

# Graduate Seminar

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**Thursday, February 27, 2020  
HH-3017, 1-2pm**

***Energy conserving Large Eddy Simulation techniques  
for atmospheric turbulence***

**Abstract:**

Large Eddy Simulation (LES) is a numerical method for solving three-dimensional Navier-Stokes equation at high Reynolds number, where large-scale turbulence is resolved and small-scale turbulence is modelled in a way that the energy spectrum is appropriately truncated. In this talk, I will introduce the concept of energy spectrum and Kolmogorov theory of turbulence in the context of LES. I will continue to illustrate the concept of stochastic methods for generating homogeneous isotropic turbulence. Finally, I will discuss why symmetry-preserving discretization is necessary for LES of atmospheric turbulence, where I will use simple examples of atmospheric convection and boundary layer. The talk assumes that the audience has basic knowledge of Fourier series, Taylor series, and partial differential equations.