

ED-2: a 360 degree stellar stream crossing the solar neighbourhood

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ED-2 is a stellar stream identified in integrals of motion on the third Gaia data release. It forms a compact group in energy and angular momentum in a local sample (<3 kpc), and its stellar population resembles one of an old metal-poor simple stellar population. It forms a compact group in the R-z (or x-z) plane, showing a ribbon-like structure in the solar neighbourhood, crossing the Sun's position. Its orbit is most similar the globular clusters NGC 3201 and NGC 6101, and the stellar stream Ylgr and Phlegethon. Of a total of 12 unique members with a metallicity (low-res LAMOST), we find the stream to have $[Fe/H] = -2.5 \pm 0.25$. ED-2 seems to be in a similar category as the recently discovered Phoenix and C-19 stellar streams, being the third most metal-poor stream in the halo. Stellar streams have long been a promising proxy for dark matter (total mass and granularity) in the Galaxy outskirts, however these new metal poor streams are challenging our expectations regarding the number and properties of these objects. Better understanding these progenitor-less streams and where they stem from is crucial to better use streams as proxies of the Galaxy properties, especially in the imminence of Rubin's LSST, which is likely to reveal dozens of new stellar streams. ED-2 is a unique target right at our doorstep, giving us access to a very metal-poor stellar population that can be studied in great detail.

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