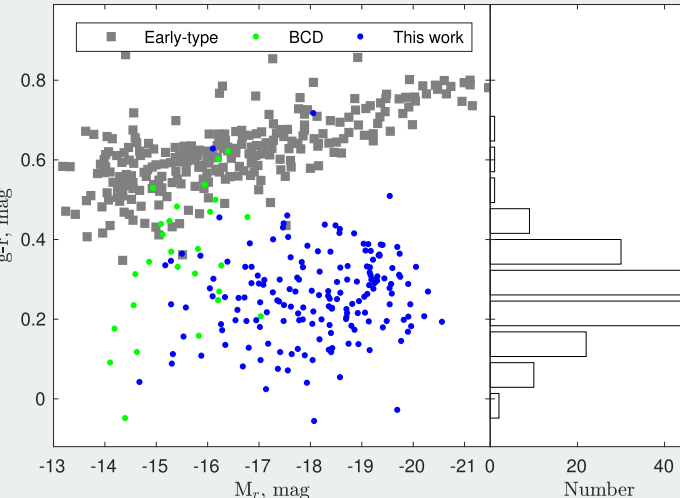


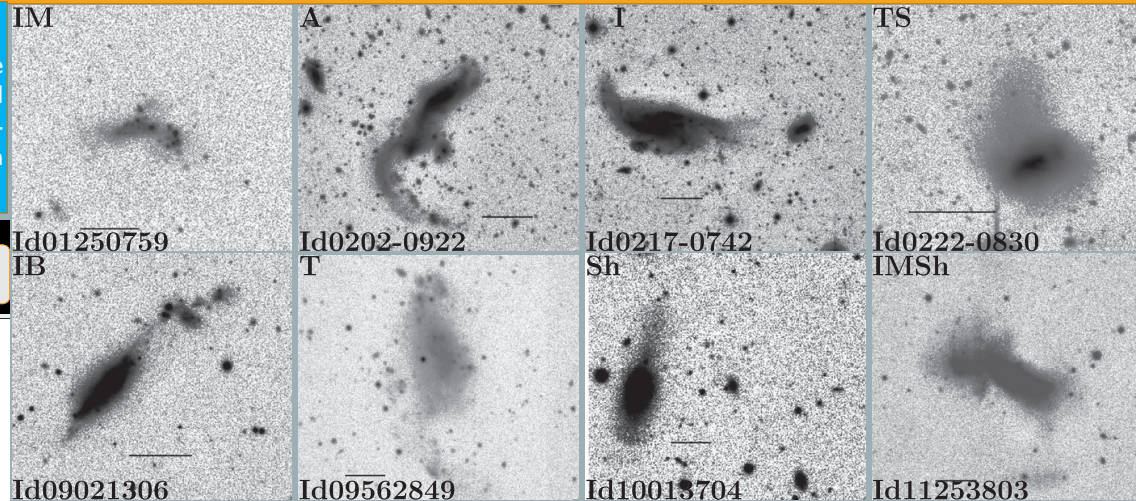
Our cosmology predicts a hierarchical scheme where the larger structures are built up by smaller units that merge. In this hierarchy, dwarf galaxies play a key role given their participation in the assembly of massive galaxies at earlier epochs and at present. Observational evidence of small scale hierarchical clustering of galaxies at the mass regime has remain elusive. We have published the largest publicly available catalog of interacting dwarf galaxies. It includes 177 nearby merging dwarf galaxies and it is overwhelmingly dominated by star-forming galaxies, and they are generally found significantly below the red sequence in the color–magnitude relation. The number of early-type galaxies is only 3 out of 177.

## METHODOLOGY

Galaxies are selected by visual inspection of publicly available archival imaging from two wide-field optical surveys (SDSS-III and the Legacy Survey), and they possess low-surface-brightness features that are likely the result of an interaction between dwarf galaxies

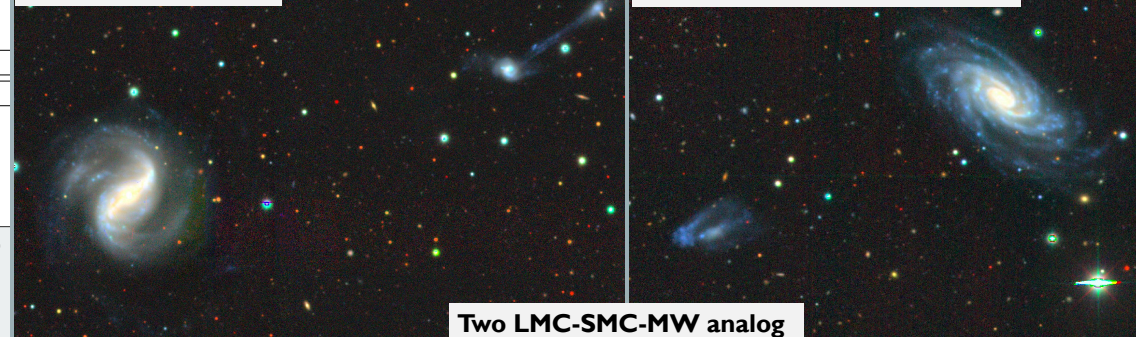


Optical color–magnitude relation. The blue dots represent interacting dwarfs. The comparison samples are early-type galaxies (gray square) and BCDs (green dots).



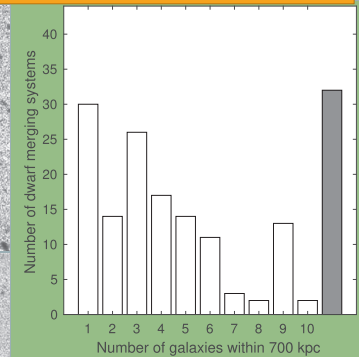
**NGC 2718-UGC5703**

**NGC 2998- MCG+07-20-052**

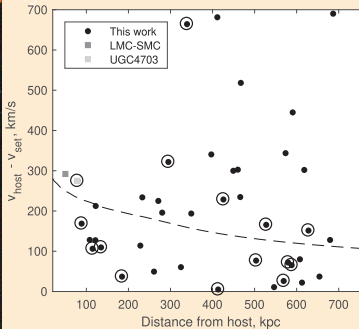


**Two LMC-SMC-MW analog**

Reference: Paudel, S., & Sengupta, C. 2017, *ApJL*, 849, L28,  
Paudel, S., Smith, R., Yoon, S. J., Caldero'n-Castillo, P., & Duc, P.-A. 2018b, *ApJS*, 237, 36,



Total number of galaxies, including both giants and dwarfs, within a coverage area of of 700 kpc radius and  $\pm 700 \text{ km s}^{-1}$  line-of-sight radial velocity around merging dwarf systems



Phase-space diagram of merging satellites.