ASM INTERNATIONAL
The Materials Information Society

METALLAGRAM

LONG ISLAND CHAPTER

Volume 68 Issue 3 Chapter website: http://DoL1.eng.sunysb.edu/asm/

Next Meeting…… Monday, November 16, 2026

Where . . . Stony Brook University, Old Engineering Bldg. Rm. 301

Students Night

Presentations by SBU/ESG Seniors

Network from 6pm to 7pm

Presentations from 7pm to 8pm

Free pizza!!!

RSVP to Jim Quinn

(james.quinn@stonybrook.edu)



Automated and Integratable Grit Blasting Machine

Shahroze Arain, Alan Liu, Petter Ximello, Shaolong Zheng

Grit blasting is widely used across industries for surface preparation whether it's used for research or manufacturing. Gauging the uniformity of blasted samples is highly user-dependent leading to potentially more time spent re-blasting especially if only one sample can be done at a time. Our system aims to reduce inconsistent blasting caused by manual operation by automating the blasting process. Allowing for the sample to be blasted to a precise surface roughness for a preset amount of time based on the material of the piece through a control panel. Furthermore, our design would implement a moving rotary table platform that would allow for multiple samples to be prepped at once. To allow for easier adoption into facilities, we aim for the design to have the ability to be integrated into existing blasting cabinets, without removing the ability to perform individual manual work.

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Delamination Detection Device

Kai Robertson, Finlay Oliver, Nolan Conner, Brian Lin

Composite materials such as fiberglass and carbon fiber are strong and lightweight but can develop hidden damage called delamination, where internal layers separate while the outside appears normal. The goal of this project is to develop a low-cost automated system that can detect these defects. The system will use an XY positioning system to move a testing head across a flat composite panel. At each location, the system will create a small, repeatable impact and measure the panel's vibration response. Software will compare measurements across the panel to identify unusual responses and display the results on a 2D heat map highlighting areas of possible delamination. This project aims to provide an affordable, non-destructive inspection option for small composite manufacturers, repair facilities, and universities.

SafeStack

Anika Chitymony, Bryan Argueta, Kailin Jiang, Xinyi Li

Storage shelves used in small businesses, workshops, and stockrooms often lack automated inventory tracking and load monitoring, requiring employees to rely on manual inspections. These limitations can contribute to inventory discrepancies, inefficient stock management, and potentially unsafe loading conditions. To address these challenges, SafeStack proposes a modular sensing system that integrates inventory monitoring and supplemental shelf safety monitoring into existing storage environments. The system utilizes removable sensor tiles equipped with load cells to measure shelf loads and detect changes in weight associated with product additions and removals, without requiring permanent modifications to the shelving structure. Inertial measurement unit (IMU) sensors will monitor changes in platform orientation to identify potential tilting or movement. Radio-frequency identification (RFID) technology is also being evaluated as an optional method for individual product identification and tracking. Sensor data will be processed by a microcontroller and transmitted to a digital interface that displays inventory estimates, monitors loading conditions, and generates alerts for low stock, excessive loading, or abnormal tilt. A prototype will be developed and evaluated under various loading conditions to assess measurement accuracy, system reliability, and overall functionality. By combining inventory management with supplemental safety monitoring in a modular, retrofit design, SafeStack aims to provide a practical and cost-effective solution for improving storage efficiency and awareness of potentially unsafe shelf conditions.

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LevelWing

Isaac Theodore, Jichen Yu, Daniel Lee

LevelWing is a removable ladder-leveling attachment designed for uneven ground. It uses fixed foot cradles, side clamps, and telescoping legs with pin locks and pivoting rubber-tread shoes. The design aims to simplify ladder setup while keeping the rungs level.

Buoyant Treatment Dispenser

Harley Burko, Derek Lucido, Madison Walsh, Hanyi Seo

As water quality issues rise globally due to warming temperatures and nutrient runoff, individual pond owners and property managers face ongoing challenges maintaining acceptable water quality in residential, recreational, and decorative ponds, which frequently require considerable maintenance and targeted treatment to manage algae, nutrient levels, and other water-quality issues. To simplify pond care, we propose an autonomous water treatment system that combines automated chemical treatment dispensing with active circulation to reduce manual maintenance and sustain desired water conditions. Ultimately, we aim for an adaptable design capable of deployment across various non-potable freshwater applications, offering an accessible, low-maintenance solution that keeps small water bodies clean, healthy, and visually appealing year-round.

Raheel Rahman, Paul Altieri, Hongzhen Zhu, Senad Kulejmani

VeloVault

As electric bicycles become increasingly popular, the demand for reliable and convenient theft protection continues to grow. This project aims to develop a smart biometric U-lock that combines secure fingerprint authentication, mechanical locking, and intelligent theft detection. The system will incorporate a motorized locking mechanism with a physical key backup to maintain accessibility during battery failure or electronic malfunction. Its primary innovation focuses on analyzing motion and vibration patterns to distinguish routine bicycle disturbances from potential theft attempts, including attacks involving cutting or grinding tools. A microcontroller will process sensor data to identify suspicious activity and activate an audible alarm while minimizing false alerts. The electronic components will be integrated into a compact, protective enclosure designed for practical everyday use. Through prototype development and experimental testing, the project will evaluate the reliability of its locking mechanism, biometric access system, and theft detection capabilities. Ultimately, the goal is to develop an affordable, practical bicycle security solution that combines convenient access with more intelligent theft detection.

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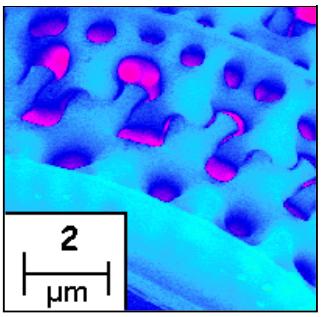
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https://www.asminternational.org/communities

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Long Island Chapter Meeting Schedule

Wed. Oct 21, 2026	**Brian Bick, CBI** **LNG Peak Shaving** **Pollo Rico restaurant**
Mon. Nov 16, 2026	**Student Nite, Senior Design** **Rm301, Engineering Bldg** **Stony Brook University**
Wed. Dec 9, 2026	**Joel Hurowitz, SBU/Geo** **Mars Materials**

Metro NY-NJ Chapter

www.asminternational.org/web/metro-nynj-chapter

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