



KONWERSATORIUM INSTYTUTU FIZYKI UMCS

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Top-down approach to the curved spacetime Effective Field Theory (cEFT) – theory and examples

The curved spacetime Effective Field Theory (cEFT) is a much needed extension of the ideas of the Effective Field Theory to the case in which gravity, described by the spacetime curvature, cannot be ignored. After a gentle introduction of the mathematical techniques needed for the task at hand, the presentation will focus on two particular applications of cEFT, i.e., vacuum stability in the presence of self-induced gravitational field and influence of spacetime curvature on properties of boson and dark fermion stars. In broad terms, the former is a new incarnation of the very old question, namely why do we exist? This question is tackled by investigating cosmological implications of the Higgs vacuum stability. Meanwhile, the latter addresses, among other things, a problem of lack of a direct detection of dark matter particles and alternative sources of the detected gravitational wave signatures.

Uprzejmie zapraszam wszystkich pracowników, doktorantów i studentów Instytutu Fizyki.

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