THE MORPHOLOGY AND STELLAR POPULATIONS OF THE DWARF AMORPHOUS GALAXIES NGC 216 AND NGC 2915

GERHARDT R. MEURER[1] *and* GLEN MACKIE[2]
[1] *Anglo-Australian Observatory*
P.O. Box 296, Epping NSW, 2121
Australia

[2] *Department of Astronomy*
University of Wisconsin
475 N. Charter St.
Madison, WI 53706
U.S.A.

ABSTRACT. The definitions of the amorphous and blue compact dwarf (BCD) classes of galaxies are very similar. One key difference is that BCDs are often selected for their *apparent* compactness (*i.e.* a small angular size), which selects against nearby objects, whereas amorphous galaxies must be extended. We present initial results of a project to determine the population distribution in dwarf ($M_B < -18$) amorphous galaxies (dAgs) and determine which dAgs can be classified as BCDs. We have used the 3.9m Anglo-Australian Telescope to obtain deep B and R CCD images of two dAgs: NGC 216 ($M_B = -17.3$) and NGC 2915 ($M_B = -14.1$). The morphology of NGC 216 is that of a dusty late-type edge-on disk galaxy, with a peculiar one-sided bar. It would not be classified as a BCD if seen face-on. However, NGC 2915 does have all the properties of a BCD, and can be classified so. It has numerous condensations near its center. Many of these are likely to be individual stars. We derive a distance to NGC 2915 of 5 Mpc if the brightest blue non-extended objects are blue supergiants, and if there is little internal extinction. Similar condensations are seen in the dAgs NGC 1705 (Meurer, *et al.*, 1989. *Astrophys. Space Sci.*, **156**: 141) and NGC 5253 (Caldwell and Phillips, 1989. *Astrophys. J.*, **338**: 789) which are also likely to be BCDs.

It is little wonder that NGC 216 and NGC 2915 have very different morphologies; they represent the extremes of the luminosity range spanned by our sample. It is likewise apparent that all dAgs are not BCDs. But, we have shown the effectiveness of using CCD imaging in identifying which dAgs are. The two galaxies are not totally dissimilar. They both have an exponential surface brightness profile with a central high surface brightness excess. Both also have strong color gradients with the hot blue stars more centrally concentrated than the cooler populations. This can be interpreted as due to either a recent increase in the central star formation rate relative to the that in the outer regions (*e.g.* a central star-burst) or a gradient in the initial mass function of stars formed.

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