## **Departmental Colloquium**

## PDE Methods for the Numerical Simulation of Compressible Fluids

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**Abstract:** The motion of compressible fluids is difficult to simulate numerically, particular in multiple space dimensions, due to the presence of wave patterns with sharp discontinuities, such as shock waves. In this lecture, I will describe how some ideas from PDE (partial differential equations) can be used to develop accurate numerical methods which allow for highly singular phenomenon, such as shock waves colliding with walls and bouncing back, in a very stable manner. The talk will be fairly self-contained so no prior knowledge of fluids or numerics is necessary, and I will mostly use short videos of our numerical results to demonstrate the schemes.

Friday, April 20 at 3:00 PM in SEO 636