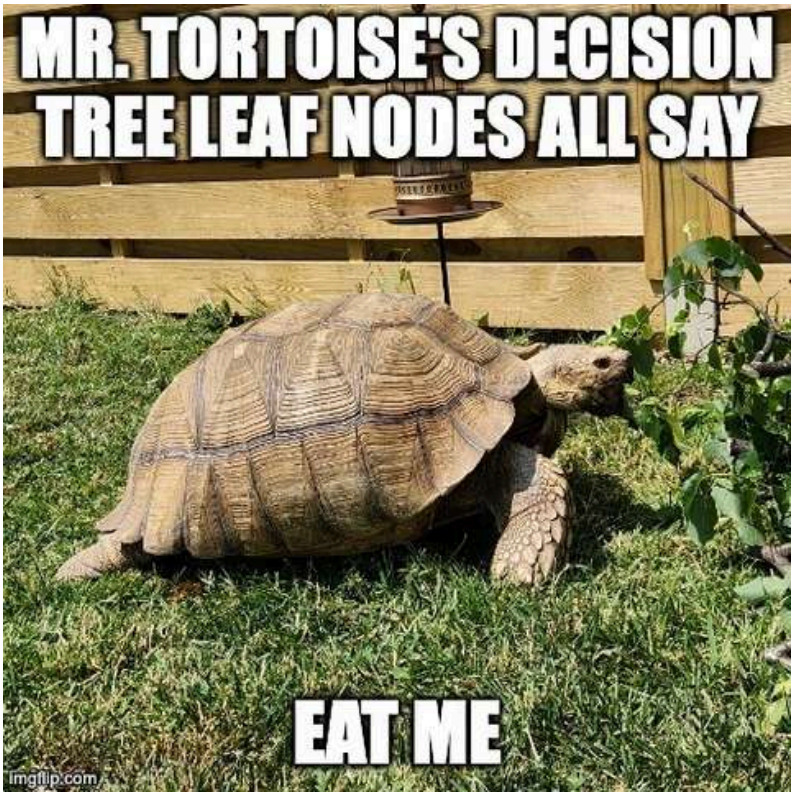
IN THIS ISSUE

Meme of the Month!



LATEST NEWS

Save the Date! 2023 Fall IAB Meeting

The 2023 Fall IAB Meeting will be held on Tuesday and Wednesday, September 12-13, at Case Western Reserve University in Cleveland, OH. Event registration will open soon, so please stay tuned!

Request for Proposals - Fall 2023 Cycle

Attention faculty! The MDS-Rely team will be releasing the 2023 Request for Proposals before the end of this month. All previous Requests for Proposals and proposals materials are hosted on the Member Portal. In consultation with our Industry Advisory Board, the MDS-Rely team is streamlining our RFP process and will only require a one-page proposal summary and quad chart. The Industry Advisory Board (IAB) will review these materials, inviting select faculty to move to a full proposal ahead of the IAB Meeting in September.

Congratulations to Recent CWRU Graduate!

Congratulations to Mitchell Melander who received his MS in Biomedical Engineering from CWRU on May 19, 2023. His work with MDS-Rely included optimizing and characterizing the process of aerosol jet printing, specifically focusing on printing precursor silver inks on polymer substrates. Read more about his project with Dr. Janet Gbur here. Mitchell will be joining LivaNova in Pittsburgh as a Biomedical Engineer in the Advanced Circulatory Support division.

MDS-RELY MEMBER SPOTLIGHT

Lawrence Livermore National Lab (LLNL)

Holly Auten | Communications Lead | LLNL Data Science Institute

Lawrence Livermore National Laboratory (LLNL) serves a wide variety of national security missions alongside their primary responsibility of ensuring the safety, security, and reliability of the nation's nuclear stockpile. By staying at the forefront of the science and technology required to meet these challenges, LLNL has enabled a broad range of scientific discoveries such as accelerating drug development, anticipating the impacts of climate change, and achieving fusion ignition in a laboratory. LLNL researchers are opening up new frontiers in astrophysics, advanced manufacturing, high-energy-density science, nuclear physics, and computer science, and more.

> "We're excited about our relationship with MDS-Rely, not only because we can tap into a wider circle of research and use cases, but also because we can provide students with exposure to LLNL via internship opportunities and our unique datasets."

– Brian Giera, director of LLNL's Data Science Institute

Read More

UPCOMING EVENTS

Monthly Technical Seminar

"On the hydrogen environment-assisted cracking behavior of additively manufactured 17- 4PH steel in marine environments"

Zachary Harris, Assistant Professor, Mechanical Engineering and Materials Science Department
Director; Materials Metrology, Characterization, and Learning (MMCL) Laboratory

Date: Thursday, June 15 4-5 PM
Location: *virtual (zoom)
Zoom Meeting Link Here

Abstract: The hydrogen environment-assisted cracking (HEAC) behavior of additively manufactured (AM) and wrought 17-4PH stainless steel heat treated to exhibit similar microstructure and yield strength is assessed through fracture mechanics-based testing conducted in 0.6 M NaCl at different electrochemical potentials. Results demonstrate that the HEAC susceptibility of the AM 17-4PH is increased by >10-fold relative to incumbent wrought material. These data are coupled with hydrogen-metal interaction parameter measurements and microstructural observations for each alloy to understand the origins of this increased susceptibility. Results collectively demonstrate that sub-micrometer porosity present in the AM material is providing a primary contribution to the degradation in HEAC resistance. The mechanistic basis for the influence of porosity is considered in the context of an existing model for HEAC. The implications of these findings on the broader AM community are then discussed.

Biweekly Project Meetings Available To All Members

If you are interested in attending any biweekly project meeting, please visit our Members portal, which can be accessed via the link at the top right of our Center website. You can also go to a specific project and raise a request to get access to the Zoom links to attend any of these meetings. You can also access prior recordings and presentations of any biweekly meetings.

1. netSEM Modeling for Service Life Prediction of Polymers
Prof. Laura Bruckman
June 13, 27... Tuesdays 1 - 1:30 PM

2. Achieving Reliable Laser Powder Bed Fusion based Additive Manufacturing via Machine Learning of in-situ Optical Profilometry Monitoring Data
Prof. Xiayun Zhao
June 16, 30... Fridays 4:15 - 4:45 PM

3. Image Machine Learning of Printed Metal Films for EMI Shielding
Profs. Leu, French, Iyengar
June 21, July 5...Wednesdays 1:30 - 2 PM

4. Comparative analysis of Machine Learning techniques in predicting structure property relationships for composite dielectric materials
Profs. Sehirlioglu, Martin
June 19, July 3 ...Mondays 1:00 - 1:30 PM

5. Effects of Aerosol Jet Printing Parameters on the Lifetime Performance of Additively-Manufactured Flexible Circuits
Prof. Janut Gbur
Jun 23, July 7…Fridays 1:00-1:30 PM

JOB OPENINGS AND OPPORTUNITIES

Fall 2023 Senior Capstone Project Opportunities

Are you a member interested in getting matched to highly talented undergraduate students to deliver early-stage prototypes that help solve your issues. We are creating senior design projects for this Fall now. Feel free to contact Dr. Paul Leu (pleu@pitt.edu) or Dr. Laura Bruckman (lsh41@case.edu) if you are interested.

NNL Fellowship Opportunities

The Admiral Hyman Rickover Graduate Fellowship Program

Description: This program in Nuclear Engineering prepares graduate students for roles in the Naval Nuclear Propulsion Program as it supports the broader objective of advancing fission energy development through the research efforts of Fellows.

Department of Energy Computational Science Graduate Fellowship Program

Description: Computational Science Graduate Fellows are given opportunities to develop improved algorithms for parallel computer architectures, advanced visualization, advanced data management, etc, etc. You could be involved in new developments within several broad categories, including but not limited to reactor physics, materials science (including semiconductor applications), two-phase flow, and radiation shielding.

Learn more about both opportunities here. Feel free to contact the Fellowship Coordinator Dr. Jake Ballard (jake.ballard@unnpp.gov) with any questions.

NNL Internship and Co-op Opportunities

NNL has begun posting their available internships and co-ops for 2024.
*__Co-op__ positions include: Electric/Computer Engineering, Mechanical Engineering, Software Engineering, and Thermal Hydraulic Modeling Engineering.
*__Internship__ positions include: Business (IT), Chemistry/Chemical Engineering, Compliance Engineering, Cybersecurity, and Data Science.

Click here for more information on each position.

NNL Research Funding Opportunities

The Naval Nuclear Lab (NNL) FY24 External Open Call for funding is Live on Sam.gov to Solicit Industry, Academia, and Supplier Proposals. The FY24 External Open Call, an approach to publicly solicit novel solutions to problem statements, focuses on three key challenges:

- Condition Based Maintenance (Notice ID: NNL-FMP-0026)
- Accelerated Ship Construction (Notice ID: NNL-FMP-0027)
- Remote Operated Vehicle Inspections (Notice ID: NNL-FMP-0028)

The Sam.gov solicitations above will be open until 6/15/2023.

- Ni-ferrite Surface Property Measurements at Elevated Temperature Conditions (Notice ID: FMP-NNL-0029)
- Additive Manufacturing (AM) Capability Development – Production of Fine-Grained, Isotropic Microstructures in Gas Metal Arc- Directed Energy Deposition (GMA-DED) (Notice ID: FMP-NNL-0030)

The Sam.gov solicitations above will be open until 6/29/2023.

*Proposals should be sent to ATIP@unnpp.gov

*Questions or concerns should also be sent to ATIP@unnpp.gov.

Submit News

Fill out a news form here!

Submit Job Openings

*For MDS-Rely members only

Fill out a job opening form here!

Interested in partnering with Case Western or Pitt Professors?

Please contact Dr. Roger French or Dr. Paul Leu for more information!

CONNECT WITH US!

Our mailing address is:
Case Western Reserve University
White Building, Room 538
10900 Euclid Avenue
Cleveland, OH 44106

Want to change how you receive these emails?
Unsubscribe from this list.