

For Journées SF2A 2022 (07 juin - 10 juin)

S15 The Local Group in the Gaia era: from the Galactic halo to the Andromeda galaxy

Gaia EDR3 proper motions, energies, angular momenta of Milky Way dwarfs: a recent infall to the Milky Way halo

Yang, Yanbin(1); Hammer, Francois(1); Wang, Jianling(2); Arenou, Frederic(1); Pawlowski, Marcel S. (3); Li, Hefan(4); Bonifacio, Piercarlo(1); Babusiaux, Carine(1)

(1) GEPI, Observatoire de Paris, Université PSL, CNRS, Place Jules Janssen F-92195, Meudon, France; francois.hammer@obspm.fr

(2) NAOC, Chinese Academy of Sciences, A20 Datun Road, 100012 Beijing, People's Republic of China

(3) Leibniz-Institut für Astrophysik Potsdam (AIP), An der Sternwarte 16, D-14482 Potsdam, Germany

(4) School of Physical Sciences, University of Chinese Academy of Sciences, Beijing 100049, People's Republic of China Received 2019

Gaia EDR3 has provided proper motions of Milky Way dwarf galaxies with an unprecedented accuracy, reducing systematic error bars by a factor two when compared to Gaia DR2. It results that the total energy and angular momentum of Milky Way dwarfs are much larger than that of K-giant stars, Sagittarius stream stars and globular clusters. This excess of energy and angular momentum suggests that many dwarfs have recently infall into the Milky Way halo in a manner similar to the Magellanic Clouds. This could revolutionize our understanding of the halo content and of its past history. We will further discuss that Milky Way dwarfs lie preferentially near their pericenters and confirm that many of them belong to a vast polar structure perpendicular to the Milky Way disk. It suggests that Milky Way dwarfs do not behave like satellite systems derived from LCDM cosmological simulations.