

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 that employ a supercluster computational power 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 employed a GPU N-body code to study the evolution of low-mass subhalos inside a Milky Way-like halo with unprecedented accuracy, paying particular attention to subhalos at the solar galactocentric radius. We have simulated subhalos with varying mass, concentration, and orbital properties, and considered the effect of the gravitational potential of the Milky-Way galaxy itself. These results provide detailed predictions that will aid current and future quests for the nature of dark matter.

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cosmological simulations, indirect detection of dark matter, subhalos

Collaboration

other Collaboration

Subcategory

Theoretical Results

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