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Multifield Ultralight Dark Matter

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Ultralight dark matter (ULDM) is an intriguing dark matter candidate with astrophysically testable predictions. While single field models have been widely studied, they are by now fairly constrained by observations. However, in particle physics, models with N light scalar fields which interact only gravitationally are equally well motivated. In my talk, I will explore this possibility and present results from multifield ULDM simulations. I will show that dark matter halos composed of N fields are smoother and introduce less stellar velocity dispersion relative to the single field case. This results in relaxed constraints from stellar heating in ultrafaint dwarf galaxies.

Presenter: GOSENCA, Mateja (University of Vienna)

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