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Cosmological simulations of the Local Group as a test of the Cold Dark Matter Model

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The standard model of cosmology is the best cosmological model that explains the nature and evolution of the Universe. Over the last decades, cosmological computer simulations have proven to be a very useful tool to test cosmological models such CDM and our Local Group is the perfect laboratory to confront these results with high precision observations. In this work, we performed cosmological simulations of the Local Group using the public program Gadget and our own initial conditions created from specific primordial overdensity fields. The main goal is to obtain specific initial conditions that fit the recent 6-D phase-space observations of our Local Group (including distances and proper motions), and to study the dynamical history of the principal galaxies to test they arise from the growing mode in CDM.

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