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Abstract The study of (dwarf) galaxies in groups is a powerful tool for investigating galaxy evolution, chemical enrichment and environmental effects on these objects. We use archival HST/ACS data to analyze dwarf galaxies in groups that lie within 4 Mpc in the Local Volume. Here, first results are presented for the Centaurus A complex, a dynamically evolved group which contains two giant galaxies and about 30 dwarf companions of different morphologies and stellar contents. We derive physical properties for the dwarf galaxies and search for possible correlations with their position within the group. We then compare these results with properties of the dwarfs in our Milky Way as well as in other groups. Our work will ultimately lead to a better understanding of how the environment affects the evolution of dwarf galaxies.

Early-type dwarf galaxies HST/ACS archival data, available for 6 early-type dwarf galaxies and 11 late-type dwarfs in the Cen A group, allow us to resolve their stellar populations. The photometry was performed with the DOLPHOT package (Dolphin 2002).

The color-magnitude diagrams (CMDs) of the early-type dwarfs (an example is presented in **Fig. 1**) show a broad red giant branch (old stellar population) and very little contribution from the asymptotic giant branch (intermediate age stars). We use isochrones from the Dartmouth stellar evolutionary models (Dotter et al. 2008). Assuming a fixed age of 10 Gyr, we allow the metallicity to vary and interpolate between the isochrones to derive individual values for each star. In this way we get metallicity distribution functions for the dwarfs. We further investigate the possible presence of different stellar spatial distributions between metal-poor and metal-rich stars.

From the resulting metallicity distribution functions (example in **Fig. 2**), all the early-type dwarfs appear to be moderately metal-poor, with *median values ranging from $[Fe/H] = -1.08$ to -1.56* . They also show an *internal dispersion (1sigma) in metallicity of 0.31 to 0.46 dex*. We find *weak to moderate radial metallicity gradients* for all of the dwarfs. We further confirm the statistically significant *presence of two distinct stellar populations for two galaxies* in the sample (the metal-rich stars being more centrally concentrated than the metal-poor ones).

All of the results mentioned above are *very similar to what is found for the early-type dwarf population of the Local Group* (e.g. Harbeck et al. 2001; Koch et al. 2006, 2007a,b), despite the fact that the Centaurus A group is at a more advanced dynamical stage. Finally, we find no clear trend of the derived physical properties as a function of galaxy position in the group, as will be further discussed in Crnojevic, Grebel & Koch (2009).

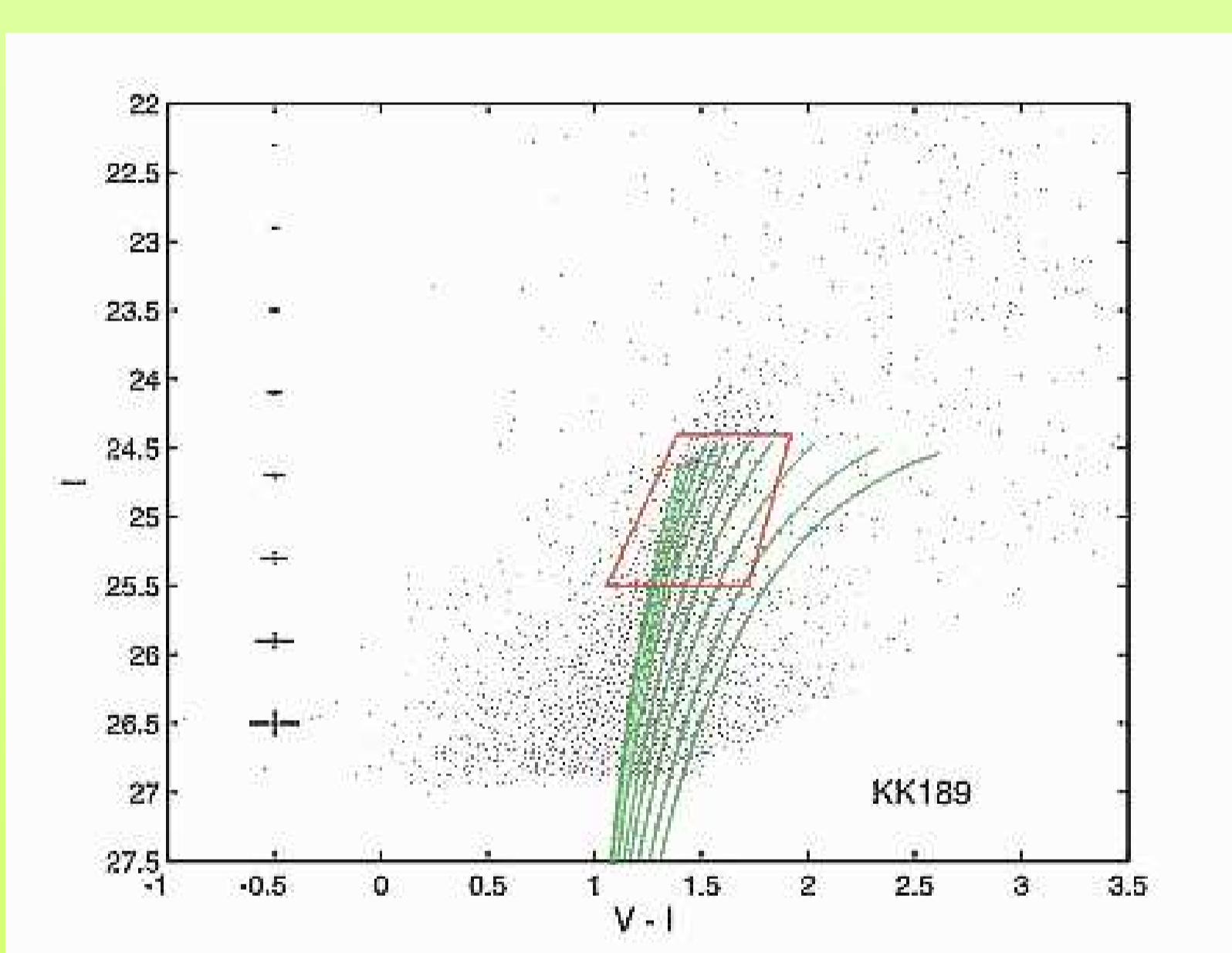


Fig. 1

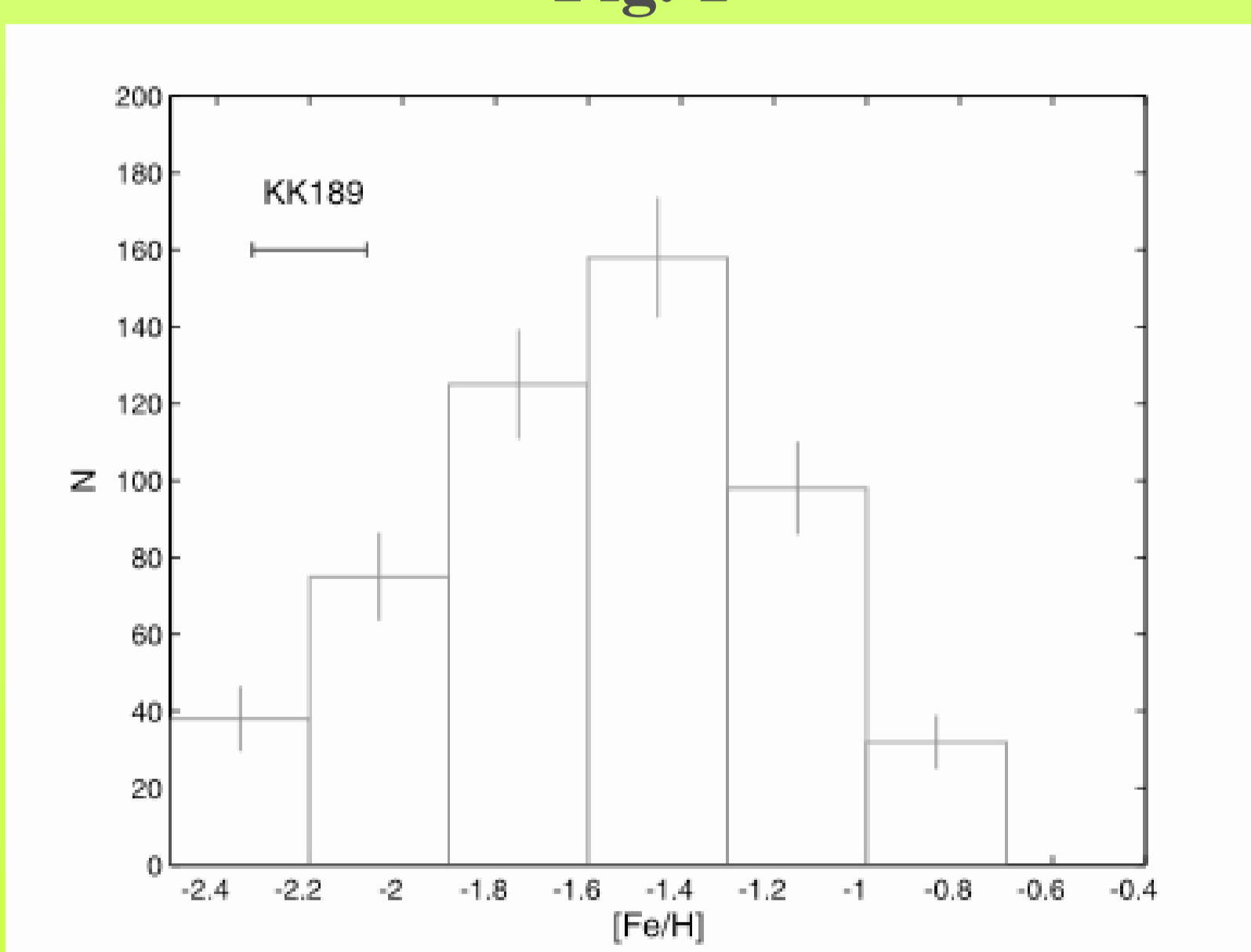


Fig. 2

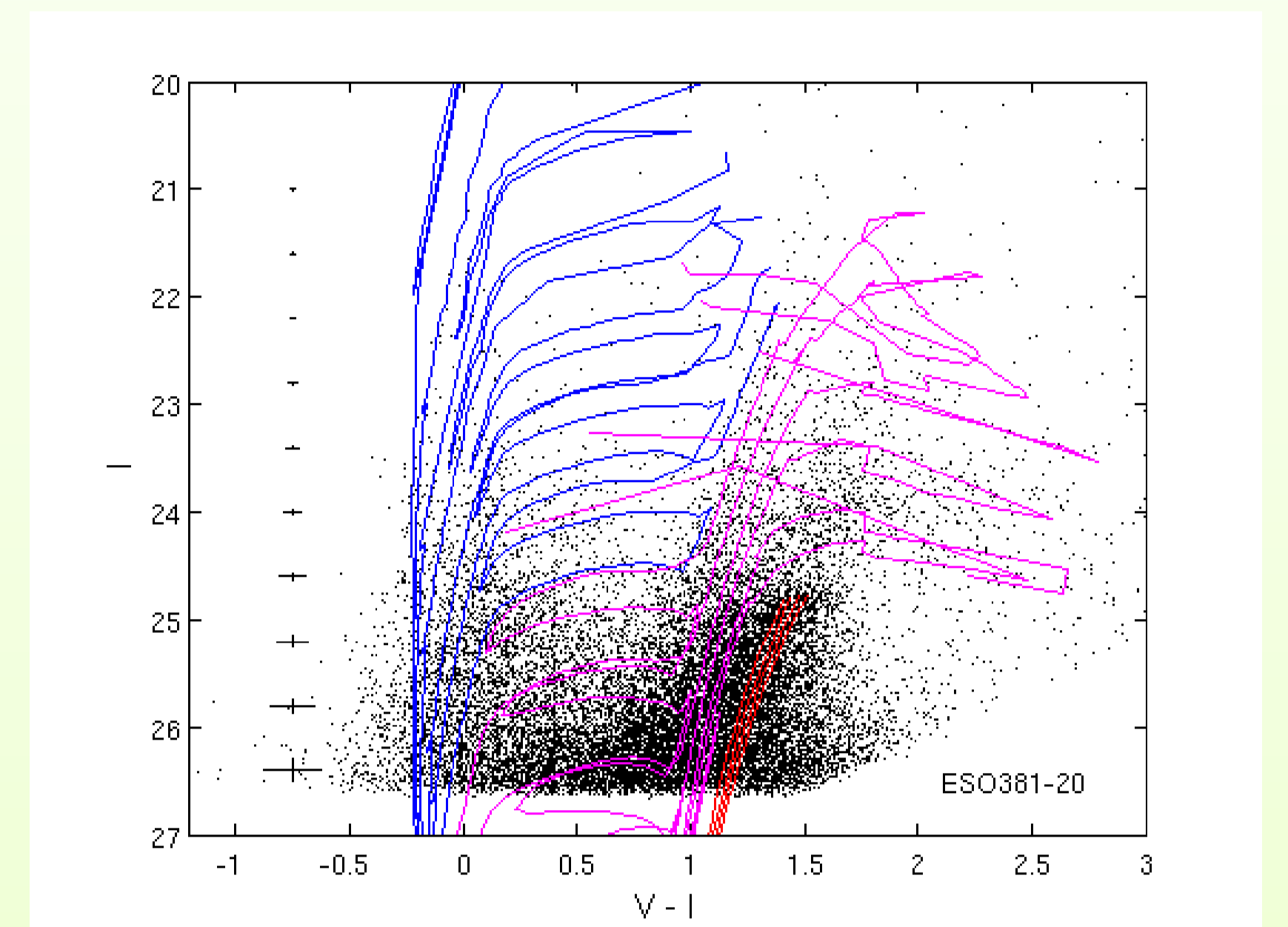


Fig. 3

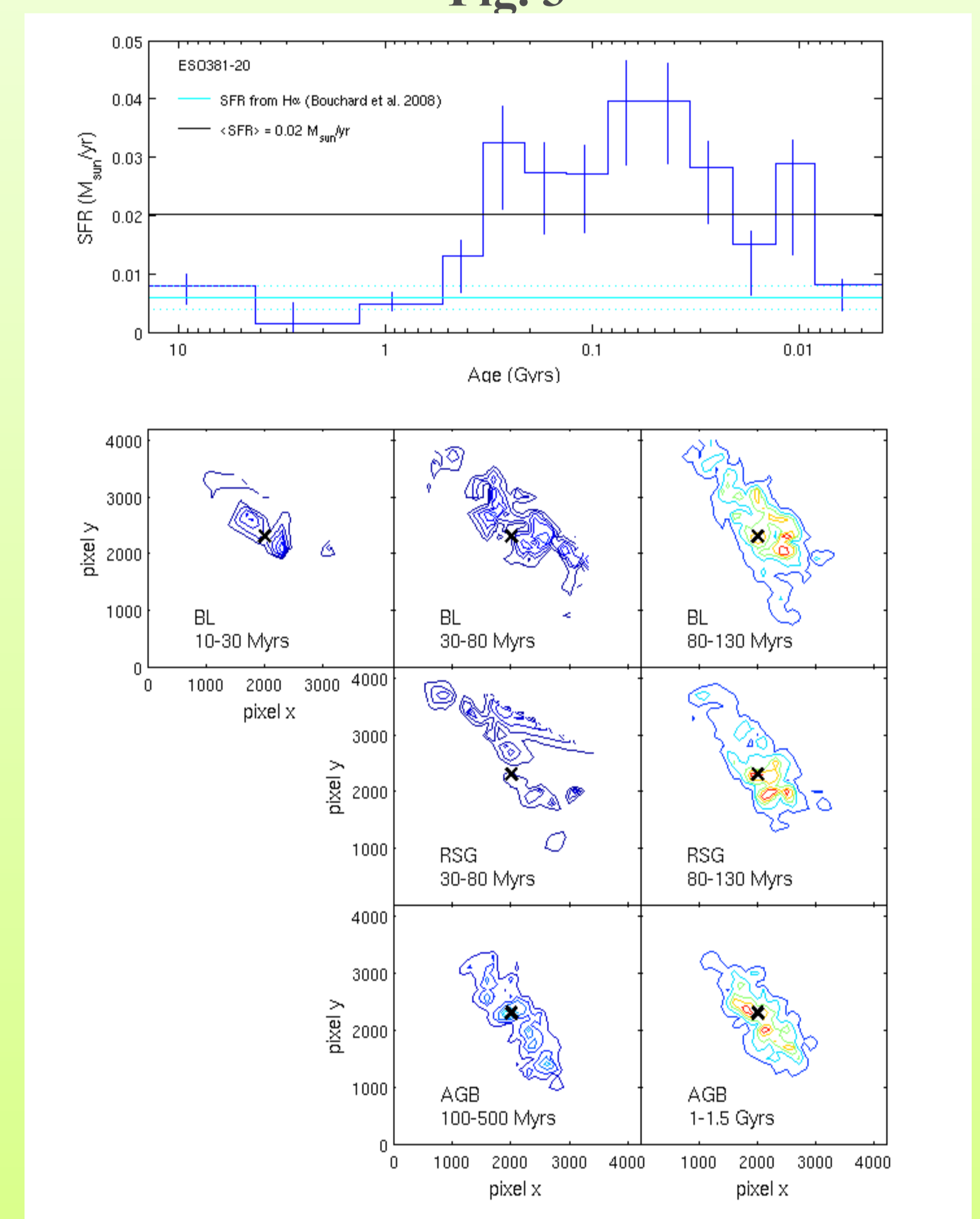


Fig. 4

Late-type dwarf galaxies These objects are found in the outskirts of the group, and their CMDs show both old and pronounced young components (an example is shown in **Fig. 3**). For these galaxies, we derive star formation histories and metallicities via synthetic CMD modeling (e.g. Cole et al. 2007), starting from Padova stellar isochrones (Marigo et al. 2008). We also study the angular extent of different young stellar populations at different ages. In this way, we try to understand the spatially resolved star formation history of these galaxies.

For the studied galaxies, the *star formation rates are on average low (0.003 to 0.02 $M_{sun}/year$), with episodic bursts* in recent times (example in **Fig. 4**). The galaxies are *metal-poor ($[Fe/H] = -1.4$ on average)* and their metallicities remain almost constant with time. We further find that in late-type dwarfs the *youngest star formation episodes are concentrated in clumps, while older populations are more broadly distributed* (see **Fig. 4**). This result could confirm that star formation in this type of galaxy essentially propagates in a stochastic way (e.g. Weisz et al. 2008), with timescales on the order of about 100 Myrs.

The derived star formation histories are again *consistent with results from late-type dwarfs in the Local Group* (for a review, see Tolstoy et al. 2009). Details can be found in Crnojevic, Grebel & Cole (2009).

