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The non-segregated population of blue straggler stars in the remote globular cluster Palomar 14

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(Submitted on 4 Jul 2011)

We used deep wide-field observations obtained with the Canada-France-Hawaii Telescope to study the blue straggler star (BSS) population in the innermost five arcminutes of the remote Galactic globular cluster Palomar 14. The BSS radial distribution is found to be consistent with that of the normal cluster stars, showing no evidence of central segregation. Palomar 14 is the third system in the Galaxy (in addition to OmegaCentauri and NGC 2419) showing a population of BSS not centrally segregated. This is the most direct evidence that in Palomar 14 two-body relaxation has not fully established energy equipartition yet, even in the central regions (in agreement with the estimated half-mass relaxation time, which is significantly larger than the cluster age). These observational facts have important implications for the interpretation of the shape of the mass function and the existence of the tidal tails recently discovered in this cluster.

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