

We are pleased to present the featured Guest Speaker for our October 5th Meeting:

A New Technology for Tessellating Sheet Materials with Structural and Kinetic Applications

Daniel Kling, PhD.
FoldStar Inc
Holmdel, NJ

Abstract:

This work falls under the heading of industrial origami. Applications include cost-effective core materials similar in performance to honeycomb, energy absorbing materials, inflatable softgoods packing systems, and deployable structures for space. Through four NASA SBIR Awards several algorithms were developed for designing periodic folding patterns for deployable space structures. These give efficient packing systems for large arrays that unfurl

in multiple directions simultaneously with determined deployment dynamics. The work was applied to an inflatable habitat using roll-folding in softgoods materials. The algorithms are also valuable for designing structural sheet materials that can be produced through an inline folding process with no in-plane deformation of the sheet material. This novel manufacturing process applies to papers, metals, and composites with nearly no added cost and produces parameterized materials functionally similar to honeycomb. The talk will give a pictorial description of the algorithms and applications with several models displayed for review.

Biography

Following a doctoral degree in the mathematics of folding and post docs in manufacturing process, Dr. Kling formed his first start-up (Folded Structures Company) to advance the commercial applications of folding tessellations. Through four NASA SBIR awards and work with AFRL, numerous algorithms and theoretical advances have been made in machine design, materials characteristics, and the deployable architectures needed for space-based applications. In 2017 Dr. Kling joined efforts with two partners and launched FoldStar Inc. The current focus is in developing software capability and manufacturing processes.

Other research interests and patents are held in areas of enhancing and extracting morphological features in medical images, stand-off detection in hyperspectral infrared data (through two Army SBIR awards), and a new type of multi-head robotic system termed the Robotic Surface. Ongoing research interests include unusual engineering or architectural problems, and all things geometrical.

MEETING DETAILS

Place: Bridgewater Manor, Bridgewater, NJ; (908) 658-3000

Time: 5:45 – 8:30

Cost: \$20.00 at the door. Free for students. Cash, check and PayPal options are available. This meeting is open to all SAMPE members, spouses, guests and other interested parties. For reservations or questions, please contact Megan Casey at mbc872@gmail.com by noon Wednesday before the meeting. Meal options are available.

Directions to Bridgewater Manor: From I-287 north, take exit 22A (206 south). Go thru two lights, Bridgewater Manor is on right. From I-287 south, take exit 22. Make right at end of ramp. Make next left, a jughandle to cross 202/206 to go south on 202/206. Go through three lights, Bridgewater Manor is on the right.





2017 – 2018 Meeting Schedule

September 7, 2017 – Akm Samsur Rahman,
New York City Technology College

September 11-14, 2017 - CAMX, Orlando FL,
postponed to December

October 5, 2017 – Dan Kling, Foldstar Inc.

November 2, 2017 – Vinay Mishra, Dixie
Chemical

December 7, 2017 – Steve Medlar, Rutgers
Univ (Ret)

December 11-14, 2017 - CAMX, Orlando FL,
sponsored jointly by SAMPE and ACMA

February 1, 2018 – To be Announced

March 1, 2018 – To be Announced

April 5, 2018 – Students Night

May 3, 2018 – To be Announced

May 21-24, 2018 – SAMPE Long Beach CA

June 2018 – Field trip – Date To be
Announced

June 28, 2018 – 35th NJ SAMPE Golf Outing,
Picatinny Arsenal

NEWSLETTER

October 2017

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