



SENIOR SCIENCE SOCIETY NEWSLETTER

Volume 7, No. 4
July 2019



General Membership Meeting featuring



Dr. Stephen Wilkerson, P.E.
York (PA) College

August 19, 2019, 6:45 P.M.
Harford Community College
2nd floor Darlington Hall



The next General Membership Meeting of the Senior Science Society will be held on Monday, August 19, 2019 in Darlington Hall on the Harford Community College campus. Join us on the 2nd floor lobby area at 6:45 PM for an informal “meet and greet” before we head into Room 212 at 7:15 PM for the start of the business meeting, to include the annual elections and presentation of 2019 SSS Transfer Scholarships. The guest speaker’s talk will start shortly thereafter. All members, significant others, potential members, and students are invited.

Our guest speaker will be Dr. Stephen (Drew) Wilkerson, Assistant Professor of Mechanical Engineering at York College’s Kinsley School of Engineering, Sciences and Technology. Dr. Wilkerson will speak on his research in the use of unmanned systems in measuring pesticide residues. An abstract of the presentation appears on page 2.



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“Unmanned Systems for Measuring Pesticide Residues” by Dr. Stephen Wilkerson

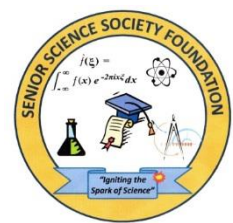
Abstract: To keep pace with population growth, farmers are leveraging a host of new technologies to improve crop production, including genetically modified organisms, along with increased chemical pesticides and fertilizer usage. These new techniques, however, have sometimes led to runoff problems for water systems and local watersheds. By using drone-based technologies, the overuse of fertilizers, chemical sprays, and pesticides can be minimized, while preserving farm output and quality. This talk discusses lessons learned from and progress made in a year-long capstone research and development project performed by engineering and computer science students at York College of Pennsylvania. The project involves the study and use of multispectral camera technologies along with drones to survey farms growing corn in various climates. The technologies used to assess farms and modern farming practices are by their nature multidisciplinary. Students involved with this project have thus needed to draw on their engineering and scientific backgrounds while learning new and varied topics to tackle this real-world problem. This talk also examines some of the teaching challenges encountered when using project-based learning techniques with engineering students to tackle a multidisciplinary problem similar to the types they will likely face in their professional careers. For example, the students have needed to apply best principles to design and build a drone system to assess crop health. Moreover, they have needed to understand the legal responsibilities of operating drones, farmer issues, and a host of technologies unfamiliar to them prior to this project. Student metrics and outcomes are also assessed to improve the process for future years.

SSS Transfer Scholarships for 2019

On May 7, Scholarship Committee members Skip Albert (Chair), Bruce Burns and Charles Nietubicz completed interviews of 11 applicants for the \$2,500 Transfer Scholarships for 2019. On the next day, the SSS Board of Directors selected and approved the following awardees: Michael Warner, Edgewood (who will attend the University of Maryland College Park, majoring in Aeronautical Engineering); Michelle Ramsahoye, Edgewood (University of Maryland Baltimore County, Physics/Biology); and Allison Dietz, Fallston (University of Maryland Baltimore County, Mechanical Engineering). The recipients will be recognized at the August 19th General Membership Meeting. Congratulations!

-- Skip Albert

See the complete list of SSS demonstration modules at
https://seniorsciencesociety.org/docs/modules/module_descript_15jan19.pdf



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Magic of Science Fair

The APG Discovery Center, together with the help of the Senior Science Society, held its first annual Magic of Science Fair at the APG Discovery Fest held on May 4, 2019 at Aberdeen Proving Ground. The Discovery Fest was an opportunity to see what is being done behind the fence at APG, participate in a job fair, and for middle school students to present their science projects at the Magic of Science Fair. Demonstrations of APG technology had the attendees seeing a glimpse of what the future may hold; military vehicles were on display; military working dogs were demonstrated; a job fair was held with nearly 2,000 participants.

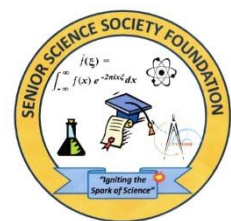
The Discovery Center and Senior Science Society members planned and organized the magic of Science Festival with students from eight middle schools and home school. (magic of science banner pic). There were 25 projects with 33 students who entered the juried Science Fair. Projects ranged from citrus powering phones, harnessing solar energy, gravity effect on root growth to hurricane impact on different house structures. Winners were determined as “Best in Grade”, “Runner-Up”, and “Honorable Mention”. High tech prizes like 3-D printers and robotic kits were awarded at each grade level.



Students await judging to begin at the Magic of Science Fair organized by The APG Discovery Center and the Senior Science Society

MG Randy S. Taylor (left), Senior Commander of Aberdeen Proving Ground recognizes award-winning students at the Magic of Science Fair held on May 4.





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Magic of Science Fair (cont.)

The APG Discovery Center also worked with the organizers of the Discovery Fest to bring in local vendors with technical and wildlife displays which added to the information and enjoyment for the attendees. Dick Schwanke represented the SSS with a booth highlighting one of its science modules.

The Magic of Science Fair was sponsored by Freedom Federal Credit Union, a strong supporter of the APG Discovery Center. The Center is envisioned to be a 30,000-square foot facility, located near, but not on, the APG property. The intent is to develop a destination location for STEM-related activities, APG displays providing a view of “tomorrow’s technology today”, and a place to show and retain the 100+ year history of the proving ground. Additional information on the APG Discovery Center can be found at <http://www.apgdiscovery.com/>.

SSS Finishes Another School Year of Service to Community Youth

During the past nine months the Senior Science Society supported local schools and other organizations with over 3,000 student-contact hours and another 500 parent and teacher hours. Program support included hands-on classroom demonstrations, special evening STEM programs, career talks, and science fair planning and judging. Schools supported this year were Bel Air Middle School (MS), Edgewood Elementary School (ES), Church Creek ES, The Crossroads School, Homestead-Wakefield ES, Magnolia ES, New Covenant Christian School, Red Pump ES, Riverside ES, Roye-Williams ES, and The St. Joan of Arc School. Other important venues included the Edgewood Boys and Girls Club, Harford County Public Library (Aberdeen Branch), Cub Scout Pack 800, Aberdeen Proving Ground Discovery Fest, and Harford Community College. More than a dozen demonstration modules were offered as classroom presentations, with this year “Things that Fly” and “States of Matter” being the most sought after. Another half a dozen new module topics have recently been added to the menu, which can be found on our website www.seniorsciencesociety.org.

-- Al Horst