

Center for Theoretical Physics Chin Yu (金玉) Lecture

& ASIAA/CCMS/IAMS/LeCosPA/NTNU-Physics/NTU-Physics Joint Colloquium

The Past, Present and Future of **COSMOLOGY**



Professor Daniel Baumann

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03/02/2021 (Tue), 14:20-15:20

R104, CCMS-New Physics Building, NTU

Abstract

Our universe is both simple and strange. It is simple because just 5 parameters, such as the density of dark matter and dark energy, as well as the amplitude of matter fluctuations, describe all cosmological observations. It is strange because we arguably don't understand any of these parameters. In this talk, I will first describe the astounding progress in observational cosmology that has led to the simple 5-parameter model for our universe. I will then explain why most elements of the standard model of cosmology are still mysterious. In particular, I will describe why the model challenges our understanding of fundamental physics on the both the largest and the smallest scales. Finally, I will look into the future and discuss how upcoming observations can help us to understand our simple, but strange universe.

Brief Bio

Prof. Baumann is a world-leading theoretical cosmologist. He obtained his doctorate from Princeton University in 2008, after which he worked as a postdoctoral researcher at Harvard University and at the Institute for Advanced Study in Princeton. Since 2011, he has been a faculty member at Cambridge University's Department of Applied Mathematics and Theoretical Physics (DAMTP), before being appointed to a Chair for Theoretical Cosmology at the University of Amsterdam in 2015. Baumann's research has been recognized by numerous awards, including a Jade Mountain Visiting Professorship at National Taiwan University and the invitation to speak in this first annual Chin Yu Lecture.

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