

2011 MIT-PRIMES CONFERENCE

Program for Research In Mathematics, Engineering, and Science
for High School Students



Photo: Patrick Gillooly, MIT News Office

9:00 am: Welcoming Remarks

Prof. Michael Sipser, Chair of the MIT Mathematics Department

Prof. Pavel Etingof, PRIMES Chief Research Advisor

Dr. Slava Gerovitch, PRIMES Program Director

9:15 am: Session 1

Dynamic Combinatorics and Geometry

Xiaoyu He, “Rotor-Routers” (*mentor Dr. Tanya Khovanova*)

Ziv Scully, “Progress on the parallel chip-firing problem” (*mentor Yan Zhang*)

Christina Chen, “Hiding behind and hiding inside” (*mentor Dr. Tanya Khovanova*)

10:30 am: Session 2

Combinatorics and Number Theory

Aaron Klein, “Counting matrices with restricted positions by rank over finite fields” (*mentor Alejandro Morales*)

Caroline Ellison, “Polynomial coefficients over finite fields” (*mentor Giorgia Fortuna*)

Saarik Kalia, “Fibonacci numbers and continued fractions” (*mentor Dr. Tanya Khovanova*)

11:45 am: Session 3

Representation Theory I

Sheela Devadas and Carl Lian, “Modular representations of Cherednik algebras associated to symmetric groups” (*mentor Steven Sam*)

Fengning Ding, “Infinitesimal Cherednik algebras” (*mentor Sasha Tsymbaliuk*)

12:30 pm: Lunch break

1:45 pm: Session 4

Representation Theory II: Computer Algebra Lab Projects

Masahiro Namiki, “Determinant formulas for quantum $GL(N)$ ” (*mentor David Jordan*)

Surya Bhupatiraju, William Kuzmaul, and Jason Li, “Lower central series of associative algebras in characteristic p ” (*mentor David Jordan*)

Michael Zhang and Yongyi Chen, “Poisson homology in characteristic p ” (*mentor David Jordan*)

3:00 pm: Session 5

Computational Biology

Dash Elhauge and Andrew Kim, “Modeling the role of cell fusion in cancer development” (*mentor Christopher McFarland*)

Campbell Hewett, Sylvia Hurlimann, Stephanie Palocz, and Dong-Gil Shin, “Complex 3D DNA structures: Computational investigations using Molecular Dynamics (MD) simulations” (*mentors Geoffrey Fudenberg and Maxim Imakaev*)

Saturday, May 21
Room 4-370, MIT
web.mit.edu/primes
primes@math.mit.edu

Sponsors



MIT Physical Sciences
- Oncology Center

