art software in both teaching and research activities.

“We are delighted to work with Siemens PLM Software to provide IUPUI students and researchers with a leading-edge technology platform for transforming ideas into innovative products,” said Kody Varahramyan, IUPUI’s Vice Chancellor for Research.

Siemens PLM Software is a leading global provider of product lifecycle management PLMs oftware and services with 9 million licensed seats and more than 77,000 customers worldwide, delivering open solutions to help its customers make smarter decisions that result in better products.

The in-kind grant to IUPUI includes Siemens PLM Software’s:

- Teamcenter® portfolio, the world’s most widely used digital lifecycle management software
- Tecnomatix® portfolio, the industry-leading digital manufacturing software
- NX™ software, a leading integrated solution for computer-aided design, manufacturing and engineering (CAD/CAM/CAE)
- Solid Edge® software, the most complete hybrid 2D/3D CAD system
- Fibersim™ portfolio of software for composites engineering

“We know STEM jobs are on the rise and yet many of our customers today cannot find technically qualified

candidates," said Bill Boswell, senior director, partner strategy, Siemens PLM Software. "This grant enables IUPUI to bridge the technical skills gap and provide industries with graduates prepared for rewarding STEM careers."

"We have met with the Purdue School of Engineering and Technology as they explore the issues and status of product life cycle management incorporation, methodologies and tools. It is really exciting to see how interested their team is in capturing the industry perspective," said Vince Newsom, engineering group manager at Delphi Automotive PLC. "I wish them every success as they establish this new initiative and look forward to working with them in the future. The initiative will be a real asset for industry in Central Indiana. "

State-of-the-art Dallara D3 driving simulator comes to Speedway

Speedway, Ind. — The new Dallara D3 driving simulator arrived with much fanfare at the Dallara IndyCar Factory in Speedway. Gian Paolo Dallara, owner of Dallara, Mark Miles, chief executive officer of Hulman & Company, and Gov. Mike Pence were on hand for the ribbon cutting, accompanied by hundreds of people, among them the myth of the Indianapolis 500, AJ Foyt and Mario Andretti, who even made a simulator driving session.

"Hoosiers live in a state of racing, with the sport's worldwide growth placing Indiana squarely in the starting position," said Governor Pence. "This simulator will take motorsports to new levels, speeding past challenges to spark innovation in developing the world's best race cars. With Indiana's storied legacy in racing, it is only appropriate that the racing capital of the world will be engineering the future of motorsports."

The Dallara IndyCar Factory simulator is commercially available to race teams, particularly engineers and drivers, providing training in an environment very similar to that of an actual track. It is equipped with 180-degree video screens that depict the laser-scanned racetracks and has real-time driver-in-the-loop controls and a Dolby Surround 5.1 audio system. These features allow participants to become completely engaged in the simulation.

"We're thrilled about the latest addition to the Dallara IndyCar Factory," said Scott Harris, executive director of the Speedway Redevelopment Commission. "Speedway has a unique motorsports ancestry and, with the addition of the new simulator at Dallara, that tradition will continue. Motorsports teams can now experience the simulator right here on Main Street. That's exciting for us."

The simulator offers race teams opportunities for creativity, innovation and test development, and it reduces costs associated with road and track testing. Teams are able to test driving techniques while learning new tracks and racing circuit layouts, and they also can perform vehicle setup development and data analysis.

"Normally teams would need to travel to Italy to use such an advanced tool," said Stefano de Ponti, Dallara USA CEO and general manager. "Dallara providing this state-of-the-art simulator will contribute to the research and development of motorsports, an industry that employs more than 23,000 Indiana residents."

The Dallara simulator also will enhance partnerships with Indiana's academic communities. For example, the Purdue School of Engineering and Technology at Indiana University–Purdue University Indianapolis, home of the nation's only motorsports engineering Bachelor of Science program, received a $1.15 million grant from the Indiana Economic Development Corporation to support the completion and operation of the Dallara simulator. The school plans to

partner with Dallara to conduct research designed to advance motorsports engineering and motorsports-related economic development in Indiana.

"It has been really exciting to be a part of making access to this simulator possible and having the opportunity to elevate our partnership with Dallara," said David Russomanno, dean of the School of Engineering and Technology. "Having the simulator at Dallara in Speedway gives our faculty and students the opportunity to translate research into practice, enabling rapid prototyping and innovation that will not only impact motorsports but the entire automotive industry."

IUPUI Receives $494,220 Grant from the National Science Foundation to Create Research and Training Program for Indiana High School STEM Teachers

INDIANAPOLIS – The National Science Foundation has awarded Indiana University-Purdue University Indianapolis (IUPUI) a grant of $494,220 to develop research and training program for high school STEM teachers within underrepresented and low income school districts in the metro area of Indianapolis.

The Integrated Nanosystems Development Institute's (INDI) project, "Research Experiences for Teacher Advancement in Nanotechnology (RETAIN)," will provide 30 teachers nanotechnology research experiences, as well as seminars and coursework. Teachers in the program will learn to integrate their RETAIN experiences into their classrooms through teaching modules designed to boost STEM interest and encourage high school students to pursue higher education and future careers in STEM fields.

Teachers will learn about topics and careers in nanotechnology and have opportunities for hands-on lab experience. They also will design teaching modules that meet existing state and national science standards, and will receive support from a professional network of teachers, scientists and on-site RETAIN staff when they teach the modules. Teachers will receive professional development and college credit programming as well.

"We are thrilled to receive this grant from the National Science Foundation because ultimately it's an investment in Indiana's K-12 students," said David J. Russomanno, Ph.D., Dean, Purdue School of Engineering and Technology at IUPUI. "Our high schools will produce graduates with interest and college-ready skills for success in nanotechnology-related degree programs as well as other STEM fields."

One project goal is to train teachers in inquiry- and discovery-based science, from hypothesis development and experimental design to data collection and dissemination of results, while introducing STEM concepts, applications and career options. Another goal is to integrate RETAIN content into high school classrooms by translating research experiences into 15 (five per year) inquiry-based, nanotechnology teaching modules designed to boost excitement and student interest in STEM disciplines and careers. The project, which complements IUPUI's undergraduate nanotechnology track, is under the leadership of INDI's director Dr. Mangilal Agarwal and other principle investigators Drs. Maher E. Rizkalla, Likun Zhu, Jomo W. Mutegi, and Charles Feldhaus.

"Local demand for STEM-field graduates is as high as the national demand and RETAIN will provide a platform to impact teachers across STEM disciplines and the "wow-factor" needed to boost student interest" said Agarwal.

"Because of the multidisciplinary nature of nanotechnology, trained teachers will be equipped to integrate multiple STEM subjects into their curriculum," explained Dr. Rizkalla. "They will be able to provide their students with subject-to subject connectivity comparable to real-world collaborative expectations."

"This is an excellent example of how IUPUI resources such as INDI, in partnership with the Center for Research and Learning (CRL), the Urban Center for the Advancement of STEM Education (UCASE), and the STEM Education Research Institute (SERI) are creating innovative and coveted outreach programs," said Dr. Kody Varahramyan, Vice Chancellor for Research. "This program will serve well our community through effective enhancement of STEM curricula and increase in high school graduates pursuing STEM fields."

Five refined teaching modules and the program logistics will be featured on the Hoosier Association of Science Teachers, I-STEM Network and TeachEngineering web sites. The project was designed as a portable model that can be implemented at other institutions, and the teaching modules can be implemented on a national level.

About Integrated Nanosystems Development Institute at IUPUI

INDI is an interdisciplinary institute supported through the IUPUI Signature Centers Initiative in partnership with participating faculty from the School of Engineering and Technology, School of Science, School of Dentistry and School of Medicine. INDI is dedicated to research and training in the realization of nanotechnology-based systems. For more information about integrated nanosystems research and INDI, visit www.indi.iupui.edu.

About the Purdue School of Engineering and Technology at IUPUI

The mission of the Purdue School of Engineering and Technology at IUPUI is to be one of the best urban university leaders in the disciplines of engineering and technology recognized locally, nationally and internationally. The school's goal is to provide students an education that will give them the leverage to be leaders in their communities, industry and society. For additional information on the School of Engineering & Technology, go to www.engr.iupui.edu.

About Indiana University-Purdue University Indianapolis

Known as Indiana's premier urban research and health sciences campus, IUPUI is dedicated to advancing the intellectual growth of the state of Indiana and its citizens through research and creative activity, teaching, learning and civic engagement. Nationally ranked by *U.S. News & World Report, Forbes* and other notable publications, IUPUI has more than 30,000 students enrolled in 21 schools, which offer more than 250 degrees. IUPUI awards degrees from both Indiana and Purdue Universities. For more information, visit www.iupui.edu.

Burns Appointed Chair of the IUPUI Department of Music and Arts Technology

Purdue School of Engineering and Technology at IUPUI Dean David J. Russomanno has announced the appointment of associate professor and coordinator of music therapy programs Debra Burns, Ph.D., MT-BC as the next chair of the Department of Music and Arts Technology. Burns will succeed Professor Fred Rees, D.M.A.,

who is stepping down as chair after approximately 4 1/2 years of service. Burns will assume the position on June 1, 2014.

“Based on my interactions with Debra in her role as the School’s acting associate dean for research, I believe she has the abilities, attributes, and knowledge that should make her a highly effective chair. I am confident that the School will work diligently with her in carrying on the mission of the department” said Russomanno.

"I am very pleased to be the next Chair of the Department of Music and Arts Technology and continue the forward thinking in developing the innovative music programs that has preceded me," said Burns.

Burns is an active member of the American Music Therapy Association (AMTA) as a Chair of the AMTA Research Committee and a member of the Journal of Music Therapy editorial board. Prior to joining the faculty at IUPUI in 2004, Dr. Burns completed a postdoctoral research fellowships funded by the Walther Cancer Institute and the National Institutes of Health/National Center for Complementary and Alternative Medicine. Her research focuses on alleviating symptom distress and improving the quality of life of adult cancer patients receiving disease-directed treatment and at the end of life. She has presented nationally and internationally on these topics. Dr. Burns received her Bachelor of Arts in Music Education from Glenville State College, WV, her Masters of Music in Music Therapy at Illinois State University and her Ph.D. in Music Education and Music Therapy from the University of Kansas.