



Another Look at the EBS: A Stellar Debris Stream and a Possible Progenitor

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Using the Sloan Digital Sky Survey Data Release 7, we reexamine the Eastern Banded Structure (EBS), a stellar debris stream first discovered in Data Release 5 and more recently detected in velocity space by Schlafman et al. The visible portion of the stream is 18 degrees long, lying roughly in the Galactic Anticenter direction and extending from Hydra to Cancer. At an estimated distance of 9.7 kpc, the stream is approximately 170 pc across on the sky. The curvature of the stream implies a fairly eccentric box orbit that passes close to both the Galactic center and to the sun, making it dynamically distinct from the nearby Monoceros, Anticenter, and GD-1 streams. Within the stream is a relatively strong, 2 degree-wide concentration of stars with a very similar color-magnitude distribution that we designate Hydra I. Given its prominence within the stream and its unusual morphology, we suggest that Hydra I is the last vestige of the EBS's progenitor, possibly already unbound or in the final throes of tidal dissolution. Though both Hydra I and the EBS have a relatively high velocity dispersion, given the comparatively narrow width of the stream and the high frequency of encounters with the bulge and massive constituents of the disk that such an eccentric orbit would entail, we suggest that the progenitor was likely a globular cluster, and that both it and the stream have undergone significant heating over time.

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