International Conference

COSMOLOGY ON SMALL SCALES
Dark Energy and the Local Hubble Expansion Problem

September 21–24, 2022
Institute of Mathematics, Czech Academy of Sciences
Prague, Czech Republic

Scientific committee:

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  Research Institute of RAS, Russia)

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  (Afeka College, Israel)

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  (Catholic University of America, USA)

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Prof. Alexei Starobinsky
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Local organizing committee:

Prof. Michal Krizek (Chair)
Assoc. Prof. Yurii Dumin (Vice-chair)
Prof. Pavel Kroupa
Assoc. Prof. Tomas Vejchodsky
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Aims and scope:

One hundred years ago, Russian mathematician and physicist Alexander A. Friedmann applied the system of Einstein equations to the hypersphere with a time varying radius. In this way, he obtained a nonlinear ordinary differential equation which is called the Friedmann equation after him and serves now as a cornerstone of the standard cosmological model. Unfortunately, it is well known that this model exhibits a number of paradoxes. The main goal of the CSS 2022 conference is to discuss whether and how the Friedmann equation can be applied at various spatial scales, from our local cosmic neighborhood up to the whole Universe; and if the existence of dark matter and dark energy are merely artifacts of excessive extrapolations. So, it is timely to gather specialists from various branches of astronomy and astrophysics to discuss these issues.

Conference topics:

- Mathematical aspects of the extrapolations used in cosmology
- Arguments for and against dark energy, and revisiting the foundations of physics
- Alternative models for dark matter and dark energy
- A systematic discord in the value of the Hubble constant derived by different methods
- Theoretical possibility and observational evidence for small-scale cosmological effects
- Quantum effects on the early Universe and their observational imprints at the present time

Deadlines:

April 30, 2022 – registration
April 30, 2022 – submissions for Proceedings
June 30, 2022 – acceptance of contributions to Proceedings

http://css2022.math.cas.cz/