

First Spectroscopic Detection of Fast Rotating Stars in a Young LMC Cluster

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Young globular clusters in the Large Magellanic Clouds could provide insight into the problem of multiple populations found in Milky Way clusters. Photometric studies of young clusters have discovered an extended (broadened) main sequence turnoff (eMSTO) and a bifurcated main sequence. Isochrone fitting and broad and narrow-band photometry have suggested several explanations to account for these features: a range of ages, different rotation rates, or different metallicities. Our high-resolution spectra of eMSTO stars in NGC 1866 (200 Myr) mark the first direct detection of a population of rapidly rotating stars in a young globular cluster. Details of the population fraction, spatial distribution, and the presence of a non-rotating population will be discussed, as well as implications for a formation scenario.

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