Seminarium Zakładu Fizyki Teoretycznej
Departament Badań Podstawowych
Narodowego Centrum Badań Jądrowych

7 marca 2018 r. (środa), godz.12:15
pawilon NCBJ, sala 22, Hoża 69

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"DENSITY PERTURBATIONS IN THE COSMOLOGICAL SCENARIOS WITH SINGULARITIES"

ABSTRACT:
Out of the effort of explaining the recent accelerated expansion of the Universe cosmological scenarios with new types of finite time singularities has arisen. These singularities have not been known, within the framework of the so-called standard concordance cosmology.
The talk will cover constraining some of those scenarios with current observational data using standard candles, standard rulers, and the dark energy and dark matter density perturbations. We discuss also how dynamical dark energy universes with exotic singularities may be distinguished from the standard ΛCDM model on the basis of their redshift drift signal, for which measurements both in the acceleration phase and in the deep matter era will be provided by forthcoming astrophysical facilities. Then it will be shown, that due to the coupling with the electromagnetic field of the scaar field, which can be the source of the dark energy within those models, a variation of the fine structure constant can take place. The results for the possible fine structure constant variation will be shown with the comparison with the current results for the measurements, made
specifically for alpha variation, from UVES (Ultraviolet and VisualEchelle Spectrograph).

Serdecznie zapraszamy,
M. Kowal, W. Piechocki, L. Roszkowski, J. Skalski, L. Szymanowski