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ABSTRACT ONLY

ABSTRACT LARIM :VERONICA ARIAS

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[1]The anisotropic distribution of satellite galaxies in the Local Group remains a puzzle.

[2]Planes of satellite galaxies have so far been observed in the Milky Way, the Andromeda galaxy and in Centaurus A, with the plane in the Andromeda galaxy being the most extreme in terms of scatter (less than 15kpc).

[3]Such a structure cannot be readily explained by current galaxy formation models: within ΛCDM cosmology, alignments and preferential directions for accretion have been found, but the small dispersion of the Andromeda plane of galaxies remains unexplained and a validation or rejection of any possible formation scenario requires a better dynamical understanding of the system.

[4] Our work consists of two different approaches to this problem: one is to do numerical simulations based on the observational data with constraints on the unknown proper motions of the satellites, and explore the satellites' possible orbits around Andromeda.

[5] With this method, we found that 7 out of the 15 satellites in the Andromeda plane could have very similar orbits, suggesting a possible common accretion.

[6] The other method is to use results of cosmological simulations to explore the alignments of luminous and dark satellites and explore possible connections between the satellites' spatial distribution and the underlying distributio of the dark halos and sub-halos.

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