



METALLAGRAM

LONG ISLAND CHAPTER



Volume 61 Issue 3

Chapter website: <http://DoL1.eng.sunysb.edu/asm/>

Next Meeting Wednesday, November 20, 2019

Where Old Field Club, East Setauket, NY

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

Oral and poster presentations by Stony Brook University Seniors

Joint Meeting with ESG/ESM Programs

6 pm...Posters Start 6:00-9:00 pm...Yummy Food

7:30 pm...Two Oral Presentations

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Cocktail-party style is three hours long. Included are seasonal fruit and international cheese display, antipasto display, pasta station, and high end passed hors d'oeuvres. Cash Bar.

RSVP to Jim Quinn ... jquinn11733@gmail.com

Directions to Old Field Club

From the Long Island Expressway (495) either direction, take Exit 62 N (Nichols Rd. Rte 97). Follow Nichols Rd. to the end, turn left onto Rte. 25A, go about one mile. Turn right onto Quaker Path (opposite Stony Brook LIRR Train Station) and stay on Quaker Path north 1.3 miles to fork. Stay left at fork onto Mt. Grey Rd. and follow to West Meadow Rd. Turn left onto West Meadow Rd - the Old Field Club will be on the left, after the tennis courts. Physical address: The Old Field Club, 86 West Meadow Road, East Setauket, New York 11733. Telephone: 631 751 0571. Web site: <http://www.oldfieldclub.com/>.

The Presentations

Smart Shelves

Rhianna Ruggiero, Hope McDavid, Austin Choi, Brandon Chen

A lot of time can be wasted trying to locate items due to poor organization. More specifically, this happens in libraries where readers can spend much time locating books on shelves. Books can also be put back in the wrong spot which makes them almost impossible to find. One solution to this problem is the creation of a smart bookshelf, called "Smart Shelves", that can reveal the location of books to users through lights. The bookshelf would work using a microcontroller and sensors which would allow the shelf to memorize where a book was placed. Users will scan a book's barcode which tells the system which book is about to be put on the shelf. The shelf will then light up which cubby the book should be placed in. Sensors on the shelf can tell where the book is and will allow the shelf to know if a book was placed incorrectly. To check out a book it can either be searched using the system which will cause a light to turn on where it is located, or it can be taken off the shelf after browsing. The book will then be scanned with a barcode scanner letting the system know that the book is getting checked out.

Bicycle Generator

Gregory Cotron, William Sink, Zishi Wang, Zhu Peng

Electronic devices are becoming more and more essential to our daily lives. As such, keeping these devices charged is becoming a prominent problem. Bicycles are extremely common and becoming increasingly popular as urban centers strive to be more eco-friendly. Our project is for a bicycle generator that uses the rotational energy of the bike wheels to turn a dynamo and generate electricity. This electricity will be stored in a battery or go directly into the device's battery.

Stroke Rehabilitation Glove

Anderson Seecharan; Anthony Heinz, Jared Ocasio, Mohammed Yafaie

Strokes have been on the rise in America over the last several years. Our project will involve helping patients with light to moderate strokes by having a glove that will help support and stimulate the muscles of the hand. In conjunction with the glove, there will be an app associated with it to communicate with the glove. This communication will help the patient control the amount of resistance or stimulation being given from the glove. The idea will have an app on the doctor's end seeing how the patient is going and possibly giving tasks. We will design the glove using CAD. The hope is that we will work with someone in Stony Brook hospital to give input on the design. We will then work on the app. The final design of the glove will hopefully end up in pre-FDA testing facilities first.



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The Presentations (cont.)

Self-Contained Anaerobic Digestion System

Lauren Asfour, Natalie Hersh, Greg Mangarelli, Elyssa Torres

A lead factor in climate change is food waste, wherein approximately 50% of all produce is thrown away annually. The goal of this proposal is to create an anaerobic digestion system for the average homeowner that gives people the opportunity to create usable energy from their scraps. The self-contained anaerobic digester will be an all-in-one system that has an eco-friendly design. The design of this digester will include a section that can grind larger organic material, such as banana peels, that would ordinarily be slow to degrade. This process would be accomplished using durable blades that could break the waste into easily digestible pieces. To make this process accessible, the grinder will be electrically powered through green energy or mechanical action. Wastes including carbohydrates, fats, and other organic matter can be placed inside the digester with water, producing methane gas. Sensors would be used to monitor water levels to alert the user when more has to be added. The methane could then be routed to storage for use in a multitude of applications such as gas turbines, gas cooking stoves, or home-heating.

HVAC Sensor Attachment for Failure Detection

Benjamin Reilly, Devlin Donnelly, David Reiter, Grant Gyldenvand

Air conditioning units and small-scale HVAC systems fail when they are needed most, often with no indication why, how, or that they failed. These devices either fail and keep attempting to run with no indication of failure or shut off with no warning when a critical condensation level has been detected. This makes maintenance and service difficult because diagnostics must be completed first. One solution is an installable sensor kit designed for household consumers. This solution contains sensors placed at specific locations to monitor and differentiate between the possible under-performing components in HVAC systems. These sensors are controlled by a microprocessor and send warning to a user when critical values are reached that indicates oncoming failures in specific components. This allows for ease of maintenance, improved reliability, and increased appliance lifespan by earlier and more accurate failure detection.

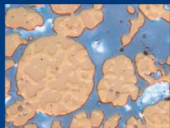
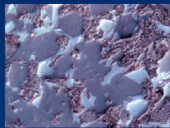
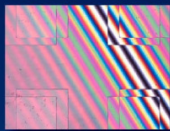
Thermoelectric Waste Heat Energy Reclamation System

Carl Schmidt, Alexander Wong, Conner Muraglio, Joseph Asher

As society faces mounting energy concerns, secondary energy reclamation techniques are of increasing usefulness and application, allowing systems to run more efficiently and harvest more energy per unit fuel source. Waste heat is a primary form of energy loss which under ordinary circumstances cannot be reclaimed. Internal combustion engines epitomize this notion, as they lose over 60% of energy to thermal losses. This proposal will utilize thermoelectric materials to create an electric circuit which can recoup energy loss from a desired system. This design is most practical on a smaller scale, everyday application such as an exhaust pipe for a wood-burning furnace. The overarching plan is to design a system which will be most efficient at generating electricity, while also being realistic and pragmatic in regard to the scope of the system's manufacturing and application. The Center for Thermal Spray Research (CTSR) at SBU will assist in the design creation and requisite material procurement. This design will ultimately be comprised of a system of thermoelectric plates which harvest a quantity of energy from waste heat through an exhaust pipe. The prototype design will be made up of a 6x6 inch plate with doped thermally sprayed materials arranged in series across the plates but can ultimately be manipulated to fit more complicated geometric configurations.

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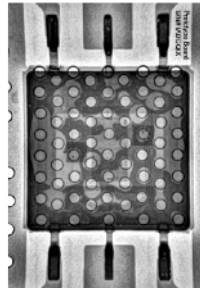
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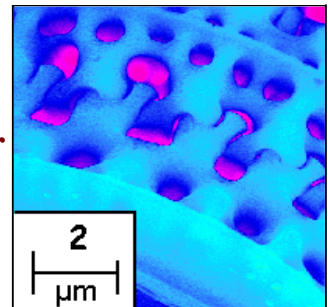
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WELCOME TO THE CHAPTER!

Jose Colmenares Angulo, Oerlikon Metco

Edward Gildersleeve, SBU

Meric Ikiz, Oerlikon Metco

Gilberto Ubilluz, Oerlikon Metco

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.



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Long Island Chapter Meeting Schedule

Dec. 11, 2019 Speaker: Collin Olson, D'Addario Co.
Topic: Guitar String Materials
Place Pollo Rico, Centereach

Jan. ??, 2020 Joint meeting with LIANS
Speaker, topic, place - tbd

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Nov. 2019 meeting – TBA; Dec. 2019 – no meeting