COLLEGE OF ENGINEERING
MATERIALS SCIENCE & ENGINEERING
UNIVERSITY OF MICHIGAN

TEAMMSE

SPRING 2025 - May 15 issue

This is it! Our last issue of the 2024-25 academic year. It's another big issue with lots of student news, including an in-depth look at this semester's capstone design and reverse engineering projects. Congratulations to everyone for a fantastic year and we look forward to being back in touch in late August! Have a "sun-sational" summer!

Events look-back

IT'S A WRAP: GRADUATION 2025

MSE students (including **Bingqian Pan** (master's) and **Zhixiong Yin** (Ph.D.), above, and **Tony Chiang** (Ph.D.), below) participated in the 2025 Michigan Engineering Graduate Student Commencement Ceremony in Crisler Center on April 30.

GENDICH RETURNS TO H.S. ALMA MATER TO PROMOTE MSE

Earlier this week **Micah Gendich** returned home to Rochester Hills (Mich.) H.S. to share the wonders of MSE with his former teacher's AP Chem class. He conducted hands-on demos and taught students about the iron-carbon phase diagram. If you're interested in promoting MSE at your former high school, please contact Ashwin Shahani for more information.

MSE @ WASHTENAW ELEMENTARY SCIENCE OLYMPIAD

Above: **Liang Qi** (center) and **Ellery Hendrix** (foreground) conduct shape memory alloy experiments with students at the Washtenaw Elementary Science Olympiad. Right: **Katsuyo Thornton** enlightens students with a fluorescent ink demo. Ashwin Shahani and Thornton also held a Photon Fun competition for 4th and 5th graders at the event.

Upcoming department events

03 &

MMRI SUMMIT

The 4th-annual MMRI Summit will feature invited talks by MMRI faculty and industrial partners, including MMRI-sponsored projects, and posters by students and postdoctoral researchers.

Tuesday & Wednesday, June 3 & 4: NCRC, Bldg. 18, Dining Room (a.k.a., Football Room)

04
JUNE

09 – 20
JUNE

SUMMER SCHOOL FOR ICMED

The Summer School for Integrated Computational Materials Education is a two-week crash course on computational MSE and sessions on educational modules that can be adopted into undergraduate-level thermodyamics, kinetics, material physics, and mechanical behavior courses. If you're interested in attending, please contact Katsuyo Thornton.

Monday, June 9-Friday, June 20: 340 West Hall

28
AUG

MSE WELCOME BACK PICNIC

Mark your calendars and note we will be returning to Gallup Park for our favorite kickoff event!

Date: Thursday, August 28
Time: 5:00 p.m.- 8:00 p.m.
Where: Gallup Park, Maas Shelter

Special Announcements

CALLING ALL MSE PET OWNERS! Lucero Lopez is organizing a fun display of MSE pets, and all students, faculty, and staff are invited to participate. Capture a great moment of you and your pet (or just your pet) and send the photo to her (lucerol@umich.edu) by **August 1**. Don't forget to include your pet's name! With the whole summer ahead, there's plenty of time to snap the perfect picture. Let's see how many of our furry friends we can gather together!

Staff News

THORNBLADH HIRED AS NEW UNDERGRAD PROGRAM ADVISOR

Molly Thornbladh has been hired to replace Patti Vogel (who's retiring in a few weeks) as our new undergraduate academic advisor. Thornbladh is a U-M alumna and holds a master's degree in counseling. She joins us after spending the past fifteen years in academic counseling/advising at Eastern Michigan University. Thornbladh's first day is this coming Monday, May 19, so be sure to stop by the advising office and welcome her to MSE.

Student News

CHLUPSA AND WANG RECEIVE DOE SCGSR AWARDS

The prestigious DOE SCGSR award provides graduate students from across

Amanda Wang (Kioupakis group) will spend five months at the Lawrence

the country the opportunity to conduct part of their thesis research at a DOE laboratory. Starting next month, **Marcel Chlupsa** (Shahani group) will spend 12 months at Argonne National Laboratory developing the Bragg Coherent Diffraction Imaging (BCDI) technique at the 1-ID and 20-ID HEXM beamlines. **Read more**.

Congratulations, Marcel & Amanda!

Berkeley National Lab (LBNL) incorporating the capabilities of the many-body perturbation theory code BerkeleyGW, which is developed at LBL, with the code developed within her research group to calculate Auger-Meitner recombination from first principles. **Read more**.

CONGRATULATIONS TO KYLE WALCHUK - PART OF THE NATIONAL CHAMPIONSHIP GYMNASTICS TEAM!

Our heartiest congratulations to **Kyle Walchuk**, an MSE rising junior and pommel horse master, , for winning the national championship in April! Congratulations, Kyle; we can't wait for next season!

MMS@TMS FEATURED ON LATEST 'UNDERCOOLED'

MSE students **Madina Nosirova '25**, **Micah**

Gendich '24, **Nasz Mantilla '25** and **Matteo Carcassi '26** share their experiences at TMS2025 (Las Vegas) on the latest episode of "Undercooled: A Materials Education" podcast with hosts Tim Chambers and Steve Yalisove. Click on the image below to watch the interview.

Education Highlights

CAPSTONE DESIGN PROJECTS ADDRESS REAL-WORLD MATERIALS ISSUES

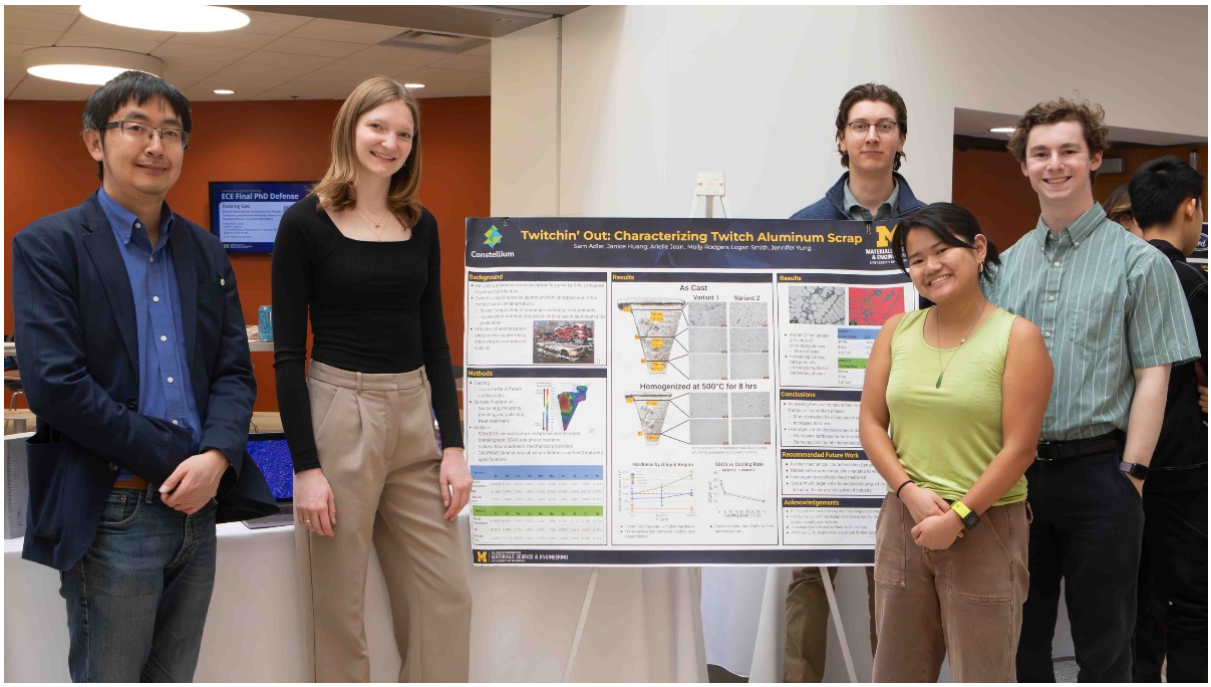
This year five capstone design teams partnered with local industries to research solutions to real materials issues.

"The seniors did a fantastic job working with local companies on some of their materials science problems," said co-instructor Yiyang Li. "It was a great opportunity for them to understand how MSE is used in industry as well as how scientists and engineers in industry think and approach problems."

"I was really impressed with the quality of the projects in MATSCIE 482 this year," added co-instructor Carlos Engler-Pinto. "The students went above and beyond, showing great work in both their experiments and conclusions. It was especially impressive given how little time they had. Congrats to everyone on a job well done!"

Wacker team - "Characterization of ELASTOSIL Silicone Foams" - Ran a design of experiment (DOE) in order to produce more consistent results in silicone foam compounding

Pictured above: Instructor Yiyang Li, Samantha Lewis (Wacker), Katherine Rybkin, Margot Helft, Kevin Payne (Wacker), Sasha Hill, Tylor Skrzypczak, Cameron Marteen, and Javier Sais. Not pictured: Dayo Ogundipe



Constellium team - "Twitchin' Out: Characterizing Twitch Aluminum Scrap" -

Studied the effect of cooling rate on microstructure and properties of twitch scrap to aid in aluinum recycling

Pictured above: Instructor Yiyang Li, Molly Rodgers, Logan Smith, Jen Yung, Sam Adler. Not pictured: Janice Huang & Arielle Jean

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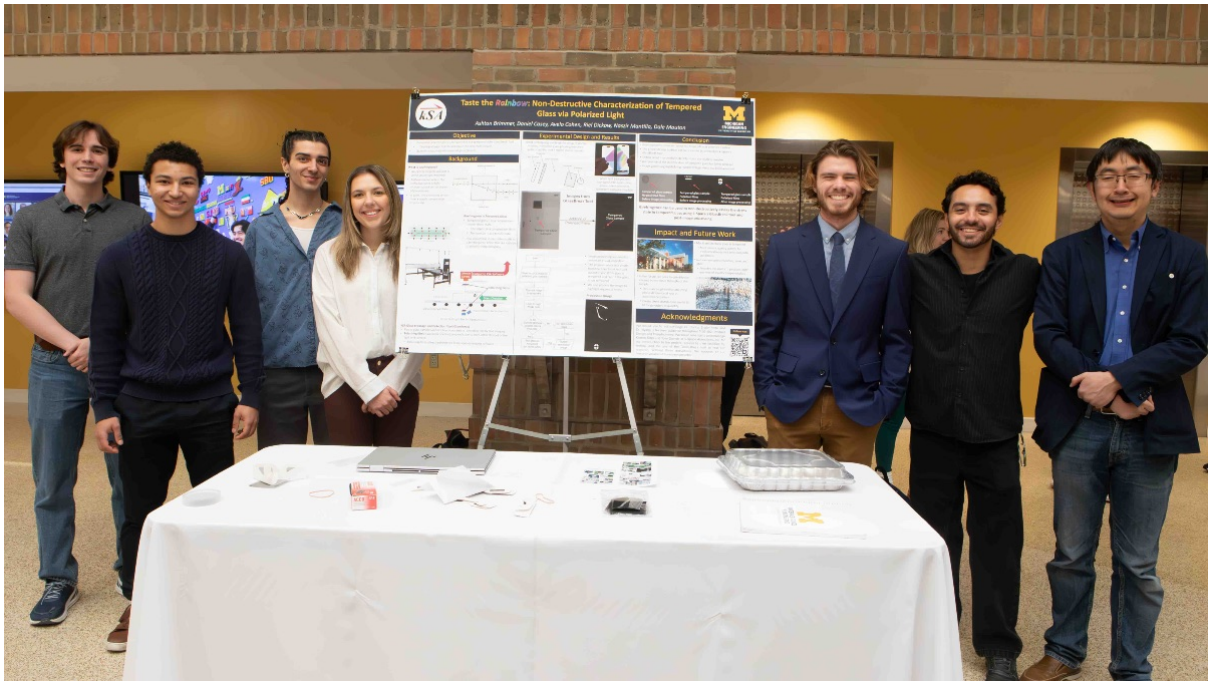
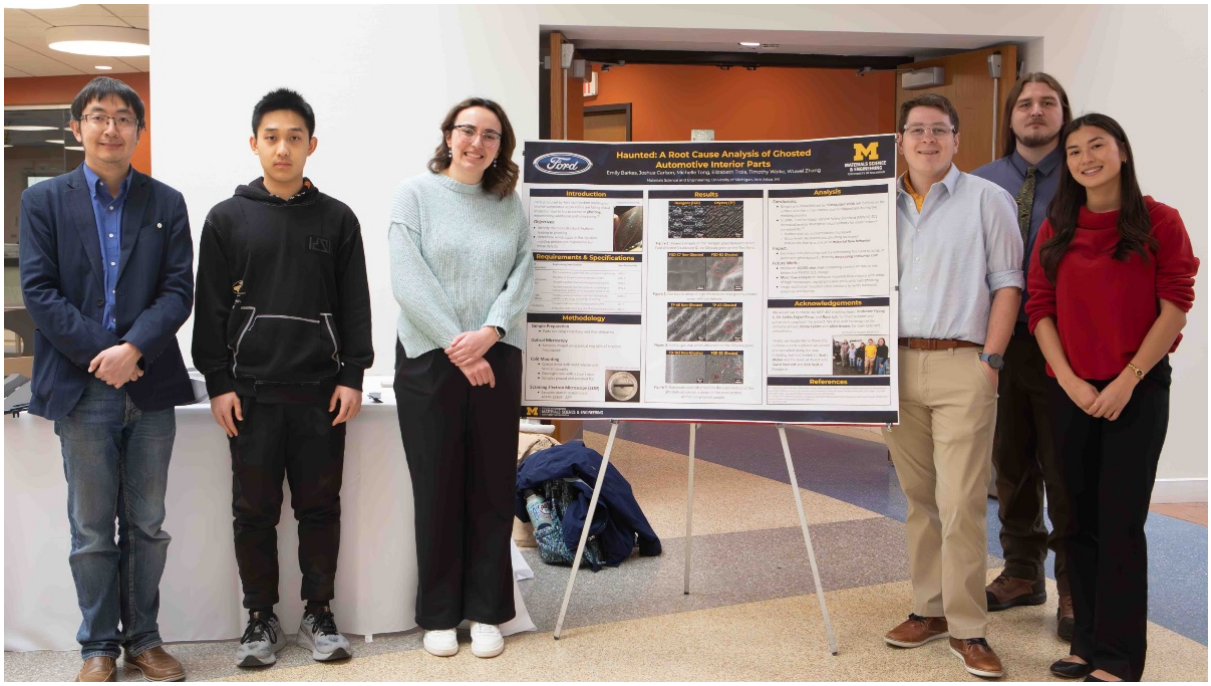


k-Space team - "Taste the *Rainbow*: Non-Destructive Characterization

of Tempered Glass via Polarized Light" -
Designed a way to detect tempered glass with polarized light

Pictured above: Dan Casey, Avelo Cohen, Riel Dickow, Ashton Brimmer, Dale Mouton, Naszir Mantilla, Instructor Yiyang Li.



Ford team - "Haunted: A Root Cause Analysis of Ghosted Automotive Interior Parts" -
Investigated microstructural defects responsible for ghosting in Ford injected molded parts

Pictured above: Instructor Yiyang Li, Wuwei Zhang, Elizabeth Troia, Joshua Carlson, Tim Woike, Emily Barkes. Not pictured: Michelle Tong

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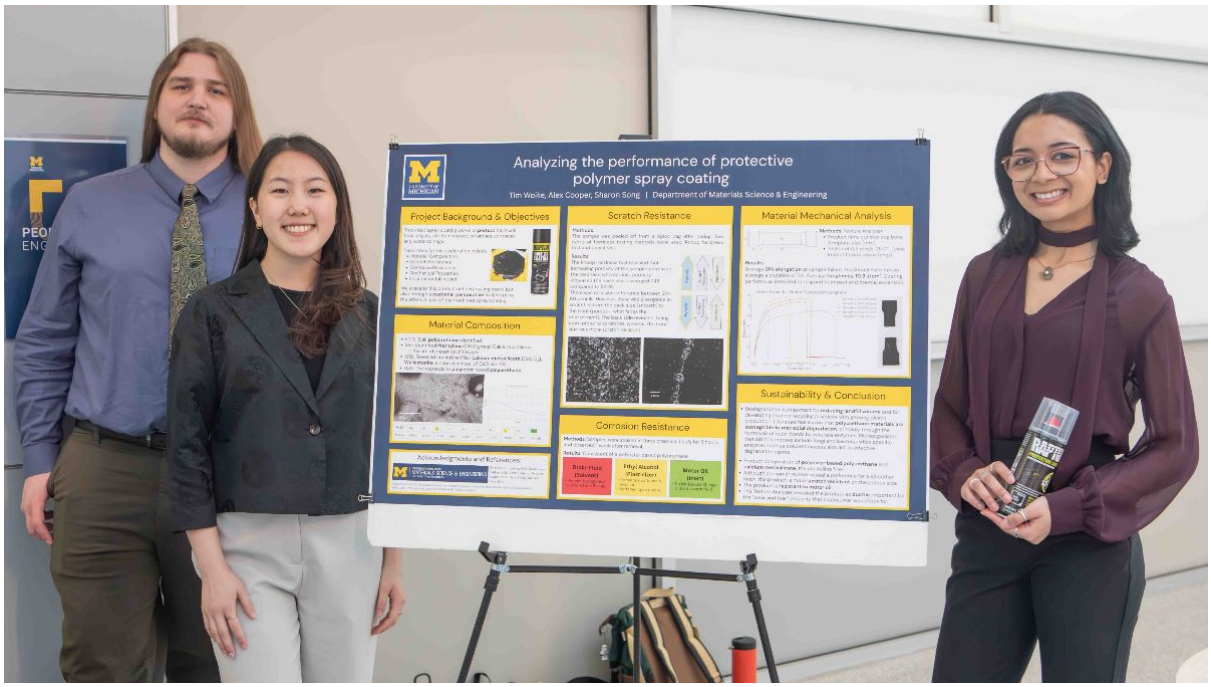
Tyfast team - "Developing a Dry-Cast Electrode Process with V2O5" - Developed a process to create dry cast electrode with vanadium oxide, carbon black, and powered polytetrafluoroethylene (PTFE) binder

Pictured above: Instructor Yiyang Li, Nicolette Harvey, Yixiang Covell, Hannah Wolfe.
Not pictured: Lauren Adams and Max Parr

MSE365 REVERSE ENGINEERING PROJECTS

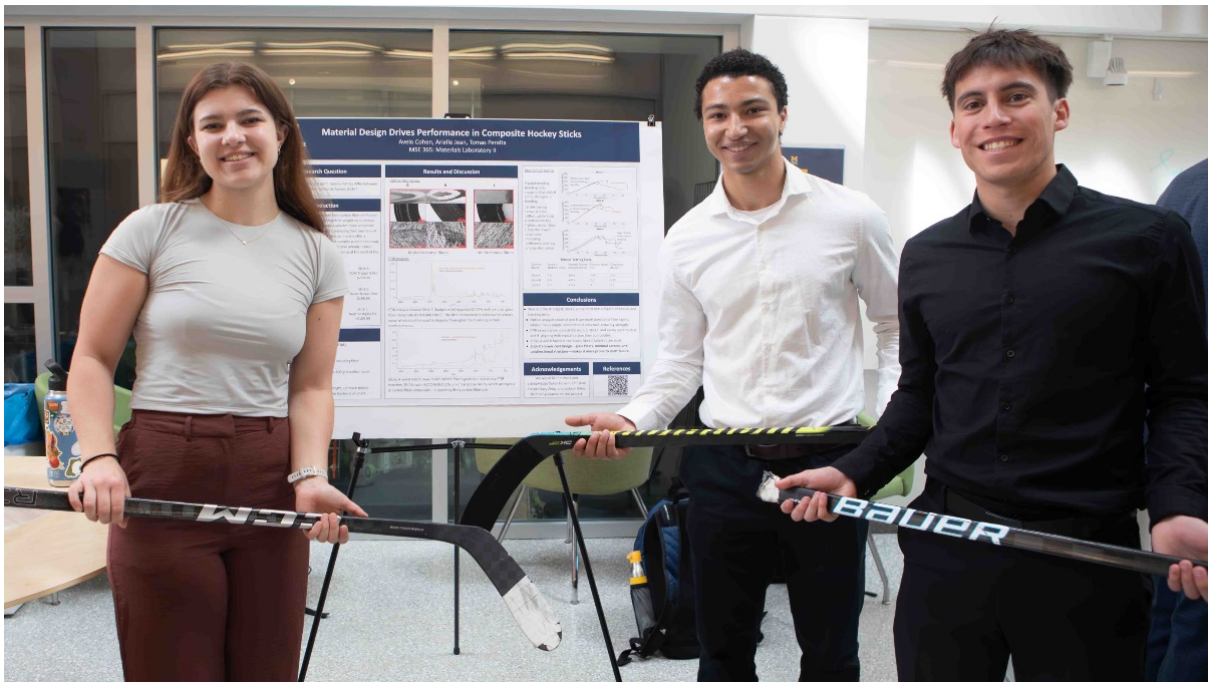
This year eight teams reverse engineered a variety of items – from composite hockey sticks to magnetic strip eyelashes– for their final MSE365 projects.

"The MSE365 students impressed me with their ambition, commitment to their projects, and creativity in tackling the problems they encountered," said instructor Sahar Farjami. "Congrats to the students on their success!"



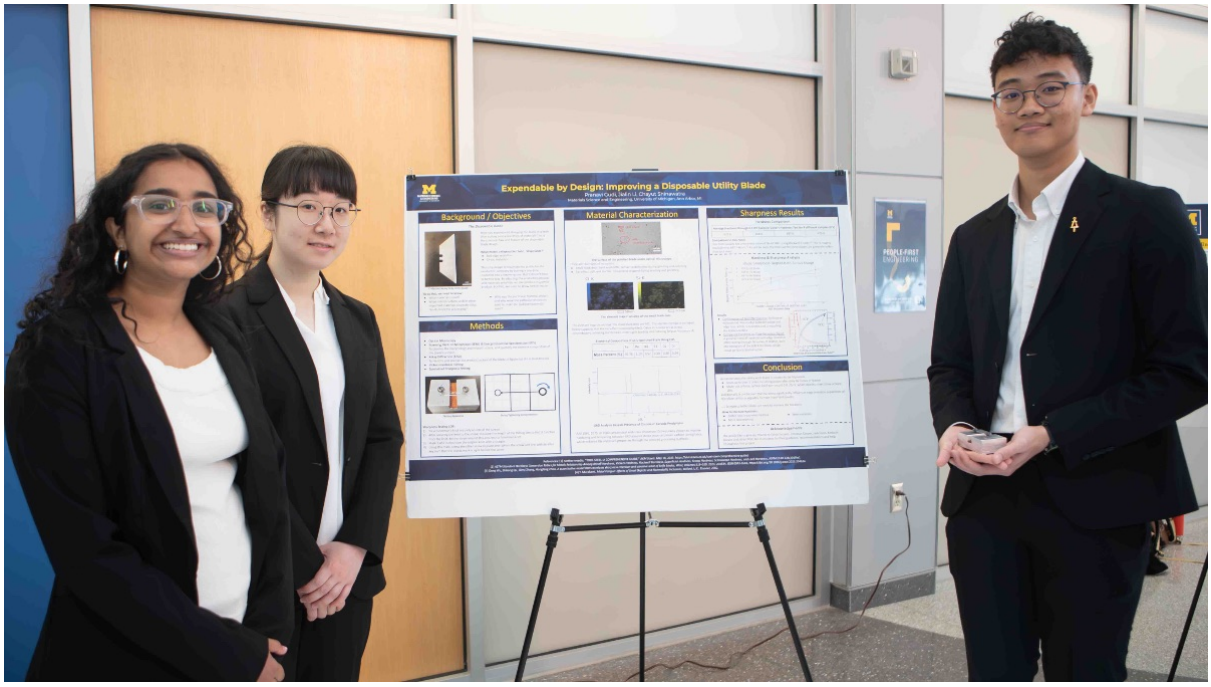
"Analyzing the performance of protective polymer spray coating"

Tim Woike, Sharon Song, Alex Cooper



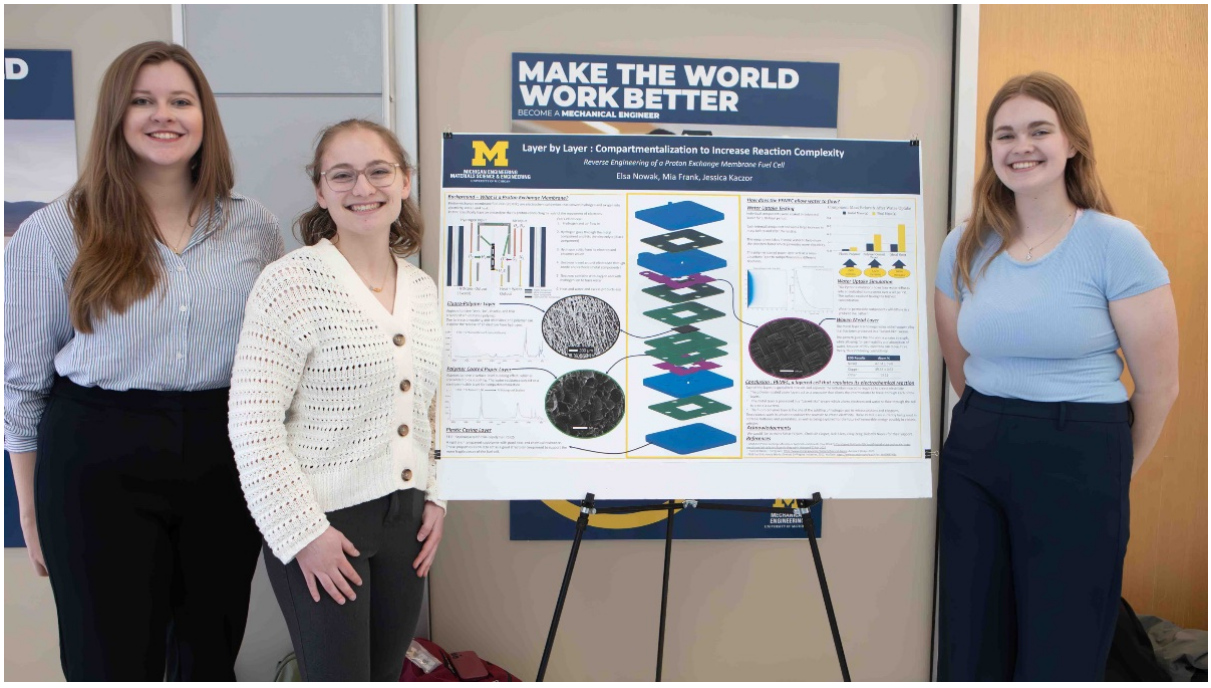
"Material Design Drives Performance in Composite Hockey Sticks"

Arielle Jean, Avelo Cohen, Tomas Peralta



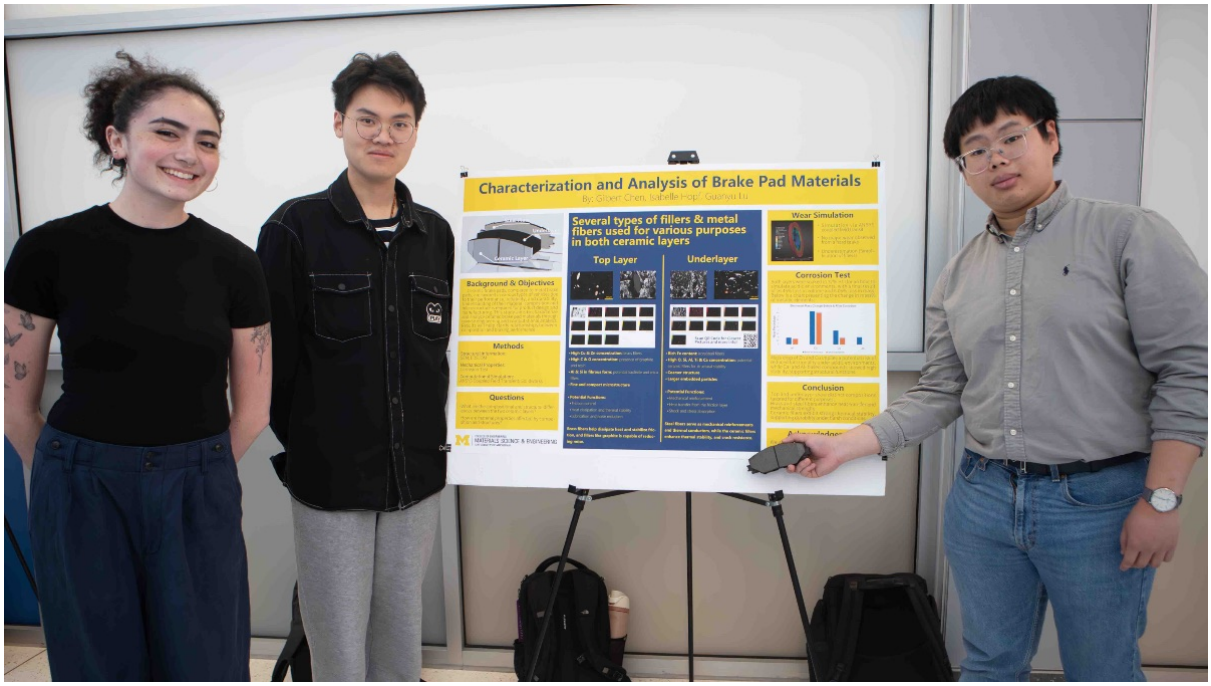
"Expendable by Design: Improving a Disposable Utility Blade"

Pranavi Gudi, Jialin Li, Chayut Shinawatra



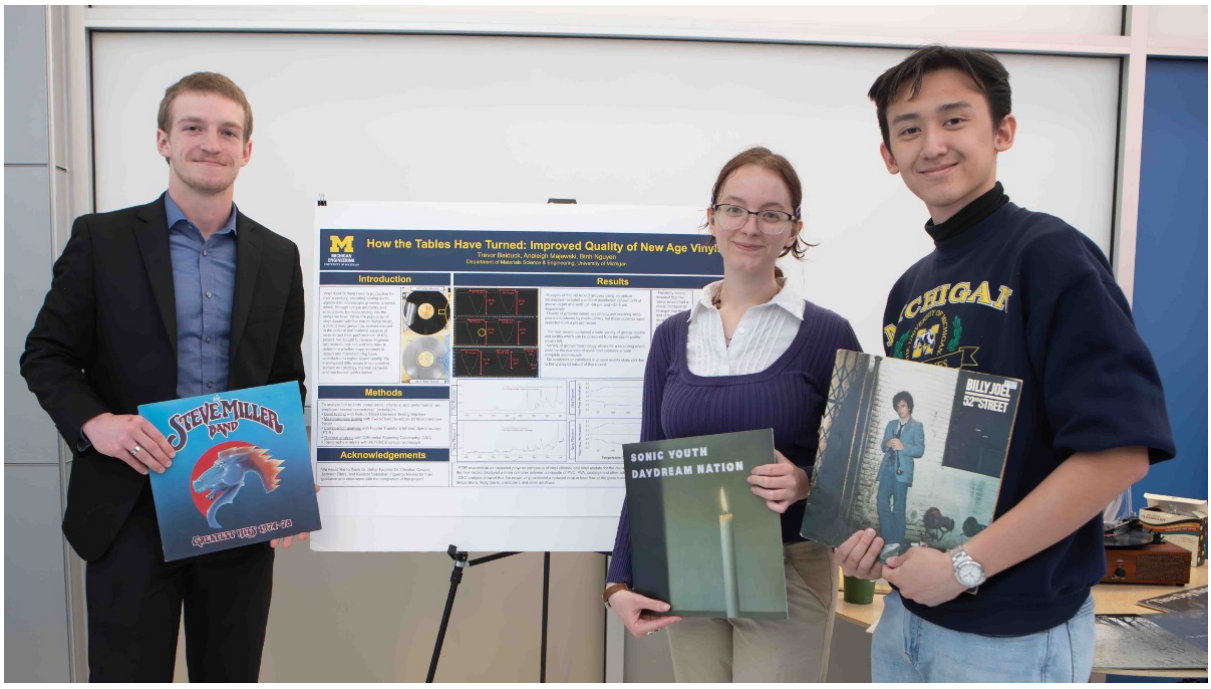
"Layer by Layer: Compartmentalization to Increase Reaction Complexity"

Jessica Kaczor, Mia Frank, Elsa Nowak



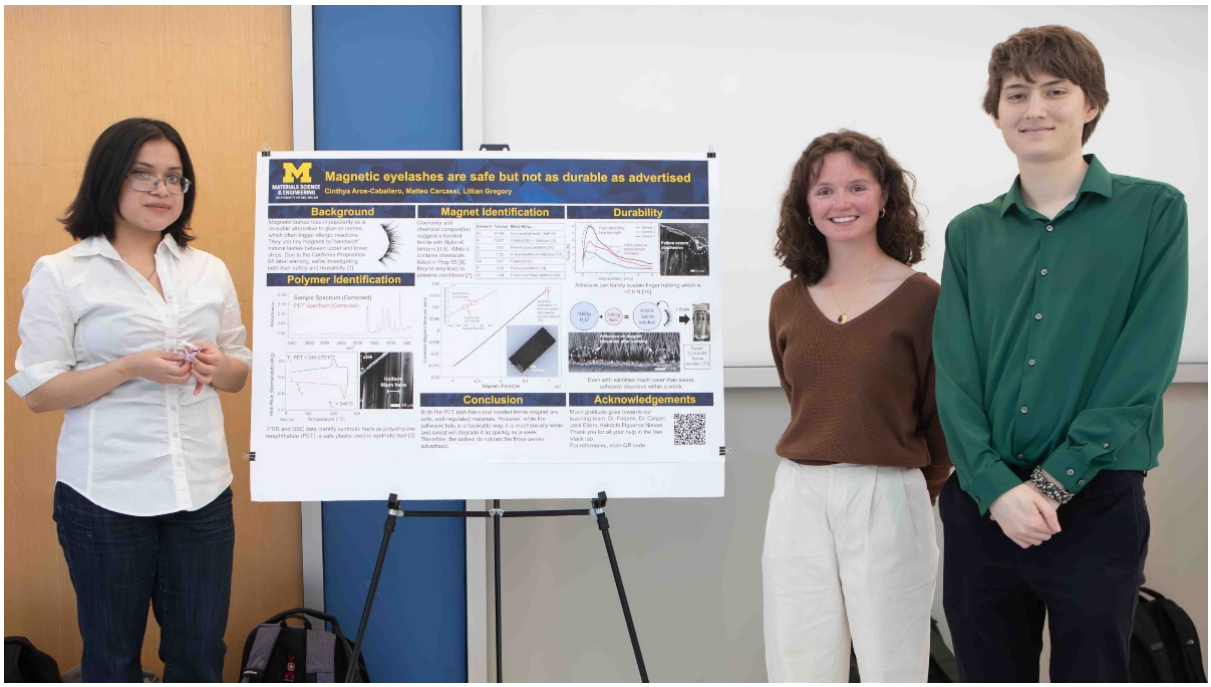
"Characterization and Analysis of Brake Pad Materials"

Isabelle Hopf, Guanyu Lu, Gilbert Chen



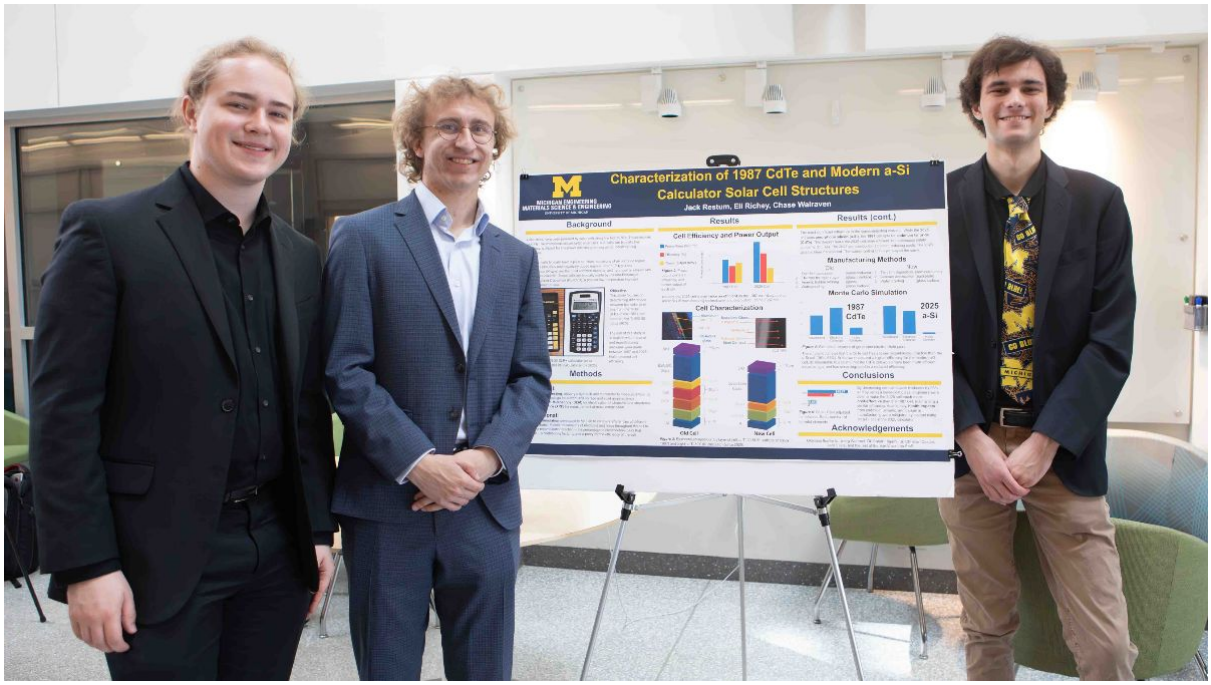
"How the Tables Have Turned: Improved Quality of New Age Vinyl Records"

Trevor Balduck, Analeigh Majewski, Binh Nguyen



"Magnetic eyelashes are safe but not as durable as advertised"

Cinthya Aros-Caballero, Lillian Gregory, Matteo Carcassi



"Characterization of 1987 CdTe and Modern a-Si Calculator Solar Cell Structures"

Eli Richey, Chase Walraven, Jack Restum

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