

FIFTEENTH ANNUAL SPRING-TERM PRIMES CONFERENCE 2025



Program for Research in
Mathematics, Engineering and Science



Photo: Slava Gerovitch

Sunday, May 18

Room 2-190, MIT

Mathematics

9:45 am: Welcoming Remarks

Prof. Pavel Etingof, PRIMES Chief Research Advisor

Dr. Slava Gerovitch, PRIMES Program Director

Marisa Gaetz and Mary Stelow, PRIMES Circle coordinators

10:00-10:45 am: Session 1. PRIMES Circle

David Moon and Brian Huang, “Polyhedra and Euler Characteristics” (mentor Luis Modes)

Brian Pan, Daniel Wang, and Nathan Nie, “An Introduction to Spectral Graph Theory” (mentor George Shaker)

Salma Jama and Fantice Lin, “Donuts in Different Dimensions” (mentor Ezra Guerrero)

10:55-11:55 am: Session 2. PRIMES Circle

Auden Nash and Daniil Sheenko, “Periodicity of S-Pick Up Bricks” (mentor Honglin Zhu)

Boston Bulis, Kyra Burke, and Lee Van Voorhis, “Number Theory” (mentor Sam Packman)

Joseph Kasongo and Jordan Lin, “Why Your Friends are More Popular than You (Statistically Speaking)” (mentor Kai Edick)

Marko Mano, Kalle Nikula-Gill, and Derek Yin, “Dynamical Systems and Chaos Theory” (mentor Sean Li)

12:05-1:00 pm: Session 3. Math Research and PRIMES STEP

Evin Liang, “Cubics in Euclidean Geometry” (mentor Dr. Tanya Khovanova)

Dillan Agrawal, Selena Ge, Jate Greene, Dohun Kim, Rajarshi Mandal, Tanish Parida, Anirudh Pulugurtha, Gordon Redwine, Soham Samanta, and Albert Xu (PRIMES STEP Senior group), “Chip-Firing on Infinite k -ary Trees” (mentor Dr. Tanya Khovanova)

Eric Huang, Timur Kilybayev, Ryan Li, Brandon Ni, Leone Seidel, Samarth Sharma, Vivek Varanasi, Alice Sien Yin, Boya Yun, William Zelevinsky (PRIMES STEP Junior group), “Playing Your Cards Right: The Art of Josephus Dealing” (mentor Dr. Tanya Khovanova)

2:00-3:00 pm: Session 4. PRIMES Circle

Sage Kramer, Runxuan Lin, and Anna Lu, “Set Theory and Logic” (mentor Zoe Xi)

Leena Bhandari Cordoba and Sofia Bhandari Cordoba, “Number Theory: the Difference Game” (mentor Amy He)

Celina Hwang, Lena Lee, and Emma Liu, “Algorithmic Exploration in Graph Theory” (mentor Julia Kozak)

Jianing Huang and Sylvia Lee, “Introduction to Group and Ring Theory: The Foundations of Algebraic Structures” (mentor June Kayath)

3:10-3:55 pm: Session 5. PRIMES Circle

Hannah Ahn and Carolena Douglas, “Pick’s Theorem: How to Calculate the Area of a Polygon” (mentor Katherine Tung)

Shamini Biju, Sherri Wu, and ZZ Zhang, “Understanding the Basics of the Theory of Computation” (mentor Katherine Taylor)

Penelope Newsome and Amarachi Okeke, “Knot Theory” (mentor Sabine Chu)

Computer Science

4:15-5:00 pm: Session 6. Computer Science Research

Coleman DuPlessie, “Characterizing Interpretable Features of Reinforcement Learning Models” (mentor Andrew Gritsevskiy, University of Wisconsin-Madison)

Shreyas Ekanathan, “A Fully Adaptive Radau Method to Efficiently Solve Stiff Ordinary Differential Equations” (mentor Dr. Chris Rackauckas)

Govind Velamoor, “System-wide Timeout Strategies” (mentor Prof. Raja Sambasivan, Tufts University)

