

PRESENT A JOINT DINNER MEETING

Common Failures, Uncommon Features

Date: Monday, October 28, 2019

Time: 5:30 pm Social Hour: Fellowship and Networking
6:30 pm Dinner 7:15 pm Brief Presentation by Social Sponsor
7:30 Main Presentation

Place: **HOLIDAY INN- GRAND RAPIDS AIRPORT**
3063 Lake Eastbrook Blvd, Grand Rapids, MI 49512 USA

Cost: Members and Non-members \$25.00
Payment by cash or check at the door.
Students, retirees and unemployed \$12.00

Social
Sponsor:
Available!

Speaker: Dr. Erhan Ulvan, Acuren, Oakville, Ontario, Canada

Menu: Garden Salad, Lemon Herb Grilled Chicken, Vegetable, Rice Pilaf , Roasted Red-Skinned Potatoes, Warm Rolls, Cookies, and coffee or tea. **Special needs meal requestors must sign up by noon, Monday, October 21. All others must sign up by Wednesday, October 23, at NOON!**

FEATURE PRESENTATION: Common failure types such as stress corrosion cracking (SCC), fatigue or overloading may show unusual features that defy expected patterns and behaviours of materials. Some of these anomalies may not affect the outcome however, some may need to be addressed as they may help reveal the reason for abnormal behaviour. One may observe an overloading feature yet loads applied may be unusually low for such an application/material. Is this really overloading or is there something more to it?

This presentation will cover common failures with uncommon features and how conventional approaches may be misleading, requiring new approaches and techniques to be invented during the investigation. Furthermore, the presentation will show you how to deal with unusual failure patterns and approaches to determine the root cause.

SPEAKER BIO: Dr. Erhan Ulvan obtained his BSc and MSc in Metallurgical Engineering at the Middle East Technical University in Ankara, Turkey and PhD. in Materials Engineering at the University of the Witwatersrand in Johannesburg, South Africa. Erhan has broad experience with materials engineering and manufacturing, including: failure analysis of industrial components, metal forming, forging, low and high pressure die casting, heat treatment, metal fabrication, reverse engineering and corrosion control measures. Erhan is qualified by the Ontario Superior Court of Justice as an expert witness. He has extensive knowledge on joining of major alloy types, destructive and non-destructive testing methods, visual examination and codes and standards including ASTM, ASME sections II, VIII and ASME FFS-1.

Dr. Ulvan has been involved in failure analysis and consulting in Metallurgical Engineering aspects since 1983. He has completed numerous failure analysis projects since then. He is the Past President of the Failure Analysis Society of ASM International, Past Chair of Canada Council of ASM International, Past Chair of Ontario Chapter of ASM International, Past Treasurer of Oakville Chapter of Professional Engineers of Ontario (PEO), and board member of CIM Hamilton Branch. He received Prof. Brian Ives Lectureship Award in 2012 and Fellowship of ASM International in 2018. He regularly presents papers related to failure analysis and chairs sessions at international conferences.

RESERVATIONS TO DaAliya@itothen.com

UPCOMING PROGRAMS: Featuring One More Neighbor from the North!

2 Day Seminar October 28 and 29, 2019

More info available! Decision to run or not to be made October 7.

Monday, November 11, 2019 Tour of GE Aviation on Patterson: Limited to 20 People MAX

Tour Guide: Mark VanSolkema

GE Aviation Systems – Grand Rapids designs and builds avionics systems. Our portfolio includes Computing Systems, Navigation and Guidance, Vehicle Health and Data Management, and Mission Systems. The tour will cover the manufacturing, product test, and materials lab facility.

- * Tour at 4 pm, November 11.
- * Tour limited to 20 participants.
- * Tour limited to US citizens only. (Must declare you are a citizen, and bring a state or national government photo ID.)
- * List of participants legal names and addresses needed by October 24. Last date to sign up.
Preference given to ASM and SAE members. Provide your member number when you register.
- * Meet in the front lobby, 3290 Patterson Ave.
- * Park out front in designated visitor parking. If full, use any other open spot.
- * Smocks and safety glasses will be provided. Personal safety glasses are acceptable.

SEPARATE SIGN UP FOR THE DINNER MEETING

Speaker: Mark VanSolkema

Presentation Topic: Failure Analysis Case Study and Introduction to GE Aviation's Activities, with highlights of the Patterson Plant.

Abstract for Dinner Meeting Presentation:

Is your electronic device giving you fits? Have you examined all the pieces and parts but can't seem to see the forest for the trees? Take a closer look. The trees may just be the problem! In this case study, optical microscopy and especially SEM/EDS are used to identify electrochemical metal migration or "dendrite shorting" in electronic circuits. The causes, detection, and prevention of metal dendrites will be reviewed.

Bio:

Mark Van Solkema is a Consulting Engineer at GE Aviation Systems in Grand Rapids, Michigan, specializing in testing and analysis of electronic components and assemblies. Mark began his career at Lear Siegler where he was hired fresh out of technical school to operate and maintain the first Scanning Electron Microscope in the Grand Rapids area. Under the mentorship of metallurgist and ASM member Lee Wilbur, Mark developed a keen interest in electronic materials, especially the "physics of failure" approach to failure analysis. While working at "Lear", Mark furthered his education at Grand Rapids Community College and Michigan State University. He also took advantage of several ASM home-study courses. Lear Siegler was acquired by Smiths Aerospace, and eventually GE Aviation. These changes brought new computer-based products and many opportunities to delve into the latest electronic components and materials technologies. Mark is currently the subject matter expert for lead-free

electronic assembly and continues to perform troubleshooting, testing, and analysis of electronic parts, assemblies, and processes. Tools of the trade include Optical Microscopy, Scanning Electron Microscope/Energy Dispersive Spectroscopy, Radiography, Infrared Spectroscopy, and Metallography

SAVE THE DATE: Monday, March 16, 2020

Dr. Mohamed Zaher, Functional Safety of Self Driving Cars