



The Materials Information Society

**LONG ISLAND CHAPTER**

# METALLAGRAM



Volume 59 Issue 2

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

**Next Meeting . . . . . Wednesday, October 18, 2017**

**Where . . . . . Pollo Rico Latin Bistro, Centereach, NY**

**Topic: The Role of Failure Analysis in Reliability Improvement**

**Speaker: Mike Hemphill, Dayton T. Brown**

*Social hour ... 6:00 pm Dinner ... 7:00 pm Meeting ... 8:00 pm*

*Members ... \$25    Guests ... \$27    Students ... \$15*

*(New and recently transferred-in members free)*

*Reservations appreciated – call Peter Indrigo at 631-589-6666*

## **Directions to Pollo Rico Latin Bistro**

Pollo Rico is located at 2435 Middle Country Road (Rte. 25), Centereach. Probably the simplest way to get there from the LIE is to take Exit 62 (Nicolls Road) and go north on CR 97 (towards Stony Brook). Continue north for about 3 miles then take the exit to Rte. 25. At the traffic signals at the end of the ramp go left and head west (Smithtown). The restaurant will appear after about 1.5 miles, on the right side of the highway. Their telephone number is 631-471-0585. Their website is: <http://www.polloricolatinbistro.com/>

## The Topic

The reliability of a mechanical or an electro-mechanical assembly can be defined as its ability to perform its design function with minimal invasive maintenance. Any significant deviation from this baseline, indicating deficient reliability, either systematic or one-off, can be caused by one or more independent or interdependent factors (e.g. manufacturing defects, environmental stresses, improper materials selection). Because of the large number of potential factors and their interactions that can affect system reliability, a tightly prescribed framework is necessary if a reliability improvement program is to be implemented economically. Any responsive implementation strategy must clearly incorporate the ability to rapidly eliminate one or more of the potential adverse-effect sources and quickly focus on those that lead to the root cause. The usual first response of the engineering community is to turn to the classical reliability improvement approach based on Ishikawa diagrams (i.e. "Fishbone" or Cause-and-Effect diagrams). While such an approach can provide a level of comfort to those working the problem, an exhaustive investigation of numerous baseline factors feeding into the backbone can be extremely time consuming and expensive. Conversely, using what may be termed as an "Inverse Ishikawa" approach, i.e. focusing on the failure or deficiency first and then propagating outward toward the root cause, can effectively shortcut the process. This talk will describe such a framework and use a case-based approach to illustrate an overarching reliability improvement strategy through failure analysis.

## The Speaker

Michael Hemphill is a metallurgical engineer at Dayton T. Brown, Inc. which provides environmental, dynamic, and structural engineering and testing services. He is originally from Johnson City, Tennessee and graduated from the University of Tennessee, Knoxville (UTK) with a BS in Materials Science and Engineering (MSE). Subsequently, he received a Masters from UTK in MSE studying the mechanical behavior of materials with a focus on the fatigue behavior of high entropy alloys (HEAs).



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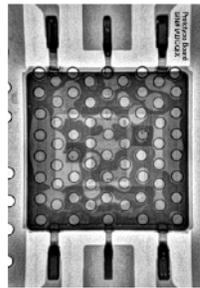
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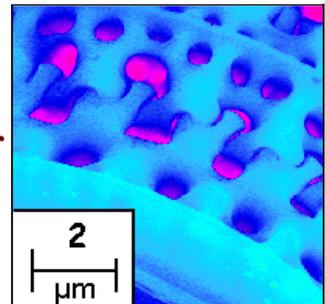
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**Long Island Chapter Meeting Schedule**

<b>Nov. 15, 2017</b>	<b>Student Night, SBU Senior Design Projects</b> <b>Place: Old Field Club, West Meadow Beach</b>
<b>Dec. 13, 2017</b>	<b>Speaker: Jeff Brogan</b> <b>Topic: Bowling, surfaces and materials</b> <b>Place: Pollo Rico, Centereach</b>
<b>Jan. 18, 2018</b>	<b>Joint Meeting with LIANS</b> <b>Speaker, Topic, Place: tbd</b>

**Metro NY-NJ Chapter**

(<http://www.asminternational.org/web/metro-nynj-chapter/home>)