

# THE REPORTER

Journal of the Central Indiana Section of the IEEE

**Save the Date!**  
**Friday and Saturday, November 6 – 7, 2015**  
**2015 Central Indiana Section EnCON / IEEE Metro Area Workshop**



In addition to the popular Professional Development Career workshop, the Professional Engineer’s Ethics and Indiana Law Continuing Education Units, and the emerging technology talks given by innovation leaders, we are planning on adding several half and full day workshop tracks on topics such as Electric Vehicle Technology, Mobile Application Development, Smart Grid, and Software Engineering. In addition, we are planning a Student Poster session to allow local Graduate and Undergraduate students opportunities to show off their research. This will be a good opportunity for you to brush up on your skills, learn about emerging technologies, and will provide many opportunities to network with local professionals and industry leaders.

Mark these dates in your calendar now!

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**Save the Date!**  
**Sunday July 26<sup>th</sup>**  
**Annual Central Indiana Section Baseball Outing**



Spring is here along with baseball season. Time to think about spending a beautiful afternoon enjoying food, family, friends, and even a cold brew on the breezy 1<sup>st</sup> base terrace of Victory Field. Come and enjoy the afternoon with your fellow IEEE members and their families to watch the Indianapolis Indian's take on the Louisville Bats.

Registration starts soon, so mark your calendar now!

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### New Senior Members

Congratulations to our newest Senior members!

**Alexandra Boltasseva**

**Jie Shan**

**Chih-Chun Wang**

**XiaoFeng Wang**

Biographies of newly elevated senior members are provided below when available.

Please submit additional biographies to [mcnallyh@purdue.edu](mailto:mcnallyh@purdue.edu)

**Alexandra Boltasseva** is an Associate Professor at the School of Electrical and Computer Engineering and Birck Nanotechnology Center, Purdue University, and an adjunct Associate Professor at Technical University of Denmark (DTU). She received her PhD in electrical engineering at DTU in 2004. Boltasseva specializes in nanophotonics, metamaterials, plasmonics, optical materials and nanofabrication. She received the 2013 IEEE Photonics Society Young Investigator Award, 2013 Materials Research Society (MRS) Outstanding Young Investigator Award, the MIT Technology Review Top Young Innovator (TR35) award that "honors 35 innovators under 35 each year whose work promises to change the world", the Purdue College of Engineering Early Career Research Award, the Young Researcher Award in Advanced Optical Technologies from the University of Erlangen-Nuremberg, Germany, and the Young Elite-Researcher Award from the Danish Council for Independent Research. She is topical editor for Optics Letters and Scientific Reports (Nature Publishing

Group) and member of the editorial board for ACS Photonics and Advanced Optical Materials. She is a member of the Board of Directors for MRS, Fellow of the optical Society of America (OSA), member of APS and SPIE. She has co-authored five invited book chapters and 90 research papers in refereed journals. She has an h-index of 38 (Google Scholar) with a total number of citations above 5100. Alexandra has been featured as an invited speaker at more than 80 international conferences and leading research centers.

**Jie Shan** is a professor in geomatics engineering with the School of Civil Engineering, Purdue University, and West Lafayette, IN. He has been a faculty with universities in China and Sweden and research fellow in Germany. His area of interests includes sensor geometry, pattern recognition from images and lidar data, feature extraction and reconstruction, urban remote sensing, and automated mapping. He is an author and co-author of over 150 journal and conference papers. Dr. Shan is a recipient of multiple academic awards, including the Talbert Abrams Grand Award, the Environmental Systems Research Institute Award for Best Scientific Paper in Geographic Information System (GIS) (First Place), and the Excellence in GIS Award of Indiana. He is a member of the International Scientific Advisory Committee (ISAC) of ISPRS and co-chair of the Remote Sensing and Mapping Technical Committee (TC7) of the International Association for Pattern Recognition (IAPR). He is an Associate Editor for the IEEE Transactions on Geoscience and Remote Sensing and the Assistant Editor for Photogrammetric Engineering and Remote Sensing.

**Chih-Chun Wang** is currently an Associate Professor of the School of Electrical and Computer Engineering of Purdue University. He received the B.E. degree in E.E. from National Taiwan University, Taipei, Taiwan in 1999, the M.S. degree in E.E., the Ph.D. degree in E.E. from Princeton University in 2002 and 2005, respectively. He worked in Comtrend Corporation, Taipei, Taiwan, as a design engineer in 2000 and spent the summer of 2004 with Flarion Technologies, New Jersey. In 2005, he held a post-doctoral researcher position in the Department of Electrical Engineering of Princeton University. He joined Purdue University as an Assistant Professor in 2006, and became an Associate Professor in 2012. He is currently a senior member of IEEE and has been an associate editor of IEEE Transactions on Information Theory since 2014. His current research interests are in the graph-theoretic and algorithmic analysis of iterative decoding and of network coding. Other research interests of his fall in the general areas of networking, optimal control, information theory, detection theory, and coding theory. Dr. Wang received the National Science Foundation Faculty Early Career Development (CAREER) Award in 2009.

**XiaoFeng Wang** is an associate professor in the School of Informatics and Computing at Indiana University, Bloomington. He received his Ph.D. in Electrical and Computer Engineering from Carnegie Mellon University in 2004, and has since been a faculty member at IU. Dr. Wang is a recognized active researcher on system and network security. His work focuses on cloud and mobile security, and data privacy (particularly the privacy challenges in a large-scale analysis and dissemination of human genomic data). He is a recipient of 2011 Award for Outstanding Research in Privacy Enhancing Technologies (the PET Award) and the Best Practical Paper Award at the 32nd IEEE Symposium on Security and Privacy. His work frequently receives media attention (e.g., CNN, MSNBC, Slashdot, CNet, PC World, etc.), and is supported by the NIH, NSF, Department of Homeland Security, the Air Force and Microsoft Research. He served as the director for the Security Informatics program at IU in 2010.

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### Purdue's IEEE Aerial Robotics

These past few months, the Aerial Robotics team has been keeping busy. With competition less than a month away (June 17-21 at Webster Field, Maryland), they are very anxious to show their hard work. After manufacturing two prototypes, a final design for an Unmanned Aerial System (UAS) has been completed and named Royal Flush. The system was constructed using salvaged parts from the prototypes. Royal Flush has flown many flights without significant incident, providing confidence that the system is safe, reliable and will perform well during the flight demonstration at competition. An image of Royal Flush along with its specifications are given as Figure 1 along with specifications of Royal Flush. Competition will include student interviews, safety inspections and flight readiness reviews (FRR) briefings, and the flight-mission demonstration.



Figure 1: Royal Flush after Completing Test Flight

#### Specifications of Royal Flush

Length	50 in
Wingspan	6 ft
Wing Area	4.5 ft <sup>2</sup>
Wing Sweep	0 deg
Aspect Ratio	8
Tail Height	16.5 in
Weight	7.14 lbs
Motor	NTM Prop Drive 35-36A 1400Kv/550W

For more information about our design process, our full technical report can be viewed using this link:

<https://drive.google.com/file/d/0B5107H94KnS1ai1paUlsVmFoM3M/view?usp=sharing>

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### Power & Energy / Industry Applications / Power Electronics Society News

Earl Hill, Chair, PES/IAS/PELS, Diana Vasquez, Chair – Elect PES/IAS/PELS

Ben Huckaba, Vice-Chair, PES/IAS/PELS

The PES/IAS/PELS completed a successful Spring Short Course on Solar Integration over four weeks in March. Topics included the solar integration design, financials, customer and utility perspectives, and system analysis for impacted utility distribution circuits. In April the course was followed up with a very informative tour of the Indianapolis Airport Solar Farm, sharing many lessons learned from its construction and operation.

The May meeting was on Smart Grid Electromagnetic Compatibility Standards Harmonization, presented by Mr. Jerry Ramie of ARC Technical Resources, Inc. Mr. Ramie highlighted the importance of immunity testing standards for smart grid network and communication equipment such as relays, controls, and smart meters. IEEE-1613.1(2013) now is closely aligned with the IEC, and utility users were encouraged specify products conforming to IEEE-1613.1(2013).

The planned September meeting will be a tour of the Mid-Continent Independent System Operator (MISO) facilities in Carmel. MISO controls the electric transmission grid across the Mississippi Valley and adjacent areas of the Midwest. It also operates the regional electric market. Advanced registration will be required, and capacity will be limited. Specific event and registration information will be posted at the Section website.

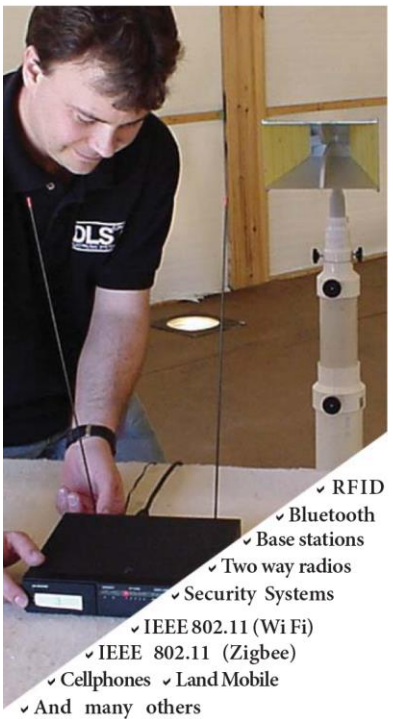


Power & Energy / Industry Applications / Power Electronics Society News  
Special Note

The PES/IAS/PELS wishes to thank **Earl Hill** for his many years of excellent service as Chair. Earl is resigning as Chair and will be transitioning his responsibilities to Diana Vasquez during the summer months. Diana is looking forward to working with the other volunteers who make the PES/IAS/PELS events possible.

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### 2015 Meeting Calendar

Date	Host	Subject	Location
Monthly	CIS	Executive Committee Meetings	Internet/Phone Bridge
6&7 Nov. 2015	CIS	Section Conference	Indianapolis Marriott North
26 July 2015	CIS	Annual Baseball Outing	Victory Field

... Check the [Section web page](#) for details and current information.

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### Central Indiana Engineering Web Links

ACEC	<a href="#">American Council of Engineering Companies, Indiana</a>	acecindiana.org
ASCE	<a href="#">American Society of Civil Engineers</a>	inasce.org
ASME	<a href="#">American Society of Mechanical Engineers</a>	sections.asme.org/central_indiana
ASM-INDY	<a href="#">American Society for Metals - Indianapolis</a>	asm-indy.org
CIECN	<a href="#">Central Indiana Engineering Consultants' Network</a>	indy-engineer.dnsalias.com
CINLUG	<a href="#">Central Indiana Linux Users Group</a>	cinlug.org
IHIF	<a href="#">Indiana Health Industry Forum</a>	ihif.org
INCOSE	<a href="#">International Council on Systems Engineering</a>	incose-coa.org
INDSPE	<a href="#">Indiana Society of Professional Engineers</a>	indspe.org
INDYASHRAE	<a href="#">American Society of Heating, Refrigeration, and Air Conditioning Engineers</a>	indyashrae.org
NSBE-IAE	<a href="#">National Society of Black Engineers - Indianapolis Alumni Extension</a>	nsbe-ip.org
PIMCIC	<a href="#">Project Management Institute - Central Indiana Chapter</a>	pmicic.org
SAE	<a href="#">Society of Automotive Engineers, Indianapolis</a>	saeindiana.org
Scientech	<a href="#">Scientech Club in Indianapolis</a>	scientechclub.org
SIM	<a href="#">Indianapolis Chapter of Society for Information Management (SIM)</a>	SimNet.org
SWE-CI	<a href="#">Society of Women Engineers - Central Indiana Section</a>	swe-ci.com
Techpoint	<a href="#">A diverse collection of technology-based Indiana industries.</a>	Techpoint.org

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Distribution: The Reporter is made available electronically to the approximately 1800 IEEE members within the Central Indiana Section including student members and faculty of Purdue, IUPUI, Rose-Hulman Institute of Technology and ITT Technical Institute.

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**Editorial Policies**

Each issue of The Reporter typically references three months - the month in which it is published and the following two months. The Reporter is typically published in March, June, September, and December.

Material to be included should be submitted mid-month prior to the month it is to be published. For example, material intended for the September issue should be submitted to the Editor by August 15. The Editor will send a reminder to all IEEE Central Indiana Section entities by the 25th of the month to submit their updates.

Copy should be submitted electronically. Photographs are desirable. Advertisements are welcome. Contact the editor for layout sizes and rates at [mcnallyh@purdue.edu](mailto:mcnallyh@purdue.edu).

### *How Do You Communicate??*

Want to know what is happening in Central Indiana Section? Don't know where to look? Already inundated with E-Notices? Need to ask a question? Want to find an expert? Got a meeting idea?

Here are some of many communication channels available in Central Indiana Section



Find the Central Indiana Engineering Consultants' Network and the Central Indiana Section Communications Society, as well as several other IEEE related organizations on LinkedIn.



Student Branch members are encouraged to join "CIS-IEEE Student Branches" group on Facebook. Several opportunities for students and student branches have been posted there. The Facebook group also provides an opportunity for CIS student members to interact or to make contact with student members outside of Central Indiana. There is no substitute for a good network, but be aware that some hiring managers are also checking these sites.

Communications Society members can find "COMSOC – Central Indiana Section" on Facebook.

#### **CIS Home Pages**

Start with the main site. ([www.cis-ieee.org](http://www.cis-ieee.org)) Check out the calendar of events, or link to the many IEEE groups in Central Indiana Section, including all of the Student Branches.

Not getting E-Notices? E-Notices are not only a resource for keeping in touch with the activities throughout CIS, but you will also receive information on topics of interest throughout IEEE

#### **E-Notices**

Login to myIEEE from the IEEE Home Page ([www.ieee.org](http://www.ieee.org)) and sign-up!

Check out the calendar of events, at the main site. ([www.cis-ieee.org](http://www.cis-ieee.org))