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Non-minimally coupled scalar dark matter from inflationary fluctuations

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It is well known that light scalar fields present during inflation are coherently excited. We show that if the field couples to gravity in a non-minimal way, the fluctuations at large scales are suppressed with respect to the small scales ones. This fact allows for the field excitations to make a sizeable contribution to the energy density of the universe without generating too large isocurvature fluctuations at observable scales. We show that this mechanism could generate all the observable dark matter and study the main cosmological implications of this setup.

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