

Mentor Lecture Series

Organizer: Daniel Erman and Bianca Viray

Monday, 4:10–5:00pm, 60 Evans

Sept. 18 **Mina Aganagic**, UCB

On String Theory, Geometry, and Duality

String theory is the only known solution to the problem which is at the core of modern physics: the incompatibility of quantum mechanics and gravity. The most important physical principles: gauge theory and general relativity, are predicted by string theory. Finally, it is a realization of an old dream: that physics at the fundamental level should be determined by mathematical principles alone, and no arbitrary dimensionless parameters.

I'll give an overview of some results at the intersections of geometry and physics, that follow from string theory. The "unreasonable effectiveness" of physics in solving hard mathematical problems comes from string duality.

The Mentor Lecture Series is designed for first and second year graduate students. The series aims to acquaint beginning graduate students with potential dissertation supervisors whom they might not otherwise closely encounter, and to impart a taste of research activity in the mathematics department in order to help beginning students choose fields of specialization.