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Mechanical Engineering Student Receives Tau Beta Pi Scholarship

**Erika Fojtik**, a senior in mechanical engineering, was awarded *The Tau Beta Pi Scholarship for Michigan Kappa*. Erika earned this award in part based on her volunteer work to promote engineering and science to young girls in an event sponsored by the South Central Michigan Society of Women Engineers and the Sigma Gamma Rho Sorority. The scholarship was provided by a grant from Tau Beta Pi national headquarters to our local Michigan Kappa Chapter based on its outstanding record of service. The local chapter also contributed to the scholarship. *Tau Beta Pi* is an honor society that recognizes “distinguished scholarship and exemplary character” among students from all fields of engineering.

~Dr. Damon Miller, contributor

Pictured left: Erika receiving her scholarship from Spencer Watza, President of the Michigan Kappa Chapter of Tau Beta Pi

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WMU Engineering Students Compete in Fifth Stryker Engineering Challenge

A team of WMU engineering students participated in an engineering design competition sponsored by Stryker on March 26-27. The competition featured teams from Michigan College Alliances, Michigan Tech, Notre Dame, Purdue, University of Michigan, and WMU. Student teams worked through the night to construct a wheeled device to rescue miniature “victims” trapped in a mock-up of downtown Kalamazoo. Each victim had a magnetic vest to facilitate extraction. Rescue vehicles had to traverse an obstacle course to deliver victims to safety. The team from the University of Michigan won the competition. Previous WMU teams earned one second place and two first place finishes in this annual competition. WMU faculty **Dr. Damon Miller** and **Professor Fred Sitkins** serve as team coordinators.

~Dr. Damon Miller, contributor

2015 WMU Stryker Engineering Challenge Team
L-R: Katie Eluskie, Gregory Bosma, James Novorita, and Cory Fritz.

~Photo courtesy Stryker Corporation
WMU Engineering Students Win First Place at Conference in Istanbul, Turkey

Two WMU Electrical and Computer Science department students, **Eric A. Pietrowicz** and **Tyler W. Bayne**, who are working with **Dr. Pnina Ari-Gur** on her National Science Foundation grant, traveled to Boğaziçi University in Istanbul, Turkey to present a paper on their work at the 21st International Cultural and Academic Meeting of Engineering Students (ICAMES). To be accepted at this competitive conference is an honor and recognition of a high quality project. Ari-Gur who is a professor in the WMU Mechanical and Aerospace Engineering department, sent the pair to the conference to present the NSF and Hewlett-Packard funded 3D virtual laboratory research project. Eric an electrical engineering undergraduate student, delivered the paper while Tyler a masters student in computer engineering, served as a graduate student advisor. Both Eric and Tyler were also winners of the Undergraduate Research Excellence award for their work on this project.

The presentation was very well received by audience and referees alike and led to the team winning first place in the competitive part of the conference. Eric and Tyler presented at the conference a computer-game style 3-D virtual scanning electron microscope that is fully interactive. This simulation and others such as tensile testing of materials and X-ray diffraction, are being phased into the undergraduate engineering curriculum at Western Michigan University. Over 50 institutions around the globe have requested and received the ‘hands-on’ simulated experiments to use at their sites. Professors in the audience were impressed with the virtual lab and plan to adopt the simulations for use in their classes.

The conference also included a variety of tours and activities with representatives from the other 17 countries in attendance. These activities included Culture Night, a school-wide carnival, Turkish Night, and local concerts at the university. It was a fun and educational experience that created many new friendships, as well as professional contacts.

Eric delivering the presentation.

L-R: President of ENSO, Hasan Erdem Bilgin with WMU students Eric Pietrowicz and Tyler Bayne.

L-R: Tyler and Eric were able to take in some of the local scenery with a new acquaintance.

~ Dr. Pnina Ari-Gur, contributor
Professor Involved in a Unique Emerald Ash Borer Project During Sabbatical

The emerald ash borer (*Agrilus planipennis*) is a green jewel beetle native to Asia and Eastern Russia. Outside its native region, the emerald ash borer (also referred to as EAB) is an invasive species and is highly destructive to ash trees in its introduced range. The emerald ash borer was first discovered in America in June 2002 in Michigan. It was accidentally brought to the North America in ash wood used in shipping materials.

EAB primarily infest and can cause significant damage to ash species including green ash, black ash, white ash, and blue. In its native range, emerald ash borer is only a sporadic pest on native trees as population densities typically do not reach levels lethal to healthy trees.

In order to stop and ultimately eradicate the infestation of trees from EABs Penn State researchers devised a laboratory process to fabricate a female EAB decoy that can lure male EABs and trap them and prevent them to engage in reproduction cycle to gradually control the total population of these harmful bugs.

During Fall 2013 Dr. Gupta conducted his research work in the Engineering Mechanics Nano-fabrication Laboratory at Penn State University campus. Penn State professors and graduate students have been developing nano-fabrication processes to construct a decoy of the female EAB bug in laboratory setting. His research with the Penn State team led to a simpler version of their original process while making it suitable for large volume and faster production. The real world application demands hundreds, if not thousands of these decoys be produced to solve the problem of infestation of millions of trees. During Gupta’s sabbatical period of one semester he was able to simplify the nano-fabrication technique and scale up the production process ten times using the same laboratory equipment.

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*Dr. Tarun Gupta, contributor*