

MDS-Rely

MAY 2026

NEWSLETTER

Advancing materials reliability through data-driven collaboration between academia, industry, and government

Recap of 2026 Spring Meeting on April 15th: Pioneering the Next Five Years

Center Software Scoop: BayesO

Featured Research Project by Dr. Chris Wirth



This issue highlights a recap of our Spring Meeting, this month's Center Software Scoop, and an article on Dr. Chris Wirth's "Non-Invasive Detection of Defects during Coatings Manufacturing."

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**When people ask me about my data, I
simply respond with “6-7”...**

I’ll figure out what it means later...



Featured Announcements

[Thank You for Attending the 2026 Spring Meeting!](#)

Thank you to everyone who attended our Spring Meeting on Wednesday, April 15th, 2026 in Pittsburgh! We had **47 total attendees** and **15 companies** were represented in addition to CMU, Pitt, and CWRU representation. It was a success exploring “Pioneering the Next Five Years” at Mill 19. A special thanks to Dr. Li Luan at PPG for giving our Keynote on “Amplifying Human Genius: How Data Intelligence is Supercharging R&D.”

Check out our [brochure](#) if you could not make the event!

Also, a huge congratulations to our poster symposium winners:

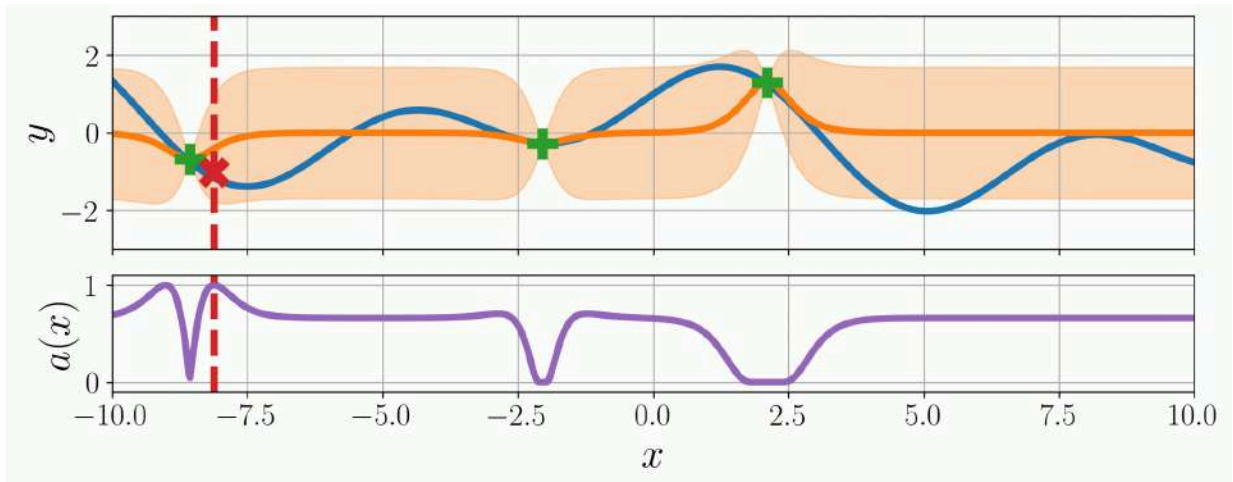
- **Caroline Kromalic (CWRU)** for “Evaluating the Reliability of Aerosol Jet Printed Circuits”
- **Shubha Sankar Banerjee and Heqiao Ruan (Pitt)**, runners up, for “Data-Driven Early Detection of Thermal Runaway in Lithium-ion Batteries.”



Center Software Scoop: BayesO

BayesO is a simple yet essential Bayesian optimization package written in Python. It is designed so that it can run advanced Bayesian optimization with implementation as well as application-specific modifications. The package contains codes for multiple surrogate models like Gaussian process regression and random forest regression. In this way, sequential model-based optimization can be implemented.

Learn more about our other Center software [here!](#)



Featured Research Project: Non-Invasive Detection of Defects during Coatings Manufacturing

By: Dr. Chris Wirth, Associate Professor, Department of Chemical and Biomolecular Engineering, Case School of Engineering

Our team is developing advanced image processing tools to improve the manufacturing and quality of coatings used in various applications, including automotive, architectural, and catalyst layer coatings. Automotive and architectural coatings are important for both protective and aesthetic purposes, while catalyst layer coatings are a critical component for high power-density fuel cells.

As one example, we developed a custom script to characterize the crack width and island size of particle coatings in real-time. By focusing on non-invasive detection, we aim to deploy these tools in high-throughput processes to identify defects early during the production phase.

The project has also provided a better understanding of the physicochemical mechanisms of defect formation. For instance, our experiments revealed the shape of the particles comprising the coating dictate both the direction and total extent of cracking.

This work integrates complex fluids engineering with non-invasive detection to ensure more reliable processing steps for durable coatings.



<https://unsplash.com/photos/a-yellow-and-black-sign-on-a-blue-wall-B6MwS4UZxKU>

Member Engagement Opportunities

Research Project Meetings

Starting May 27th: Research project meetings will be held on Wednesdays at 11 AM. Check the [Center Calendar](#) for more information.

Project Title	Lead(s)	Schedule
Effects of Aerosol Jet Printing Parameters on the Lifetime Performance of Additively-Manufactured Flexible Circuits	Prof. Janet Gbur (CWRU)	May 27, 11 AM
Enhancing Battery Degradation Analysis and Thermal Runaway Prediction	Prof. Satish Iyengar (Pitt)	June 3, 11 AM
Quantitative Characterization of Chemical Interaction of Solutes with Defects for Predicting Intergranular Corrosion	Prof. Hyeji Im (CWRU)	June 10, 11 AM
Technical Seminar		June 17, 11 AM

Ongoing and Completed Research Projects

Our Project summary document provides detailed summaries of the ongoing and completed research projects. Some senior design projects are also highlighted. Please check it out [here](#).

Job Openings and Opportunities

Member Job Openings

Explore current openings and internships from MDS-Rely member organizations.

- [Eaton Careers](#)
- [LLNL Internships](#)
- [NETL Opportunities](#)
- [Parker Hannifin Jobs](#)
- [U.S. Army DEVCOM Student and Intern Opportunities](#)
- [NIST Jobs](#)
- [NNL Careers](#)
- [PPG Careers](#)

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Submit Job Openings

*For MDS-Rely members only

[Fill out a job opening form here!](#)

Interested in partnering with Case Western, Pitt, or CMU Professors?

Please contact [Dr. Laura Bruckman](#) or [Dr. Paul Leu](#) for more information!

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