ASM INTERNATIONAL®
The Materials Information Society
LONG ISLAND CHAPTER

METALLAGRAM

Volume 64 Issue 3 Chapter website: http://DoL1.eng.sunysb.edu/asm/

Next Meeting . . . . . Wednesday, November 16, 2022

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

STUDENTS NIGHT

Presentations by Stony Brook University Seniors from 6pm to 8pm

Free pizza!!!

RSVP to Jim Quinn (james.quinn@stonybrook.edu).

The Presentations

(TAPP) Titania Aided Photocatalytic Purifying Filter

Tatiana Rascoe, Gabriela Zanko, Julia Greco, and Gene Castro

Lack of access to safe water sources leads to millions of cases of bacterial and viral illnesses each year. To improve water quality and reduce the strain on healthcare systems within these regions, our product aims to remove physical and biological pollutants from drinking water by utilizing ultraviolet germicidal irradiation via sunlight. The filter will consist of a coarse filter, a biochar stage, and a photocatalyst coated filter material. In the presence of UV rays, oxygen radicals produced by the photocatalyst will bind to the contaminants, deactivating them into less harmful forms. This product will greatly improve water quality without an artificial UV source.

(cont.-->)

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The Presentations

HiTTM (High Temperature Testing for Materials)

Joseph Cerafice, Aidan Donnelly, Helen Tran, Kayle Watson

Expanding material testing settings is vital to measure several crucial mechanical properties, including elastic modulus, since material testing contributes to a better understanding and quantification of whether a certain material or treatment is appropriate for a certain application. A testing environment that often causes difficulty is a high temperature environment which is especially relevant in the case of thermal barrier coatings (TBCs) as it can experience changes to their elastic moduli at high temperatures. While the elastic moduli of bulk materials at these temperatures is known, specialized materials such as composites or coatings remain unknown. Introducing HiTTM, high temperature testing for materials, the modification of the impulse excitation device to operate in a high temperature environment of dynamic testing is required. HiTTM's goal is to introduce accessibility, convenience, and efficiency, all in one design. It uses the Fourier transform of the vibrations a material makes when struck to determine its dynamic elastic properties. In a high temperature environment, the apparatus and devices required for the test would need to be suitably adapted. Under the right constraints, this vibration occurs at the material's resonant frequency, which is then used to compute the properties using common formulas. The project is to develop a low cost add-on application to a box furnace that can deliver comparable precision by adapting ASTM E1876 for a high temperature environment.

Detachable Van-Ramp for Handicap Accessibility

Sebastian De Gris, Alex Mukamal, Michael Perez, Sarah Sammons

Most handicap van ramps used to aid wheelchair users in entering and exiting the vehicle are both permanent fixtures and occupy cargo space. Those ramps which do accommodate these limitations are professionally modified, which can cost well over twenty-thousand dollars. Both a materials and design approach resolve these issues by providing a structurally-optimized, space saving, yet removable attachment suitable for universal implementation. One possible solution consists of an extendable ramp located on the roof of the car, which can be easily lowered and raised back up, giving users accessibility without losing cargo space or having a non-removable fixture. The design of the ramp also optimizes material and extrinsic properties such as strength-to-weight ratio, aerodynamics, and corrosion resistance.

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Long Island Chapter Meeting Schedule

Dec. 14, 2022 Speakers, Lauren Asher & Rob Tassey, Posillico, Inc.
Topic: Recycling Construction Matls.
Place: Pollo Rico, Centereach, NY

Metro NY-NJ Chapter

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

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