Talk at Splinter Meeting

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New Insights into Compact Stellar System Formation from LBT/MODS Spectroscopy

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In the last decade a rapidly growing number of compact stellar systems have been discovered whose properties (in particular mass, radius, and dispersion) bridge the previously well defined division between star clusters and galaxies. Naturally the existence of such objects raises questions about their exact nature, and about where the true division (if one exists) between star clusters and galaxies lies. I will describe the first results from a project designed to answer these questions.

The Archive of Intermediate Mass Stellar Systems (AIMSS) project is assembling a large sample of compact stellar systems located in a wide range of galactic environments (from the field to dense galaxy clusters) and obtaining size, mass, internal dispersion, and stellar population information for each object. I will focus on describing how the stellar population information (provided principally by LBT/MODS spectroscopy) is providing key insights into the multiple formation mechanisms of these enigmatic compact stellar systems. In particular I will demonstrate that these compact stellar systems are a "mixed bag", composed of the most massive star clusters and the surviving remnants of catastrophic galactic interactions.