CIDMA CENTRO DE I&D EM MATEMÁTICA E APLICAÇÕES
CENTER FOR R&D IN MATHEMATICS AND APPLICATIONS

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A Scalar-Field Model for the Dark Side of the Universe

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Abstract: One of the most remarkable developments in modern cosmology was the discovery, late last century, that the Universe is expanding at an accelerating rate due to the presence of dark energy. Together with dark matter — whose physical nature, after decades of intense experimental efforts, remains a mystery —, it forms the dark sector of the Universe. An attractive theoretical possibility, allowed by the most recent observational data, is to consider that this dark sector is described by scalar fields interacting with each other. After explaining the main features of modern cosmology, I will briefly present a cosmological model (proposed by me in 2020) in which inflation, dark energy, and dark matter are described in a unified form using two scalar fields.

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