COLLOQUIUM UNIVERSITY OF PITTSBURGH FRIDAY, JANUARY 15, 2016 704 THACKERAY HALL

3:30 P.M.

PHILIP ISETT

DEPARTMENT OF MATHEMATICS MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SOLUTIONS TO THE INCOMPRESSIBLE EULER EQUATIONS THAT FAIL TO CONSERVE ENERGY

ABSTRACT: Motivated by the theory of hydrodynamic turbulence, L. Onsager conjectured in 1949 that solutions to the incompressible Euler equations with Holder regularity less than 1/3 may fail to conserve energy. C. De Lellis and L. Szkelyhidi, Jr. have pioneered an approach to constructing such irregular flows based on an iteration scheme known as convex integration. This approach involves correcting "approximate solutions" by adding rapid oscillations, which are designed to reduce the error term in solving the equation. In this talk, I will discuss an improved convex integration framework, which yields solutions with Holder regularity 1/5- as well as other recent results.

Refreshments served at 3:00 p.m. in the Math Dept. COMMON ROOM, Thackeray 705

*The speaker is a candidate for a position in the Department.