

Abstract Submitted
for the TSF15 Meeting of
The American Physical Society

N-body Simulations of Dwarf Galaxies WILLIAM DINWIDDIE, JACQUELINE DUNN, Midwestern State University — The effects of gravitational interactions on the evolution of dwarf irregular galaxies are explored through the use of N-body simulations. Numerous studies have been performed on N-body simulations of dwarf galaxies, with most focused on modeling the tidal interactions of satellite and host galaxies. Here, two general scenarios are considered: the interaction of two dwarf galaxies, and a single dwarf galaxy nearby a large spiral galaxy. Initial conditions for each galaxy model were produced using GalactICS, with N-body simulations being run through GADGET 2. The dwarf models consist of disk and halo components, with a total of 40,000 particles per galaxy. A galaxy cluster is included in the simulation using a gravitational potential function introduced into the GADGET 2 code. Each scenario is run both with and without the cluster potential present. Additionally, a single dwarf galaxy in the presence of the cluster potential is simulated. Within each general case, various combinations of initial galaxy position and velocity are considered. The results of the simulations imply that global environment (group / cluster membership) has more impact on dwarf galaxy evolution compared to local environment (presence of nearby neighbor).

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Date submitted: 08 Oct 2015

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