



The Eleventh Annual Conference for the Exchange of Mathematical Ideas

Saturday 2nd to Sunday 3rd of August 2025

Department of Mathematics
University of Northern Iowa
Sedar Falls, IA, USA

AIM

The aim of the annual conference is to improve communication among mathematicians in different specializations in order to enhance and stimulate their research. Talks are therefore expected to focus on a general introduction to the speaker's current research, major open problems, and future prospects. Now in its second decade, EMI has evolved into a rather unique mathematics conference. We pride ourselves on being a small, almost familial conference, where scholars from various branches of mathematics can engage in a relaxed yet stimulating environment that embodies the true spirit of exchange of ideas.





EMI 2025 Program

Friday, August 1, 2025

Time	Title of the talk and presenter
5:00pm – 7:00pm	For those who are traveling and in town, dinner at the Montage, 222 Main Street, Cedar Falls.

Saturday, August 2, 2025

All talks will be held at Maucker Union, Ballroom A.


Time	Title of the talk and presenter
9:00am	Opening Remarks by organizers: Doug Mupasiri, Professor and Head, Department of Mathematics, UNI; Hisa Tsutsui, Professor, Department of Mathematics, ERAU-Prescott
9:05am	Welcome Remark: Mary Black, Dean of the College of Humanities, Arts & Sciences, UNI
9:15am – 9:55am	Title: <i>Problems on Hyperelliptic Torelli Group</i> Speaker: Tatsunari Watanabe (ERAU)
10:05am – 10:25am	Title: <i>Are Virtual Knots Like Classical Links?</i> Speaker: Robert Todd (Mount Mercy University)
10:35am – 11:05am	Title: <i>A New Rotational Four Coloring Method for Planar Graph</i> Speaker: Weiguo Xie
11:10am – 11:55pm	Title: <i>The Beauty of The Kaczmarz Algorithm*</i> Speaker: Eric Weber (Iowa State University) – Invited talk
	Conference Lunch
1:00pm – 1:30pm	Title: <i>New Discoveries on Special Properties of Luoshu Magic Square</i> Speaker: Weiguo Xie

1:40pm – 2:40pm	Title: <i>An Application of Elementary Submodels I: A Cardinality Bound for a Lindelöf of Space with Countable Pseudocharacter and Countable Tightness</i> Speaker: Douglas Mupasiri (UNI)
	Tea/Coffee Break
3:00pm – 3:45pm	Title: <i>The growth of free group algebras</i> Speaker: Chris Briggs (EPI-USE America) *
3:55pm – 4:55pm	Title: <i>Unbounded self-adjoint operators and the Riemann Hypothesis</i> Speaker: Paul Garrett (University of Minnesota)
5:05pm – 5:45pm	Title: <i>On Weakly Prime Modules</i> Speaker: Hisaya Tsutsui (ERAU)
7:00pm	Conference Dinner Venue: George's Local at 108 E 4th Street in downtown Cedar Falls

Sunday, August 3, 2025

All talks will be held at Maucker Union, Ballroom A.

Time	Title of the talk and presenter
9:00am – 9:45am	Title: <i>Properties of some elements of the group algebra of Thompson's group F</i> Speaker: Tsunekazu Nishinaka (University of Hyogo) --Invited Talk
9:55am – 10:20am	Title: <i>Mathematics of Learning under Label Noise*</i> Speaker: Anas Chentouf (MIT)
10:30am – 11:10am	Title: <i>The Pursuit of Predictability – Entropy as the Bridge between Uncertainty and Intelligence in Machine Learning*</i> Speaker: Syed Kirmani (UNI)
11:20am – 12:00nn	Title: <i>Using Machine Learning to Solve Numerical Partial Differential Equations*</i> Speaker: Benjamin Stager (Omnicom Media Group)
12:10pm – 1:00pm	New Initiative Talk 1: <i>10 Takeaways from My Journey into Industry Data Science*</i> Speaker: Benjamin Stager (Omnicom Media Group) –Invited Talk New Initiative Talk 2: <i>Automation as a means, math as an end</i> Speaker: Chris Briggs (EPI-USE America) -Invited Talk



12:10pm – 1:00pm	Conference Lunch (DS/ML forum)
1:10pm – 1:50pm	Title: <i>Existence and Uniqueness of Weak Solutions to a Structural Acoustic Model with C1 source term on the plate.</i> Speaker: Andrew Becklin (Drake University)
2:00pm – 2:30pm	Title: <i>Extending Projections On Spaces of Even and Odd Functions in $L^p[-1,1]$</i> Speaker: Michael Prophet (UNI)
2:40pm – 3:40pm	Title: <i>An Application of Elementary Submodels II: A Cardinality Bound for the Sigma Algebra generated a Set of Size $\kappa > 2$</i> Speaker: Douglas Mupasiri (UNI)
	Closing Remarks by the program organizers

“The Interconnection of Mathematics, Machine Learning, Data Science, and Their Real-World Applications”

As part of EMI’s ongoing mission to foster meaningful exchange across mathematical disciplines and generations, we are proud to launch a new annual initiative aimed at inspiring students to explore future career pathways. This year’s pilot theme highlights the powerful synergy between mathematics, machine learning, and data science in real-world contexts.

To this end, we kindly invite those of you with interest, expertise, or experience related to this theme to deliver a brief, thought-provoking message—either immediately after your talk or during a designated intermission. These moments are intended to ignite curiosity, broaden perspective, and help students envision how abstract ideas take shape in practice.

We are also honored to welcome Benjamin Stager (Omnicom Media Group) and Chris Briggs (EPI-USE America) as keynote speakers for this inaugural effort. Their insights will frame the type of dialogue we aim to cultivate annually moving forward.

Talks relevant to this initiative are marked with a **red asterisk (*)** in the program.

Let’s shape the future of mathematical thinking—together.

