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国台学术报告 NAOC COLLOQUIUM

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Time: Wednesday 2:30PM, July 09 Location: A135 NAOC

Planetary Atmospheres: From Here to Light Years Away



Xi Zhang (University of Arizona)

Dr. Xi Zhang is a Bisgrove Postdoctoral Scholar at Lunar and Planetary Laboratory in the University of Arizona. He received his Ph.D. in Planetary Science from California Institute of Technology in 2012. His research focuses on planetary climate inside and outside the solar system. The goal of his research is to develop a fundamental understanding of the climate system on planets from observational, theoretical and modeling work. Starting July 2015 he will join the faculty of University of California Santa Cruz as an assistant professor.

Abstract

An atmosphere is the outer skin of a planet. Besides the accessibility of information and the richness of phenomena, this tiny fraction justifies its significance in several other ways. It connects the surface or interior of a planet to the outer space, and tells us about the material from which the planet formed and perhaps how it formed, and stores information about the evolution history of the planet, and may be the key for the planet to harbor life. In this presentation I will guide a sweeping tour of diverse atmospheres from Earth to the planets thousands of light years away from us. We will see atmospheres very thick and very thin, very heavy and very light, very hot and very cold, very quiet and very violent, very dry and very wet, and their amazing behaviors that continue to surprise us. In the last decades, a spectacular series of space-borne and ground-based observational breakthroughs has led to a number of striking discoveries in planetary atmospheres. In parallel, planetary scientists are looking for fundamental principles underlying those mysterious worlds, which govern the relative abundance of the atmospheric composition, sources of different kinds of energy and their inter-conversion, movement of mass in local and global scales. I will target some specific examples including large moons, earth-size planets, and giant planets to illustrate how those discoveries were made and how the basic principles in physics and chemistry shape the weather and climate in different atmospheres and the planetary evolution. Several intriguing problems and possible solutions are discussed.



All are welcome! Tea, coffee, biscuits will be served at 2:15 P.M.