


复旦大学数学科学学院
数学综合报告会

报告题目：**Using a Simple Multi-Scale Asymptotic Model to Study Scale Interactions of Tropical Convection**

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报告地点：光华东主楼 1501

摘要： In the past decades, the multi-scale asymptotic method is used as a well-developed technique to construct uniformly valid approximation solutions of perturbation problems. It is not until recently that the multi-scale asymptotic method is combined with numerical simulations for modeling scale interactions of tropical convection. The essential intuition behind is the fact that mathematically fast- and slow-scale variables are introduced in the multi-scale method to remove secular terms, while physically tropical convection also exhibits a hierarchy of organization across multiple spatiotemporal scales.

In this talk, I will first introduce a few observational evidence to show the multi-scale interactions of tropical convection. Particularly, we choose convectively coupled Kelvin waves as a research target to study here. Then I will review the related pioneering work by Majda (2007) and briefly go through the derivation of one simple multi-scale model as an example. Finally, I will show our recent results by using such a simple multi-scale model to study the upscale impact of mesoscale disturbances of tropical convection on convectively coupled Kelvin waves. Those who get interested can refer the following two papers for further details

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