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Discovery of tidal tails around the distant globular cluster Palomar 14

A. Sollima, D. Martinez-Delgado, D. Valls-Gabaud, J. Penarrubia (Submitted on 29 Oct 2010)

We report the detection of a pair of degree-long tidal tails associated with the globular cluster Palomar 14, using images obtained at the CFHT. We reveal a power-law departure from a King profile at large distances to the cluster center. The density map constructed with the optimal matched filter technique shows a nearly symmetrical and elongated distribution of stars on both sides of the cluster, forming a Sshape characteristic of mass loss. This evidence may be the telltale signature of tidal stripping in action. This, together with its large Galactocentric distance, imposes strong constraints on its orbit and/or origin: i) it must follow an external orbit confined to the peripheral region of the Galactic halo and/or ii) it formed in a satellite galaxy later accreted by the Milky Way.

Comments: 8 pages, 9 figures, accepted for publication by ApJ

Subjects: Galaxy Astrophysics (astro-ph.GA); Solar and Stellar Astrophysics

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