國 立 中 央 大 學

統 計 研 究 所

學 術 演 講

主 講 人：許文郁 教授（國立清華大學統計學研究所）

講　　題：**The Geometry of the Universe**

時　　間：**108年4月16日（星期二） 上午11：00～12：00**

地　　點：中央大學鴻經館**M429**室

茶　　會：**上午 10：30～11：00**　　地　點：鴻經館 **510** 室

ABSTRACT

In the late 1990s, observations of type Ia supernovae led to the astounding discovery that the universe is expanding at an accelerating rate. The explanation of this anomalous acceleration has been one of the great problems in physics since that discovery. We proposed cosmological models [1,2] that can simply and elegantly explain the cosmic acceleration via the geometric structure of the spacetime continuum, without introducing a cosmological constant into the standard Einstein field equation, negating the necessity for the existence of dark energy. In this geometry, the three fundamental physical dimensions length, time, and mass are related in new kind of relativity. There are four conspicuous features of these models: 1) the speed of light and the gravitational “constant” are not constant, but vary with the evolution of the universe, 2) time has no beginning and no end; i.e., there is neither a big bang nor a big crunch singularity, 3) the spatial section of the universe is a 3-sphere, and 4) in the process of evolution, the universe experiences phases of both acceleration and deceleration. In this talk I will explain the models in the way that a non-physics major can understand.

[1]. http://arXiv.org/abs/1007.1750
[2]. http://www.technologyreview.com/blog/arxiv/26170/

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