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国台学术报告 NAOC COLLOQUIUM

2018 年 第 27 次 / No. 27 2018

Time: **Tuesday 2:30 PM, Sep.18th** Location: **A601, NAOC**

A conclusive test of cold dark matter

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Prof. Carlos S. Frenk obtained the PhD at University of Cambridge in 1981. Since 1985 he works at University of Durham and he is the Director of Institute Comp. Cosmology since 2001. He has published over 400 papers in the refereed scientific literature. His papers has been cited over 70,000 times (H-index 118), making him one of top cited authors in astronomy and space science in the world. He has delivered 215 invited talks at major international conferences. Supervised 35 PhD students and 35 postdoctoral researchers, many of whom have gone on to in uential positions in industry and academia

around the world.

Abstract

The "Lambda cold dark matter" (LCDM) cosmological model is one of the great achievements in Physics of the past thirty years. Theoretical predictions formulated in the 1980s turned out to agree remarkably well with measurements, performed decades later, of the galaxy distribution and the temperature structure of the microwave background radiation. Yet, these successes do not inform us directly about the nature of the dark matter. Indeed, there are

competing (and controversial) claims that the dark matter might have already been discovered, either through the annihilation of cold, or the decay of warm, dark matter particles. In astrophysics the identity of the dark matter manifests itself clearly in the properties of dwarf galaxies, such as the satellites of the Milky Way. I will discuss predictions from cosmological simulations assuming cold and warm (in the form of sterile neutrinos) dark matter and show how astronomical observations can conclusively distinguish between the two.

