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9-2023

## ME-EM eNewsBrief, June 2023

Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University

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### A Note from the Chair:

I want to start by sharing some very sad news, Dr. Bill Predebon unexpectedly passed away on July 21, 2023. This has been a difficult time for all of us in the ME-EM department; though he had retired, Bill's frequent visits and shared excitement about the department's future always warmed our hearts. He still stopped by to say "Hi" and let us know what he was up to and was excited for what was to come for both the department, as always, and in his retirement. He was a dear friend, as well as mentor, to many of us in the department... He is sorely missed and will be remembered in perpetuity.

To honor his legacy, we have dedicated the donor wall in the ME-EM building lobby as the "William W. Predebon Mechanical Engineering - Engineering Mechanics Donor Recognition" wall. Additionally, we have installed a plaque that recognizes Bill's remarkable fundraising success, which was one of his true passions. Through his efforts, the department continuously evolved, transformed, and maintained a leading edge over other ME programs. This recognition was intended as a surprise for Bill during the Alumni Reunion Open House in August. Dr. Predebon was a true visionary, and his absence will be deeply felt.



William W. Predebon

**The Predebon family is hosting a Celebration of Life for Bill. All are welcome!**

**Saturday, September 16, 2023 at 11:00 a.m.  
Isle Royale Ballroom in the Michigan Tech Memorial Union Building**

*Buffet luncheon to follow*



On to the good news -- This fall, our department is welcoming two new tenure track faculty members and one new instructional track faculty member. Additionally, we are excited to report that we have a larger incoming Freshman class than last year. The department and university are growing, and we are excited to explore some new initiatives which we will keep you updated on. Our recent acquisition of a Clausing Turning Center for the 6th-floor shop marks a significant upgrade, and our dedicated team is familiarizing themselves with it to train students. We are grateful for your unwavering support which has made these advancements and many more possible and are looking forward to sharing more positive updates with you soon! Thank you!

~ Jason R. Blough, Ph.D. | *Interim ME-EM Department Chair and Distinguished Professor*

If you'd like to make an online donation to the [Dr. William W. Predebon Memorial Endowment Fund](#), click the link, or scan the QR code, and follow the five steps below:

- Under "Fund Designation"
- 1) Select "Other"
  - 2) Enter "Fund 4194".
  - 3) Enter your personal info
  - 4) Select "In Memory of"
  - 5) Enter "Dr. Bill Predebon"

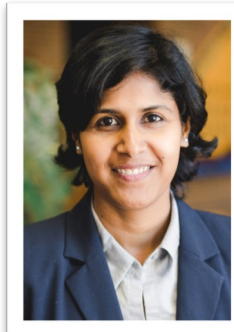


Checks, with "Fund 4194 - Dr. Predebon" on the memo line, can be sent to:

Michigan Tech Fund, 1400 Townsend Dr. Houghton, MI 49931

## Promotions - effective Fall '23

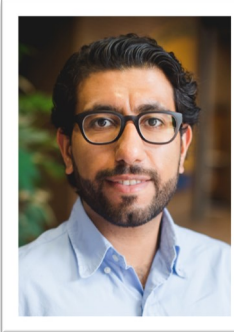
**Dr. Trisha Sain** has been promoted to associate professor with tenure.



Dr. Sain joined the ME-EM department in 2016 as an assistant professor. She earned her Ph.D. in Civil Engineering from the Indian Institute of Science in 2008. She completed a year of post doctoral experience at Texas A&M and was an assistant professor in the ME department at North Carolina A&T State University for three years before joining Michigan Tech.



**Dr. Hassan Masoud** was promoted to associate professor with tenure.



Dr. Masoud joined the ME-EM department in 2017 as an assistant professor. He earned his Ph.D. in Mechanical Engineering from Georgia Institute of Technology, his MSME from SUNY at Buffalo, and BS in Aerospace Engineering from Sharif University of Technology in Iran. He was an Assistant Professor in Mechanical Engineering at the University of Nevada prior to joining Michigan Tech.



**Dr. Radheshyam Tewari (MSME '07, PhD ME-EM '14)** has been promoted to teaching professor.



Dr. Tewari joined the ME-EM department as an Instructor in 2014 and has been promoted three times since. He earned his Ph.D. ME-EM and MSME at Michigan Tech, and his B.S. at the Maulana Azad National Institute of Technology in India. Dr. Tewari came to Michigan Tech after working in the manufacturing sector as a production engineer at Bajaj Auto Limited in India. He is the chair and coordinator of the ME-EM Graduate Seminar Committee and was co-advisor of the Innovative Global Solution Enterprise at Michigan Tech for several years.

## Faculty/Staff Awards/Accomplishments

**Dr. Jeffrey Allen** (Professor, ME-EM) was mentioned in a [NASA Science News](#) press release announcing six physical science proposals selected for funding by NASA's Physical Sciences Research Program. Allen is the PI of one of the projects, which will build on prior reduced-gravity research to advance fundamental research in the physical sciences.



**Dr. Ezra Bar-Ziv** (Professor, ME-EM/APSRC) was quoted by [WLUK FOX 11](#) of Green Bay, Wisconsin, in a story on Green Bay's candidacy for a new plastic recycling system that uses solvents to break down plastic film types. The system prototype is being built at Michigan Tech. The story was picked up by [101.1 WIXX-FM](#) and five other Wisconsin news outlets.

**Dr. Bar-Ziv** was also quoted by the [Green Bay Press-Gazette](#) in a story about a new plastic recycling system called STRAP (solvent-targeted recovery and precipitation) that uses solvents to break down plastic film types. Bar-Ziv is leading the design and construction of a system prototype at Michigan Tech.



**Dr. Ana Dyreson** (Assistant Professor, ME-EM) was mentioned by the [Daily Mining Gazette](#) in a story about a public forum with Cheq Bay Renewables, a renewable energy-focused nonprofit organization serving a cluster of communities on the Wisconsin-Michigan border. A speaker from the organization explained how renewable energy might be brought to the Houghton-Hancock area.

**Dr. Dyreson** was also mentioned by the [Mining Journal](#) in a story about a public forum with Cheq Bay Renewables in Houghton.

**Dr. Dyreson** was featured in Michigan Tech's [Unscripted Research Blog](#) in an article titled "Shedding Snow and Powering UP: Researchers Track Ways to Boost Solar Power in Snowy Climates". While some tend to think of solar energy on the scale of homes or individual entities, about 65% of solar capacity in the U.S. is utility-scale. Solar photovoltaics (PV) make up the largest technology category in new utility-scale installations in the U.S., and this sector's growth is only expected to accelerate in coming decades. Large-scale PV installations and other macro trends like decarbonization and electrification are global trends. Dr. Dyreson believes their success depends on whether designers consider the specific characteristics of regional climates and community-scale social barriers. Dyreson highlights efforts taking place at the nation's northernmost solar Regional Test Center, aimed at improving photovoltaic performance in cold climates.



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## Faculty/Staff Awards/ Accomplishments (cont'd)

**Dr. Brad King** (Professor, ME-EM) was quoted by the University of Michigan's [Michigan Impact Newsletter](#) in a story about the rapid growth of his satellite propulsion company, Orbion Space Technology in Houghton. Also quoted was **Rob Washeleski** (BSEE '06, PhD ME-EM '12), and **Jason Sommerville** (PhD ME-EM '09) was mentioned.



**Dr. Vinh Nguyen** (Assistant Professor, ME-EM) was quoted in a story about the annual trip to D.C. trip Michigan Tech's research faculty in Michigan Tech's [Unscripted Research Blog](#)



**Dr. Jeffrey Naber** (Professor, ME-EM/APS Labs) and Michigan Tech were mentioned on [WLUC TV6](#), [WZMQ 19 News](#) and the [Keweenaw Report](#) in stories about Sen. Debbie Stabenow's visit to the U.P. to promote technology, innovation and workforce

development in the region, which included a stop at the Keweenaw Research Center. **Jeffrey Naber** and **Mojtaba Bahramgiri** (Ph.D. EEE '21) (Applied Computing postdoctoral scholar) were quoted in the 19 News story.



**Dr. Gregory Odegard** (Professor, ME-EM) was quoted by [Chemical & Engineering News](#) in a story about the materials improvements needed to facilitate a manned mission to Mars.



**Dr. Paul van Susante** (Asst Professor, ME-EM) was quoted and the Planetary Surface Technology Development Lab was mentioned by [SpaceRef](#) in a story about the rising demand for simulant lunar regolith, used in testing of lunar mechanisms and equipment.



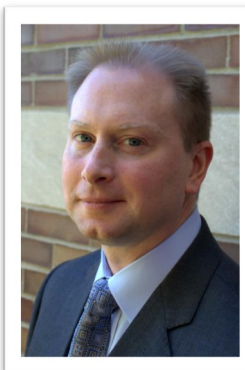
**Dr. Radheshyam Tewari** (Associate Teaching Professor, ME-EM) was selected as a featured instructor in the [Deans' Teaching Showcase](#). Tewari was recognized at an end-of-term event with other showcase members and is a candidate for the [CTL Instructional Award Series](#). Tewari's teaching and efforts in developing and improving curricula and programs has led to increased interest in the minor in manufacturing and led to the creation of the Graduate Certificate in Quality Engineering. This has become the most popular certificate among those offered by ME-EM.



**Dr. Jeremy Worm** (Res Asst Prof, ME-EM/Associate Director, APSRC) was mentioned in a [Mining Journal](#) story about a weeklong Earth Fest held by Munising School Public Library. Worm hosted an electric vehicle show and presentation during the event.

## Welcome New Faculty

**Dr. Shawn Brueshaber** will join the faculty of the ME-EM department as an assistant professor. Dr. Brueshaber



did his postdoctoral research with the Jet Propulsion Laboratory. He received his Ph.D. ('20) and MS ('08) degrees in Mechanical Engineering from Western Michigan University.

[Dr. Brueshaber](#)

brings an additional 21 years of experience in industry designing mechanical products and systems; conducting stress, fluid dynamics/ heat transfer, and fatigue and fracture analyses in the aerospace, automotive, paper & pulp and appliance industries.

**Dr. Bhisam Sharma** joins the ME-EM faculty as an associate professor. Dr. Sharma came to us from Wichita State University where he was an assistant professor.



He did postdoctoral research and received his Ph.D. ('13) and M.S. ('09) in Aeronautical and Astronautical Engineering from Purdue University, and a B.E. ('07) from the University of Pune, India.

Dr. Sharma's research focuses on enabling structured cellular materials that can be tailored to provide application-specific multifunctional properties.

**Dr. Chad M. Walber** joins the department as an Associate Teaching Professor. Dr. Walber earned a BS in Electrical Engineering as well as a BS, MS, and PhD ('12) in Mechanical Engineering at Michigan Tech.



Dr. Walber brings 12 years of industry practice to the table, having worked as an R&D Engineer at PCB Piezotronics since receiving his Ph.D. His research interest include: sensors and instrumentation, digital signal processing, metrology, piezoelectrics, as well as dynamic systems testing, sound and vibration, and additive manufacturing.

## Student Competitions and Team Awards

### 2023 Design Expo - ME Awards:

Hundreds of Michigan Tech students presented at Michigan Tech's 23rd annual Design Expo in April, competing for cash awards totaling nearly \$4,000. "Design Expo gives students an opportunity to showcase their creativity and innovation," said Nagesh Hatti, who oversees the Enterprise Program. Many Senior Design and Enterprise projects displayed at Design Expo are supported by external industry sponsors, allowing students to gain valuable experience through direct exposure to real industrial problems.

Team sponsors generously support our educational mission by providing invaluable project experiences, along with guidance and mentorship for our students. A panel of judges made up of corporate representatives, community members and Michigan Tech staff and faculty members critiqued the projects. Read more about this year's Design Expo on the [College of Engineering Blog](#). The winning ME teams are presented below. To see the full list of awards (and also project videos), visit the [Design Expo Awards webpage](#).

### Enterprise:

**First Place** — 123. Velovations - Led by: **Ethan McKenzie** and **Michael Balentine** (srs., EME); Advisor: Steve Lehmann (BioMed); Sponsors: Cleveland Cliffs, Tony Senger Innovations, Milwaukee Tool.

**Second Place** — 106. Aerospace Enterprise - Led by: **Seth Quayle** (sr., EME) and Kyle Bruursema (sr., EEE); Advisor: **L. Brad King** (Professor, ME-EM); Sponsor: Air Force Research Laboratory.



**Kyle Samluk** (sr., EME) made the podium at the [Open GLIAC Championships](#) in the men's 3,000m steeplechase



Michigan Tech was mentioned by [ExecutiveGov](#) and [autoevolution](#) in stories about [NASA's Watts on the Moon Challenge](#) — a competition to design new technologies for bringing electrical power to the moon. MTU's team was [announced by NASA](#) as 1 of 4 finalists advancing to the final stage of the competition: Phase 2, Level 3.

Australia's [Moon Daily](#) mentioned Michigan Tech's Planetary Surface Technology Development Lab ([PSTDL](#)) in coverage of [NASA's announcement](#) of the winners of Level 2 of the Watts on the Moon Challenge, Phase 2. As one of four winning teams, the PSTDL earned a \$400,000 prize and advanced to Level 3 of the challenge. [Space Coast Daily](#), [Parabolic Arc](#) and the [Space Quip Journal](#) also mentioned Michigan Tech, and [autoevolution](#) did a story summarizing the four projects selected to advance to Phase 2, Level 3.

Read more about the team's accomplishments at [Michigan Tech News](#).



Michigan Tech's Automated Regolith Excavation System (ARES) team competed in the [Robotic Mining Challenge](#), hosted by the U of Alabama in Tuscaloosa. The students were current or former members of [MINE](#), the Multiplanetary INnovation Enterprise at Michigan Tech, advised by Prof. **Paul van Susante** (Asst Prof, ME-EM). Read more about the competition in the [COE Blog](#).

## Student Accomplishments and Awards

### ESC Student Travel Grant Awards:

The [Ecosystem Science Center](#) (ESC) aims to advance our knowledge of the inherent complexity of social-ecological systems and thus provides small grants to members and their students to help develop externally supported research programs to that end.

**Ayush Chutani**, ME-EM Ph.D. student; Destination: IEEE Photovoltaic Specialists Conference 2023; Advisor: **Dr. Ana Dyreson**, (Assistant Professor, ME-EM).

**Shelbie Wickett**, ME-EM Ph.D. student; Destination: IEEE Photovoltaic Specialists Conference 2023; Advisor: **Dr. Ana Dyreson**.



The [Keweenaw Report](#) picked up a [Graduate School](#) announcement naming Michigan Tech ME students as recipients of the U.S. Department of Defense Science, Mathematics, and Research for Transformation (DoD SMART) Scholarship. Those students are:

**Noah Baliat** (sr., EME) will be at the Holloman Air Force Base (AFB) in New Mexico after graduation next year.

**Marcello Guadagno** (ME-EM Ph.D. candidate); Advisor: **Dr. Paul van Susante** (Assistant Professor ME-EM/MARC) will be at the Kirtland AFB in New Mexico.

**Jonathan Oleson** (ME-EM Ph.D. candidate) was a semifinalist - Advisor: **Dr. Susanta Ghosh** (Asst Professor).

The DoD SMART Scholarship is part of the National Defense Education Program and its benefits include full tuition and education-related expenses payment, a stipend of \$30,000 to \$46,000 per year, summer internships ranging from eight to 12 weeks, health insurance, a miscellaneous allowance of \$1,000 per year, mentorship at one of the DoD sponsoring facilities and employment placement at a DoD facility upon degree completion. These awards highlight the quality of students at Michigan Tech, the innovative work they have accomplished, the potential for leadership and impact in science and engineering that the country recognizes in these students, and the incredible role that faculty play in students' academic success.

## Student Accomplishments and Awards (cont'd)

[Bridge Michigan](#) quoted first-year student **Maci Cornish** (2nd yr., EME) in a story about an increase in the portion of STEM degrees awarded to Michigan college graduates.



Maci Cornish: A beacon of inspiration at Michigan Tech, paving the way and inspiring the next wave



MTU's Society of Women Engineers (SWE) section attended the Annual SWE-Wisconsin Professional Day in Madison. The section received the Collegiate Section Achievement Award for establishing the SWE Section Endowed Scholarship. They were excited to see **Andrea Falasco** (BSME '12) who was selected as an Emerging Leader in Technology and Engineering (ELiTE) of the SWE-Wisconsin Professional Section in February. During the panel discussion Andrea talked about her career path and about working for big versus small companies.

**Carissa Best** (1st yr, ME): "I really enjoyed having the opportunity to hear the stories of confident women in STEM who were interested in empowering other women."

**Cassandra Borr** (2nd yr, ME): "I found this conference to be very empowering, as we were able to see what other women in the industry have accomplished and how they achieved it."

**Tory Cantrell** (1st yr., ME): "The most important piece of advice that I will take away from this conference is how it is important to step outside of your comfort zone and evolve your leadership brand as you grow."

**Talia Olson** (jr., ME): "I enjoyed getting inspired by other women engineers and learning from their experiences. I learned how to brand myself and to own my strength in the workforce."

**Amanda West** (jr., ME): "I enjoyed networking with the other SWE sections in the region. It was great to learn how other students handle their organization and use it to help improve our own."

## University News/Awards

[WorldAtlas](#) mentioned Michigan Tech in an article describing the best college towns in Michigan (obviously, Houghton made the list).



President Rick Koubek, Provost Andrew Storer and Mike Mullins (ChE) were quoted by the [Daily Mining Gazette](#) and [Mining Journal](#) in a story about the Michigan Tech Board of Trustees' approval of creating a Bachelor of Science in Nursing program at MTU. Tech will bring Finlandia University's nursing faculty on board to teach the curriculum, which will mirror Finlandia's with minor adjustments.



Nancy Byers Sprague (Director Graduate Degree Services) retired from her position in the Graduate School this June. [Nancy](#) has been a valuable member of our campus community for more than 45 years, and has been with the Graduate School for the last 20. During this time, countless students, faculty and staff have been impacted by her caring and compassionate nature, and it will be hard to imagine campus life without her.



And now for the Michigan Tech Fight Song! ~ Fight Tech, fight Engineers. For banners bright Engineers. From Northern hills, we'll sound our cry, We'll ring your praises to the sky! Fight Tech, fight Engineers. For right with might Engineers. We'll win the game in the glorious name of the Michigan Michigan Michigan Engineers!

## University News/Awards (con't)

[Talent Management](#) mentioned Michigan Tech in a story about Michigan's industry, government and institutes of higher education collaborating to build a high-quality workforce in the state. MTU's partnership with Calumet Electronics to bring hands-on manufacturing experience to engineering students was highlighted.



Provost Andrew Storer was quoted by [Bridge Michigan](#) in a story about expanded nursing training options coming to the UP. Both Storer and Rick Koubek were quoted in a story about Michigan Tech's new B.S. in Nursing program by [Becker's Hospital Review](#).



Michigan Tech's Board of Trustees approved a number of new initiatives on campus, including a B.S. degree in Nursing program and plans to build a new residence hall to house more than 500 second-year and upper-division students, tentatively beginning in fall 2025. The University will begin admitting students to the nursing program this fall. Read the full story on [Michigan Tech News](#).



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## Alumni & Friends, News Accomplishments & Awards

**Kevin Ballinger** (BSME '95) was mentioned in a press release run by [Medical Buyer](#) and [GlobeNewswire](#) about the appointment of Shockwave Medical's board of directors. Ballinger is CEO at Aldevron, a manufacturer of plasmid DNA, mRNA and proteins for use in advanced therapeutics.



**David Cvengros** (BSME '62), a Husky basketball and tennis player, was mentioned in a feature story in the [Mining Journal](#) as one of this year's inductees to the UP's Sports Hall of Fame. He was also mentioned on [WLUC TV6](#) Tech from 1958-1962. Cvengros was inducted into MTU's [Sports Hall of Fame](#) in 2010.



**Nathan Klein** (BSME '09) was mentioned on [WJMN Local 3](#) in a story about the new speed eating record set by at Miner's Café in Laurium, Michigan. Klein finished the cafe's five-pound Ultimate Omelet in five minutes, 47 seconds.



**Teik Lim** (BSME '85), who just completed his first year as president of the New Jersey Institute of Technology, was profiled in [Diverse: Issues in Higher Education](#).



**Jesse Olson** (BSME/BSEE '17) was quoted in the [Air Force Research Laboratory](#) (AFRL) story announcing university participants in a 2024 mission concept program. Jesse is now UNP Manager of the small satellite branch of the University Nanosatellite Program in the AFRL's Space Vehicles Directorate which partners with NASA's CubeSat Launch initiative to prepare participants for the next nanosatellite cycle in 2024.



**Kevin Pageau** (BSME '81) was announced the recipient of the Society of Plastics Engineers Automotive Division's 2023 Lifetime Achievement Award in [Composites World Magazine](#) and [WebWire](#) mentioned Michigan Tech in a press release about the newly published textbook "Mathematical Methods for Engineering and Science," co-authored by Merle Potter (BSME '58 '61). The release was picked up by more than a dozen regional news outlets.

**Carter Paprocki** (BSME '20, MSME '22) was announced as a recipient of the four-year [Rickover Fellowship in Nuclear Engineering](#). Paprocki is a doctoral student in acoustics at [Pennsylvania State University](#) and plans to continue his research at Penn State with his advisor, **Dr. Andrew Barnard** (ME-EM Adjunct Professor; BSME '02, MSME '04). After graduation, the future Dr. Paprocki looks forward to working at the Bettis Atomic Power Laboratory in Pittsburgh conducting acoustics research on nuclear reactors and supporting systems. He'll utilize machine learning to streamline data processing.



**Merle Potter** (BSME '58, MSEM '61) co-authored a newly published textbook as noted in a press release in [WebWire](#). The textbook is titled "Mathematical Methods for Engineering and Science," The release was picked up by more than a dozen regional news outlets.



**Rob Sattler** (BSME '77), the new president of the Grosse Pointe Shores Improvement Foundation, was profiled in the [Grosse Pointe News](#)



**Jacob Smith** (BSME '19) and Hailey Bondy (BSEE '19) were profiled in a story by the [Daily Mining Gazette](#). The pair used their engineering backgrounds and other skills to convert a 1996 Chevy G30 bus into a moving home, which they've used to travel the country since September 2022 while on an extended honeymoon.



## Contracts & Grants

**Bar-Ziv, Ezra** (PI, MEEM Professor/APSRC) and **Kolapkar, Shreyas** (Co-PI, ME-EM); “Continuous Process for Solvent-Targeted Recovery and Precipitation (STRAP) for Plastic Wastes using Green Solvents”; sponsor: National Science Foundation; total award: \$549,954.



**Bar-Ziv, Ezra** (PI, Professor, MEEM/APSRC) and **Kolapkar, Shreyas** (Co-PI, ME-EM); “Torrefaction of Fiber-Plastic Blend”; sponsor: Convergen Energy, LLC; total award: \$57,500.



**Jewell, Ben** (Student PI, MEEM); **Sain, Trisha** (Assistant Professor, MEEM); “Experimental Characterization of Polymers and Polymer Composites Under High Temperature Oxidative Aging”; sponsor: University of Michigan, Michigan Space Grant Consortium; total award: \$5,000.



**Morse, Stephen** (PI, Professor of Practice, MEEM); “Strength comparison of annealed glass specimens using four-point bending test”; sponsor: North Star Windows; total award: \$4,650.



**Odegard, Gregory M.** (PI, Professor, MEEM), **Vinh Nguyen** (Assistant Professor), **Jeffrey Allen** (Professor), **Wayne Weaver** (Professor) (Co-PIs, MEEM); “PREP Gaithersburg: Establishment of a NIST Gaithersburg PREP Program at Michigan Technological University”; sponsor: National Institute of Standards and Technology; total award: \$5,430,322.



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**Sierra, Elija** (Student PI); **Paul van Susante** (Assistant Professor, MEEM); “Investigation of static electricity effects on conveyance of MTU-LHT-1A through polycarbonate hoppers”; sponsor: University of Michigan, Michigan Space Grant Consortium; total award: \$4,000.



**Tajiri, Kazuya** (Associate Professor, MEEM); “CFD Analysis of Flow Field and Temperature Distribution in Refrigeration Cabinet”; sponsor: Structural Concepts; total award: \$9,468.



**Van Susante, Paul** (Assistant Professor, MEEM); “NASA 2023 Lunabotics Competition”; sponsor: University of Michigan, Michigan Space Grant Consortium; total award: \$5,000.



A fond farewell to Dr. William W. Predebon, retired ME-EM department chair and emeritus professor ~ July 21, 2023.



