

ΕΙΔΙΚΕΣ ΔΙΑΛΕΞΕΙΣ

Θέμα: a) **Modification of gravity: an introduction**
b) **Black holes and no hair theorems (part I)**

Ομιλητής: **Χρήστος Χαρμούσης, Διευθ. Ερ.
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Ημερομηνία: **Τετάρτη 21-2-2018**

Τόπος: **Εργαστήριο Αστρονομίας, ΑΠΘ**

Ώρα: **13:00 – 15:00**

Περίληψη:

13:00- 14:00 Modification of gravity: an introduction

We will review the theoretical and observational status of General Relativity and ways and reasons to modify Einstein's theory of relativity at large distances. We will review the cosmological constant problem and the question and nature of dark energy. We will then proceed to enlist different modifications of gravity and their main characteristics. We will then focus our attention to scalar tensor theories of gravity and will classify them. We will discuss self-tuning solutions for the dark energy problem and theories that provide such solutions.

14:00- 15:00 Black holes and no hair theorems (part I)

We will review within Horndeski theories a no hair theorem. We will see how breaking the hypothesis of this theorem we can produce hairy black hole solutions and their characteristics. We will study the issue of primary and secondary hair and give example solutions. We will focus on particular scalar tensor theories and show how time dependence can cure the no hair paradigm providing regular solutions with a dark energy scalar field. We will see how certain black hole solutions have self-tuning properties which can give an alternative understanding of dark energy.