



METALLAGRAM

LONG ISLAND CHAPTER



Volume 53 Issue 8

Chapter website: <http://www.matscieng.sunysb.edu/asm/>

Next Meeting Wednesday, April 18, 2012

**Where . . . Simons Center Cafe,
Stony Brook University, Stony Brook, NY**

******* Student Night *******

Oral and poster presentations by Stony Brook University Seniors

Joint Meeting with and ESG/ESM Programs

Special Guest, Dr. Chris Berndt, ASM International President!!!!

*6 pm...Posters Start 6:30 pm...Buffet Food/Posters 7:30 pm...Two Oral Presentations
Members ... FREE! Guests ... FREE! ASM 25 years ... FREE! Students ... FREE!*

DIRECTIONS TO THE SIMONS CENTER AT STONY BROOK UNIVERSITY

From east or west Long Island, take the Long Island Expressway (LIE, I-495) east to exit 62 (Nicolls Road). Take Nicolls Road north for approximately 9 miles. The main entrance to the University will be located on your left. Turn left here then left again after about 200 yards onto Circle Road. Follow Circle Road for about one mile until you reach Campus Drive. Turn right on Campus Drive, then turn left on John S. Toll Drive. The Simons Center will be on your right just past a large parking lot.

To find the campus via GPS, use "100 Nicolls Road, Stony Brook, NY 11790."

The Presentations

Tim Ela, Andy Hsiao - *"Heavy Metal Detector"*

Heavy metal contamination in food can cause illness and death and is widespread across the world. A fast, portable and affordable method for detecting the concentration of these toxins is needed. The goal is to create a low cost, handheld device that is capable of detecting concentrations, and sending the information to a cellular device for processing and digital display.

Gordon Chin, Calvin Ng - *"LifeBand"*

A heart rate/blood pressure monitor band worn on the upper arm could record the raw data in the form of blood flow velocity and frequency of pulses onto a flashdrive. The raw data can be synced onto a computer at the user's request and be analyzed to obtain heart rate and blood pressure for diagnostic purposes. Another function of the device would be to alert users via their cellular device of their condition (silent heart attacks) and their contacts as well as emergency responders if a cardiovascular event were to occur.


Giorgio Guidi, Carolina Jakob, Jill Geraghty, Steve Knox - *"Automotive Cooling System Locking Radiator Cap"*

A radiator cap is being designed that prevents removal when high temperature and pressure are present in the cooling system (radiator) of an automobile. Removal of said cap in these conditions can result in the release of hot pressurized steam which can cause harm to operators. Introduction of an elastomer in the design of the standard cap will create a locking mechanism that prevents the removal at high internal temperatures as a safety measure. In addition, the locking elastomer will be designed with a method for safe removal by a knowledgeable operator or technician.

Kayleigh Reamy, Deanna Quickle, Matthew Ross, Tom Kirshenheiter - *"Bump-It: A Portable, Energy-Generating Speed Bump for Construction Zones"*

Numerous vehicular deaths and injuries in construction zones necessitate a system to increase driver awareness and control speed. This speed bump's design is portable for ease of transport and installation. The top crest also collapses under the weight of the car, transforming the potential energy into electricity which will be utilized to power warning lights, aiding to increase awareness without further straining the power grid.

Continued→




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The Presentations (continued)

Ben Li, Qiyuan Wu, Panagiotis Orkopoulos, Radu Thomas, Zhihao Chen – “*Oil Skimmer Project*”

Oil spills such as the 2010 BP spill in the Gulf of Mexico underline the need to contain the disastrous leaks that accompany deep-water drilling. A new oil skimmer design, particularly of the drum and scrapper components, can improve the efficiency of this process. By optimizing the surface area, the skimmer can take a better advantage of the different viscosities of oil and its properties with respect to water, leading to a bigger oil quantity/time ratio versus that of existing skimmers.

Alyson Slanover, Aswitha Vempati, Chris Solomon – “*Panic Cane*”

Physically immobile and constrained people with dementia may wander and need to be located by a caregiver or emergency personnel. The goal of this project is to create a multifunctional assistive cane which includes an in-built tracking device to notify quickly the location for immediate response. Additionally, a light and panic button will be incorporated and easily accessible in state of distress promoting security and safety of the user.

Jialiang Xian, Gordon Chen, Jack Yu, David Yao – “*Cane/Reacher*”

Our design is a cane with a built-in reacher that will eliminate the need for the user to bend down to pick up items. The reacher will be fully enclosed inside the cane and the cane handle will be coupled with a lever to initiate the push-and-pull mechanism for the reacher. The reacher will expand from the bottom half, allowing the user to retrieve hard to reach items. The handle design will implement ergonomics for maximum comfort.

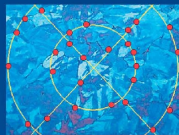
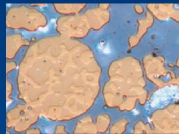
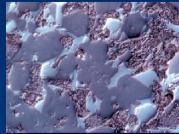
Umair Syed, Bradley Lesperance, Meng Li, Calvin Leung, Poornima Peiris – “*Power Step: The Battery Charging Shoe*”

The aim of this device is to transfer the energy produced by the walking/running movement to generate electricity, through the use of piezoceramics embedded in the heel of the shoe and protected by a gel-like substance. The impact/vibrations from running/walking will activate the piezoelectric material to generate electrical energy. In turn this energy would be used to charge handheld devices such as cell phones, iPods, GPS units, etc. Our design will encourage people to be healthy while they help make clean energy.

Daniel Ross, Daniel Migiorino, Krista Jados – “*Modular Piezoelectric Mats*”

Our project consists of a regenerative power mat that generates electricity for charging either batteries or large capacitance capacitors that would then be put to use for other needs. The mat will generate electricity through the use of piezoelectric materials embedded in the mat. Piezoelectric materials generate electricity when compressed or otherwise strained. By placing the mat where there is high foot traffic, such as the entrance of a building it could be used to generate electricity, through having many people walk over it, straining the material embedded into the mat. The mat could also be placed in areas of high vibration to generate electricity through the same means.

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2012 John R. Weeks Scholarship Program

The Chapter makes available awards worth \$500 p.a. for up to four years for high school students planning to study materials science and engineering at a recognized university or community college. Packages containing details and application forms will be mailed to the Principals at all Nassau and Suffolk county high schools in March. However, if you would like some information now or receive a package yourself, contact Biays Bowerman (631-344-2946) (email bowerman@bnl.gov).



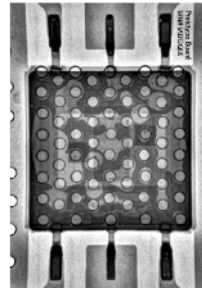
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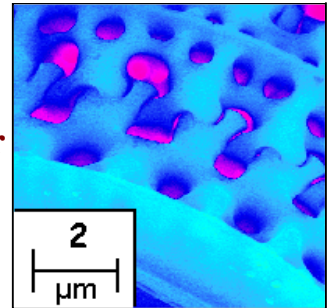
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WELCOME TO THE CHAPTER!

Michael Guggenheim and Dimitrios Zois, Stony Brook University

All new members, including those who have transferred in from another Chapter, are invited to dine free at a regular meeting of their choice. Please take us up on this offer - come along to the meeting and introduce yourself. This is an excellent way to meet with other Chapter members and to establish new business and social relationships in the area.

