

# Research **Leader**

Shaping the technology of tomorrow®

**UDRI**  
UNIVERSITY  
of DAYTON  
RESEARCH  
INSTITUTE

January/February 2017

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Editor/Designer/Feature stories: Pamela Gregg  
pamela.gregg@udri.udayton.edu

Proofreaders: Sylvia Klosterman  
Lisa McCaffrey  
Lauren Robbins

## From the director: Strategically planning for the future

In a recent “new year” message to all employees, I mentioned the development of a strategic plan for UDRI that would guide how and where we build new business. I’d like to share some information about that here:

Last fall, a committee led by Sukh Sidhu—in his role as director of business development—and representing operating divisions and administrative offices, began meeting to develop a strategic plan for UDRI. We intentionally made this committee diverse, populating it with members who represent a wide breadth and depth of technical expertise, and experience with government and industry.

Central to the development of a strategic plan was the realization that to achieve significant, sustainable growth, we have to augment the way we currently build business. Historically, we have built business primarily through an entrepreneurial, “bottom up” approach in

which professional research staff at various levels exercise their professional networks to identify and bid on sponsored programs. Many such programs are conducted within an individual research group or operating division, while some programs utilize expertise from other divisions. This approach has contributed largely to UDRI’s success. (*continued page 4*)



## Composites for compressed-gas storage underway

An Ohio-based initiative to develop affordable, safer and recyclable compressed-gas fuel tanks for the trucking and automotive industry, led by the University of Dayton Research Institute, is underway with the kick-off of its first collaborative project. The project launch was announced Feb. 15 by the Institute for Advanced Composites Manufacturing Innovation, a national consortium of more than 100 members of academia, industry and government.

IACMI was launched in 2015 with a goal of increasing domestic production capacity and composites-manufacturing jobs across the U.S. by facilitating academic and industry partnerships to spur the development of better composite materials, processes and products for use within the automotive, wind turbine and compressed-gas storage industries.

In the first of the compressed-gas storage projects, UDRI and collaborative partners DuPont Performance Materials, the Composite Prototyping Center and Steelhead Composites will pursue the use of thermoplastic materials to develop the advanced-composite fuel tanks that will be lighter but stronger than steel.

While compressed-gas storage tanks made of advanced composites have been in use for about two decades, the materials are expensive, require large amounts of energy to manufacture and are difficult to recycle, said **Brian Rice**, head of UDRI’s Multi-Scale Composites and Polymers division, who also serves as director of IACMI’s compressed-gas storage initiative. The use of thermoplastics in tanks will not only reduce their cost, but also make them safer and recyclable.

**UDRI**

## Holidays

**Good Friday**  
Friday, April 14

**Easter Monday**  
Monday, April 17  
(Campus sites only)

## Moving on

**Dayle Pearson** retired from the Multi-Scale Composites & Polymers division Dec. 22 after nearly 32 years at the Research Institute. Supervisor Ron Trejo said he was grateful to have been able to avail himself of Dayle's "intelligence and invaluable experience. I was always sure about the best results in the projects handled by Dayle," he said. "Her ability to shoulder various responsibilities efficiently was always a great help to me and the Research Institute, and I also appreciated her willingness to handle tasks that went beyond her job profile, her craving for perfection and commitment to work."

**Larry Grazulis** retired from the Energy Technologies & Materials division Jan. 17 after a career that spanned 37 years at UDRI. Supervisor Sukh Sidhu said Larry "is a highly respected scientist; someone who was always reliable, which is a very important quality. I respected Larry for his science and engineering abilities, and I also respected him as a person. He always had a smile on his face; he was always a pleasure to work with."

**Bob Kauffman** retired from the Nonstructural Materials division Feb. 28 after nearly 37 years with the Research Institute. Supervisor Susan Saliba said Bob spent his career solving problems for customers, from determining probable causes of the 1996 crash of TWA flight 800 to creating a "smart dipstick" for online engine diagnostics. "As a result of his endeavors, Bob has been the recipient of numerous awards, including UDRI's Wohlleben-Hochwalt Outstanding Research award, a Dayton Business Journal Innovation Index Award, and three coveted R & D 100 awards for his impactful discoveries and innovations," Susan said. (continued page 5)

## Welcome aboard!



Ted



Matt L.



Jennifer



Judy



Matt M.



Lindsay



Justin



Dan



Kurt



Melisa



Rich N.



Jim



Mark R.



Rich R.



Luke



Kyle

**Ted Hood** joined the Aerospace Product Support Engineering group in the Energy Technologies & Materials division Sept. 16 as an associate robotics engineer. He specializes in electrical engineering and control systems.

**Matt Mongin** joined the Additive Manufacturing & Repair Technologies group in Energy Technologies & Materials Oct. 10 as a cold spray additive manufacturing lab technician. He specializes in mechanical engineering

**Kurt Bond** joined the Aerospace Product Support Engineering group in

Energy Technologies & Materials Oct. 17 as a research corrosion analyst. He is retired from the Air Force with 24 years of experience in aircraft structural maintenance and six years in data analysis.

**Mark Redden** joined the Robotics & Laser Technologies group in Energy Technologies & Materials Dec. 1 as a senior automation program manager. He specializes in human factors engineering.

**Matt Lucas** joined the Advanced Power Components group in Energy Technologies & Materials Dec. 5 as a research scientist. He specializes in materials. (continued page 3)

## Happy anniversary!

<b>January</b>		Cory Yambor	1
John Murphy	38	Travis Jackson	1
Tom Held	36	Andrew Keller	1
Claudette Groeber	32	Richard Osterman	1
John Stalter	32		
Ollie Scott	31	<b>February</b>	
Kevin Roach	24	Mark Ruddell	38
Scott Stouffer	21	Marlene Houtz	37
Matt Pierson	20	Kevin Poormon	28
Cindy O'Brien	19	Rhonda Diehl	26
Timmie Campbell	19	Tak Yamada	18
Matt Davies	18	Kate Holley	17
Chenggang Chen	17	Adam Long	16
Bob Olding	16	Jennifer Durbin	15
Debbie Meyers	15	Sirina Safriet	12
Bill Barnes	14	Mike Nickell	10
Nick Gagliardi	13	Gary Martin	10
Dan Kramer	13	Lisa Brown	9
Frank Smith	12	Kathy Weisenbach	9
Carl Sjoblom	12	Charles Ebbing	7
Rhonda Cook	10	Daniel O'Brien	7
Patrick Hytla	9	Rich Beblo	7
Tom Fitzgerald	9	Christine M Malloy	7
Colleen Dansereau	9	Douglas Johnson	6
Martin DeSimio	9	Qihong Zhang	6
Victor Tsao	8	Becki Glagola	6
Hondo Imwalle	4	Tyler Hendershott	5
Joel Warm	4	Yulie Jones	5
Christopher Northenor	4	Albert Vam	3
Joshua Buck	2	Richard Coomer	3
Timothy Dale	2	Jessica Orr	2
Jacob Freeman	2	Sead Uruci	2
Douglas Johnson	2	LaNay Barley	2
Marianne Shreck	2	Christopher Venturella	1
Claron Ridge	1	Colin Leong	1
Emily Berrett	1	Cory Bucksar	1
Ethan Lin	1	Giacomo Flora	1
James Trzeciak	1	Matthew Witzeman	1
Kari Howard	1	Michael Barnard	1
Michael Hess	1	Joshua Kaster	1
Nihad Al-Faisali	1	Matthew Rothgeb	1
Noah Calderon	1	Vikram Kuppa	1
Jhadae Richardson	1	Jacob Carter	1
Anusha Manne	1		

## Machine Shop upgraded

UDRI's new Machine Shop, housed in Aerospace Mechanics and managed by **Jesse Thumser**, features a number of services and capabilities designed to support UDRI (and UD) researchers, in addition to serving customers. In its new location in Shroyer Park Center, room 821, the upgraded shop now includes a high-speed, five-axis milling machine, a boring mill for machining very large parts, a higher ceiling and overhead crane. A manual milling machine has also been upgraded to a computer numeric control (CNC) machine.

These new capabilities supplement and expand services already offered by the shop, including high-speed CNC and traditional lathing, grinding, sheet-metal forming, metal-inert-gas (MIG) and tungsten-inert-gas (TIG) welding, painting, and fabrication and assembly of test systems. In addition, staff will serve on design teams, providing practical and innovative considerations to design concepts.

For additional information, call the Machine Shop at 229-3826.

## Moving up

Congratulations to the following employees, who were promoted in January: From Accounting: Lauren Robbins; Aerospace Mechanics: Pete Phillips and Keith Vehorn; Energy & Environmental Engineering: Thusitha Gunasekera; Energy Technologies & Materials: Cody Back, Saikumar Chalivendra, Colleen Dansereau, Charles Ebbing, Giacomo Flora, Keith Grinstead, Eric Lang, Jacob Lawson, Leah Lucente, Christofer Whiting; Multi-Scale Composites & Polymers: Lingchuan Li and Gabriel O'Reilly; Non-structural Materials: Jennifer Dodaro, Alexander Fletcher, John Graham, Steve Patton and Megan Pike; RITO: Hung Nguyen; Sensor APEX: Amy Allen, Andrew Frantz, Mark Knapke, David Mundy, Jonathan Skeans, David Walker and Benjamin Woodruff; Structural Integrity: John Chumack and Travis Fox.

### New employees (from p. 2)

**Rich Ryman** joined the Advanced Power Components group in Energy Technologies & Materials Dec. 16 as chief technician. He specializes in electronics, fabrication & design.

**Jennifer Sanderson** joined the Aerospace Product Support Engineering group in Energy Technologies & Materials Dec. 16 as an associate project analyst. She specializes in program management.

**Lindsay McDowall** joined the Aerospace Product Support Engineering group in Energy Technologies & Materials Dec. 5 as an associate corrosion engineer. She specializes in chemical engineering.

**Melisa Dungan** ('01) joined the Additive Manufacturing & Repair Technologies group in Energy Technologies & Materials Dec. 16 as an associate project analyst. She specializes in finance and project management. (continued page 5)

## Technology licensed



Congratulations to **Zongwu Bai** (Multi-Scale Composites & Polymers), whose patented research and development in advanced polymer

membrane technology has been licensed by a major global corporation. The license agreement prohibits disclosure of details at this time.



## New contracts

New awards to UDRI in excess of \$500,000 in October, November, December and January include:

The Manufacturing Technology Solutions Accelerator Office received two awards totaling \$1.9 million from the Ohio Development Services Agency. The awards will fund MTSA's FastLane Manufacturing Extension Partnership, which supports small- and medium-sized businesses in West Central Ohio. **Phil Ratermann** serves as program manager.

Aerospace Mechanics received a \$960,000 Air Force award to generate a database of hypersonic materials and structures. **Steve Olson** serves as PI. Efforts will also involve significant contributions from Sensor Systems.

Energy Technologies & Materials received a \$600,000 award from the FAA for research and development into advanced battery technologies. **Jitendra Kumar** will serve as PI.

Sensor Systems received a \$500,000 award from Wright State University for investigation into interactions with semi-autonomous remotely piloted vehicles. **Jacob Freeman** will serve as PI.



Daylight Saving Time begins Sunday, March 12. Spring ahead one hour!

## Strategic plan *(from p. 1)*

We believe that our growth can be enhanced by complementing this model with some "top down" planning in strategic research areas, wherein centralized coordination between divisions and pooling of resources can help land larger programs that are executed by cross-divisional teams.

The committee has been hard at work analyzing our organization's strengths, weaknesses, opportunities and threats. It has discussed criteria that will be used to identify new technical areas to pursue through "top down" cross-divisional programs. It has brainstormed to derive a preliminary list of such technical areas for future growth of UDRI business. And, it has debated strategies to better market UDRI capabilities and expertise.

In addition to committee discussions, we have also used our operations leadership as a sounding board and a source of suggestions, comments and critiques. In the coming months, we will hold a series of meetings with the intent of describing progress to date and soliciting feedback from all our staff, which will be valuable in further shaping and

*Mary Miller (Manufacturing Technology Solutions Accelerator Office), Susan Hill (Structural Integrity) and Becky Hoffman (Aerospace Mechanics) volunteered at a "Girl Day" event, organized by Raytheon and held Feb. 23 at Wright-Patterson Air Force Base's Prairies Youth Center. Girls ages 8 to 17 attended the event, held*



## Strategic Planning Committee

**Sukh Sidhu** (Chair)  
Energy Technologies & Materials

**Rich Beblo**  
Aerospace Mechanics

**Sarah Browning**  
Office of Contracts & Grants

**Allan Crasto**  
Office of the Director

**Matt DeWitt**  
Energy & Environmental Engineering

**Bob Kauffman**  
Nonstructural Materials

**Phil Ratermann**  
MTSA Office

**Kelly Riggan**  
Sensor Systems

**John Ruschau**  
Structural Integrity

**Brian Stitt**  
Energy Technologies & Materials

**Jared Stonecash**  
Multi-Scale Composites & Polymers

**Bill Turri**  
Sensor APEX Office

refining the plan. In the end, we are confident we will craft a plan that will serve as a solid foundation for our future.

*in honor of National Engineers Week. That same day Mary and Jessica Orr (MTSA) volunteered at a STEAM (science, technology engineering, arts and math) event for girls at Bellbrook Middle School (pictured). Many young girls were very interested in learning more about manufacturing and engineering, Mary said.*



## Free access to articles

The University of Dayton subscribes to hundreds of journals and periodicals, and UD students, faculty and staff can access current and archived articles in those publications at no cost. Go to [udayton.edu/libraries](http://udayton.edu/libraries) and, if you search using a computer with a University IP address, you will receive immediate access to e-resources. If you are on a non-UD computer, you will be prompted for your Porches user name and password. To learn more, call 937-229-4221.

**New employees** (from page 2)



Laura

**Justin May** joined the Nano-chemistry and Nano-engineering group in Energy Technologies & Materials Jan. 3 as chief electronics technician. He specializes in electronics.



Kevin

**Rich Nilson** joined the Nano-chemistry & Nano-engineering group in Energy Technologies & Materials Jan. 3 as chief engineering technician. He specializes in mechanical systems and electronics.



Shaun

**Luke Siko** joined the Additive Manufacturing & Repair Technologies group in Energy Technologies & Materials Jan. 3 as an associate additive manufacturing

design engineer.

**Judy Lovejoy** joined the Applied Combustion & Energy group in Energy Technologies & Materials Jan. 9 as an administrative associate. She specializes in customer service.

**Dan Prindle** ('11) joined the Additive Manufacturing & Repair Technologies group in Energy Technologies & Materials Jan. 9 as a cold spray repair engineer. He specializes in product development and introduction.

**Jim Collins** ('84) joined the Nano-Enhanced Composites group in Multi-Scale Composites & Polymers Jan. 17 as a senior research engineer. He specializes in program management.

**Kyle Hosler** joined the Additive Manufacturing & Repair Technologies group in Energy Technologies & Materials Jan. 17 as an associate additive manufacturing design engineer. He specializes in aerospace engineering.

**Laura Stevens** joined the Technology Partnerships Office Jan. 30 as a

marketing specialist. She specializes in marketing.

**Kevin Geary** ('15, '16) joined the Software Systems group in Sensor Systems Feb. 1 as a research engineer. He specializes in electrical and computer engineering.

**Shaun Morton** ('06) joined the Research Information Technologies Office Feb. 1 as a network administrator. He specializes in IT systems support and network administration.



**Moving on** (from p. 2)

“Bob’s commitment to research and innovation has significantly improved UDRI’s reputation worldwide, and I’m grateful for his years of service to me and the entire division.”

**Bill Melke** retired from the Energy & Environmental Engineering division Feb. 21 after nearly seven years at UDRI. Supervisor Jamie Ervin said Bill “is a very kind person who never said anything negative about anybody. He was our chief technician, and he possessed excellent mechanical and electrical skills. Everyone here will really miss his expertise. Bill was also a strong proponent of, and very involved in, Dayton Habitat for Humanity. He volunteered his time in other ways as well. Bill is looking forward to spending time with his family, and we wish him well.”

**Sharing office hacks**

Have you ever wanted to create a flyer in Microsoft Publisher, but weren't familiar enough with the program to use it well? Join **Lisa McCaffrey** (Director's Office) at noon Thursday, April 20, in River Campus conference room 5220. Lisa will share some tips for rapidly creating eye-catching flyers, invitations and more.

And if *you* have some skills to share that might make life a little easier for your colleagues, we'd love to hear about them. Please email Alex Polzella with suggestions on topics you can share or would like to learn more about.

**Leland to serve again**



Ohio Gov. John Kasich reappointed John Leland, University of Dayton vice president for research and executive director, UDRI, to the Ohio Aerospace and

Aviation Technology Committee for a two-year term.

Leland, whom Gov. Kasich also appointed to the inaugural committee in 2014 for a two-year term, will help legislators and members of the aerospace and aviation community, including military personnel, academic experts and industry leaders, explore ways to boost the aerospace industry in Ohio.

Strategies include:

- \* Promoting the aviation, aerospace and technology industries throughout the state, including through the commercialization of aviation, aerospace and technology products and ideas;

- \* Encouraging communication and resource-sharing among individuals and organizations involved in the aviation, aerospace and technology industries, including business, the military and academia;

- \* Promoting research and development in the aviation, aerospace and technology industries, including research and development of unmanned aerial vehicles;

- \* Providing assistance related to military base realignment and closure.

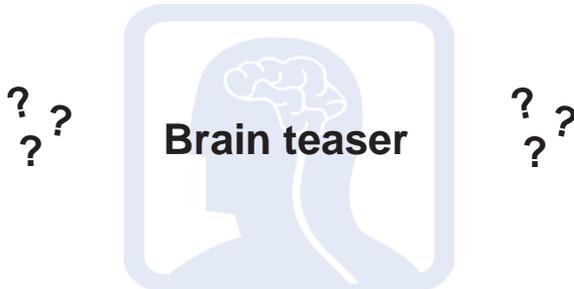
**WANTED:**

Speakers for the Barn Gang program at the Engineers Club of Dayton. The Barn Gang meets weekly for lunch and to hear speakers on a variety of topics; research is a favorite. Lunch will be provided in exchange for your time. If you would be interested in sharing information on your research, or to learn more, contact Pamela Gregg at 937-229-3268.

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300 College Park  
Dayton, Ohio 45469-0101



What two-digit number, read left to right, is 4.5 times as large as the same number, read right to left?

Please submit your answer, along with your name *and division*, by Monday, April 3, to Pam Gregg at [pamela.gregg@udri.udayton.edu](mailto:pamela.gregg@udri.udayton.edu).

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**Answer to the November/December brain teaser:** Rock and Roll, Mom and Pop, Law and Order, Rise and Shine, Rough and Tumble.

Thanks to **Patty Ward** (Accounting), **Bill Beglin**, **Bob Blanchard**, **Mike Bouchard** and **Eddie Warrick** (Aerospace Mechanics), **Denny Gault** (Director's Office), **Jhoanna Alger** and **Susan Mueller** (Energy & Environmental Engineering), **Bryan Pavlich** (Energy Technologies & Materials), **Jessica Orr** and **Phil Rattermann** (MTSA Office), **Virginia Meeks** (Multi-Scale Composites & Polymers), **Ruth Girouard** (Nonstructural Materials), **Steve Russell** (Purchasing), **Jordan Speers** (Structural Integrity), **Matt Willenbrink** (Technology Partnerships), **Matt Beebe** and **Jim Brooks** (UD Central Receiving), **Fr. Jim Fitz** (University Rector) and **Annette Mitchell** (UD Student Development) for submitting answers.

## In the Public Eye

The *Dayton Business Journal* wrote about a \$1.1 million award to UDRI from the Ohio Federal Research Network. The award is for research and development in advanced composites to help reduce the time and cost associated with manufacturing composite structures for aircraft.

UDRI was mentioned in a *Knoxville News Sentinel* story about the Institute for Advanced Composites Manufacturing Innovation, a national consortium of academic, research, industry and government organizations working to advance the development of materials and products for automotive, wind and compressed-gas-storage applications—with the goal of creating manufacturing jobs in these areas.

The Research Institute leads the initiative in compressed gas storage, and the *Dayton Daily News* wrote a story about the recent kick-off of that program (see cover story).

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# UDRI