

Early Dark Matter-less Star Clusters as tests to Λ CDM

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In the standard model of structure formation (i.e., Λ CDM), large relative velocities between baryons and dark matter are predicted at the time of recombination. These velocities cause the formation of Supersonically Induced Gas Objects, or SIGOs. SIGOs are a natural consequence of Λ CDM structure formation. In particular, they are characterized by low dark matter abundances and metallicities, and have been suggested as a progenitor candidate for globular clusters (GCs). In this talk, I will show that the abundance of SIGOs in the early Universe in Λ CDM is comparable to the abundance of present-day GCs, and that SIGOs likely formed in our local group. Further I'll demonstrate how these objects can regularly form stars. Finally, because SIGOs are a natural consequence of structure formation, I would suggest that future JWST detections can serve as a test to Λ CDM.

Author: LAKE, William

Co-authors: WILLIAMS, Claire (University of California - Los Angeles); NAOZ, Smadar (UCLA)

Presenter: LAKE, William

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