



Wednesday
October 31, 2018
3:30 pm
Room 1005 EECS

Prof. Jeffrey Oishi

Bates College, Lewiston, ME

Solving (Stellar) Flows: Methods, Software, and Results

Understanding the interaction of convection, magnetic fields, and rotation is essential to a robust understanding of stellar magnetism. These flows are at extreme parameter regimes that defy our largest supercomputers. I will discuss a number of strategies we have developed to make progress on these problems, including the flexible PDE solver Dedalus. In particular, I will discuss the development of tools for Direct Statistical Simulation, a new strategy for studying anisotropic turbulent flows. I will discuss the application of these techniques to several important illustrative problems from astrophysical fluid dynamics.

About the Speaker: Jeff Oishi is an Assistant Professor of Physics at Bates College in Lewiston, ME, where he leads a research group of undergraduates. He is also Research Associate at the American Museum of Natural History. He was an undergraduate at Columbia and did his PhD at the University of Virginia. His research interests are in numerical methods for magnetohydrodynamics, stability theory, and turbulence. Prof. Oishi is a member of the Dadelus Project, an open source framework for solving partial differential equations.