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Shedding light on low-mass subhalo survival with numerical simulations

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In this work, we carry out a suite of specially-designed numerical simulations to shed further light on dark matter (DM) subhalo survival at mass scales relevant for gamma-ray DM searches, a topic subject to intense debate nowadays. Specifically, we have developed and employed an improved version of DASH, a GPU N-body code, to study the evolution of low-mass subhaloes inside a Milky Way-like halo with unprecedented accuracy. We have simulated subhaloes with varying mass, concentration, and orbital properties, and considered the effect of the gravitational potential of the Milky Way galaxy itself. In addition to shedding light on the survival of low-mass galactic subhaloes, our results will provide detailed predictions that will aid current and future quests for the nature of DM.

Summary

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