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The Large Magellanic Cloud dynamics with high resolution glasses

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The Large Magellanic Cloud (LMC) turns out to be a unique and impressive test laboratory thanks to the latest Gaia Data Release 3. Being the closest galaxy in the Local Group, Gaia proper motions and line-of-sight velocities allow it to make 3D velocity maps for the first time (Jiménez-Arranz+23) and endeavour dynamical studies in detail, such as the determination of the LMC bar pattern speed using different methods (Jiménez-Arranz+23, to be submitted). The results highlight the evidence of the need of high resolution simulations to provide a dynamical interpretation of the information shown by the data. In this talk, we introduce KRATOS, a suite of 24 N-body simulations of the Magellanic System, and a review of the planned scientific exploitation of these data.

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