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От Сильченко О.К.

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NEAREST NEIGHBOR: THE LOW-MASS MILKY WAY SATELLITE TUCANA III*

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(The DES Collaboration)

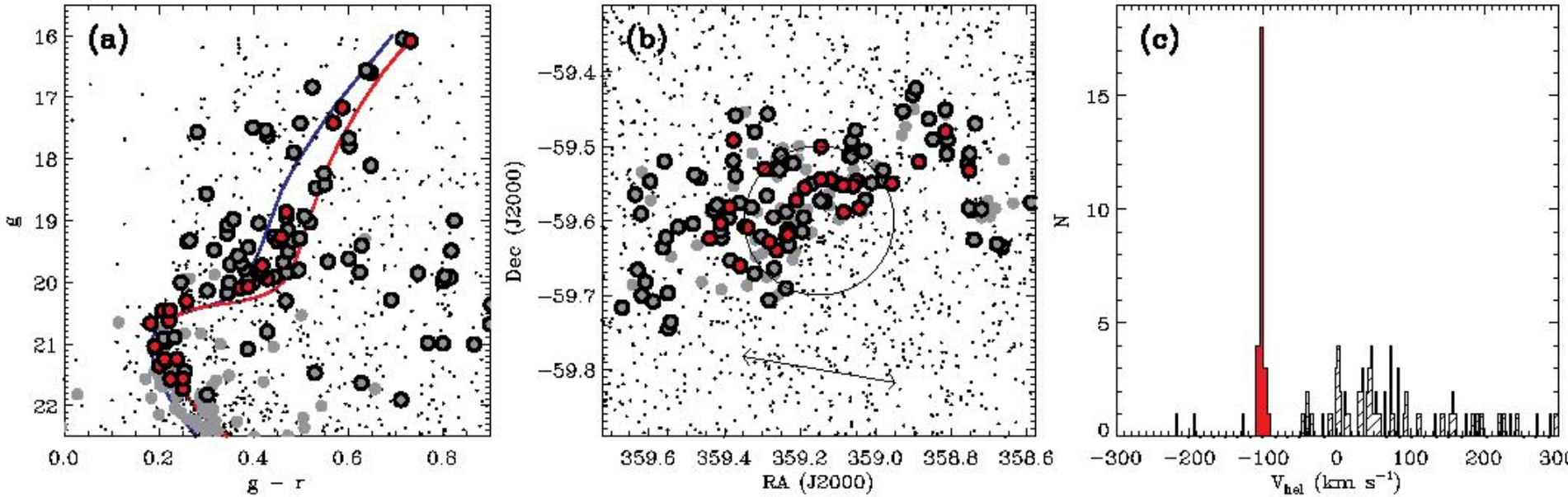


Figure 1. *(a)* DES color-magnitude diagram of Tucana III. Stars within 18′ of the center of Tuc III are plotted as small black dots, and stars selected for spectroscopy (as described in §2.2) are plotted as filled gray circles. Points surrounded by black outlines represent the stars for which we obtained successful velocity measurements, and those we identify as Tuc III members are filled in with red. The M92 sequence and PARSEC isochrone used to define the RGB of Tuc III are displayed as blue and red curves, respectively. *(b)* Spatial

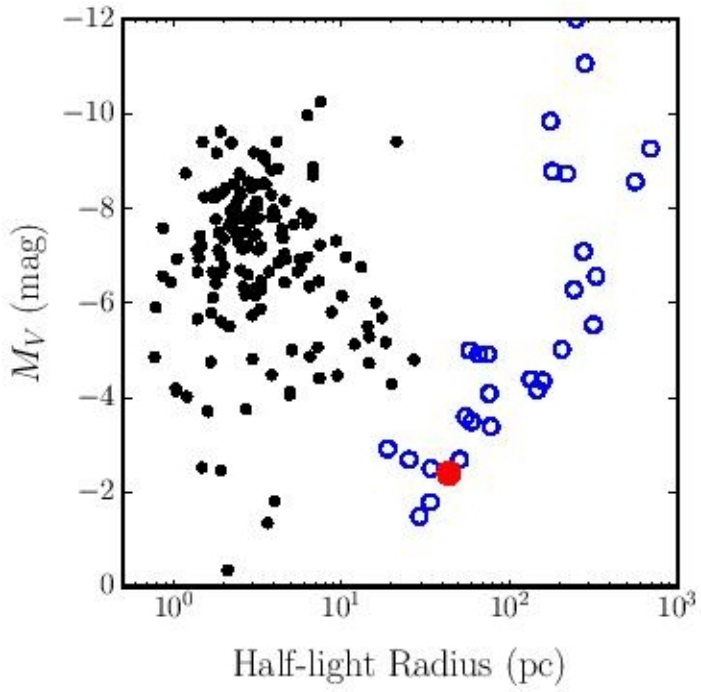
Table 3
Summary of Properties of Tucana III

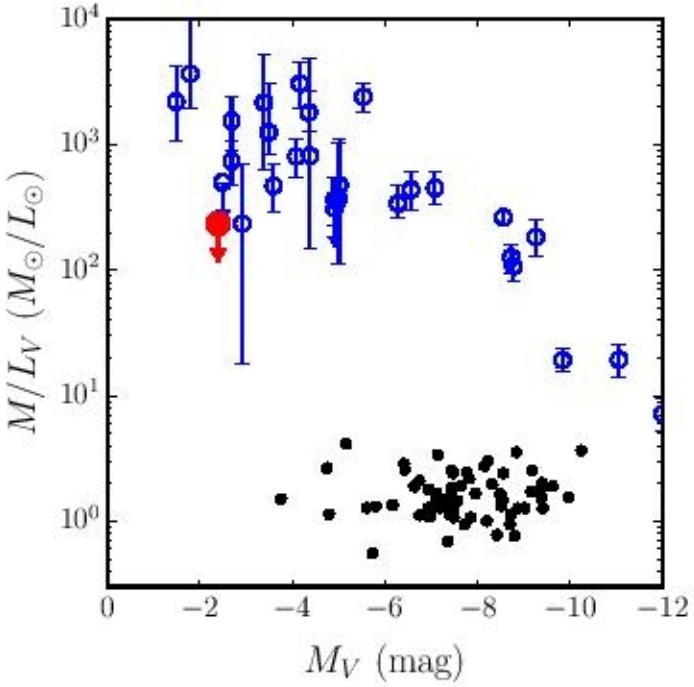
Row	Quantity	Value
(1)	RA (J2000)	23:56:36
(2)	Dec (J2000)	−59:36:00
(3)	Distance (kpc)	25 ± 2
(4)	$M_{V,0}$	-2.4 ± 0.4
(5)	$L_{V,0}$ ($L_\odot$)	780^{+350}_{-240}
(6)	$r_{1/2}$ (pc)	44 ± 6
(7)	$V_{\rm hel}$ (km s^{-1})	$-102.3 \pm 0.4 \pm 2.0$
(8)	$V_{\rm GSR}$ (km s^{-1})	$-195.2 \pm 0.4 \pm 2.0$
(9)	σ (km s^{-1})[a]	< 1.5
(10)	Mass ($M_\odot$)[a]	$< 8 \times 10^4$
(11)	M/L_V ($M_\odot/L_\odot$)[a]	< 240
(12)	Mean [Fe/H]	$-2.42^{+0.07}_{-0.08}$
(13)	Metallicity dispersion (dex)[a]	< 0.19
(14)	$\log_{10} J(0.2^\circ)$ (GeV^2 cm^{-5})	< 17.8

Note. — Rows (1)-(6) are taken from the DES photometric analysis of Drlica-Wagner et al. (2015a). Values in rows (7)-(14) are derived in this paper.

[a] Upper limits listed here are at 95.5% confidence. See the text for values at other confidence levels.

Сравнение Tucana III и dSpH с шаровыми скоплениями





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LETTER

Large Molecular Gas Reservoirs in Ancestors of Milky Way-Mass Galaxies 9 Billion Years Ago

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Исследованные объекты

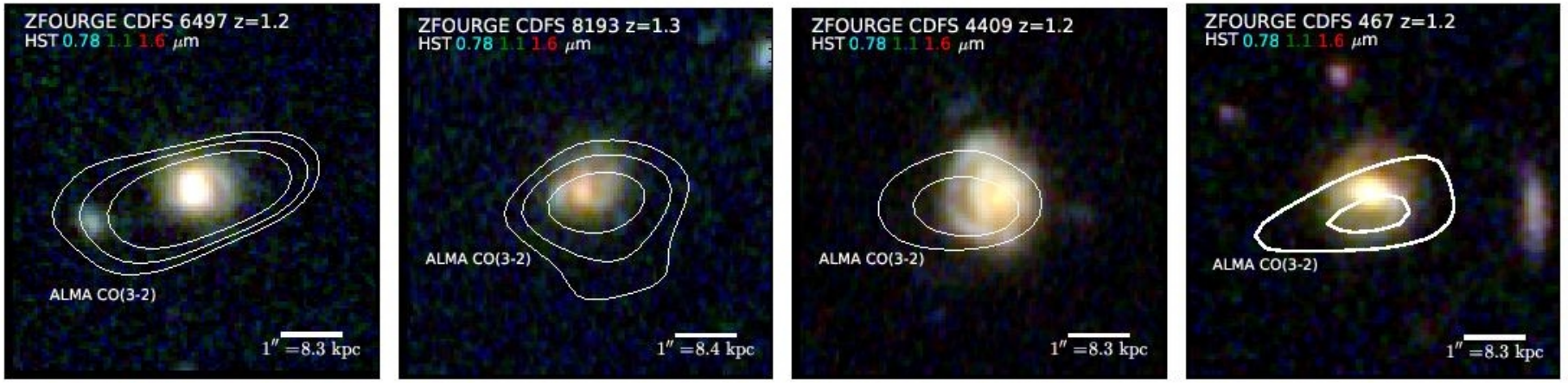

Figure 1 | Images of Milky Way Progenitors at redshifts z = 1.2 to 1.3. The top panels show the ALMA images of the redshifted CO J=3–2 emission for each galaxy. The inset bar shows a scale length of 3 arcseconds, and the hashed ellipse shows the size of the synthesized ALMA beam of each observation. The contours denote the emission at 2 times the noise. The bottom panels show combined Hubble Space Telescope images at 0.78, 1.1, and 1.6 μm (approximately the rest-frame U–, V–, and R–band emission). The contours denote ALMA CO(3-2) emission with levels at 2, $2\sqrt{2}$, and 4 times the noise. The inset bar shows a scale length of 1 arcsecond, which corresponds to a physical scale of 8.3–8.4 kpc at these redshifts.

Table 1 | Properties of Progenitors of Milky-Way-Mass Galaxies at $z = 1.2 - 1.3$

ZFOURGE ID	$z_{\rm opt}$ [a]	$z_{\rm CO}$ [b]	R.A. [c] (deg.)	Decl. [d] (deg.)	$I_{\rm CO(3-2)}$ [e] (Jy km s^{-1})	$L'_{\rm CO}$ [f] (10^9 K km s^{-1} pc^2)	$M_{\rm gas}$ [†] (10^{10} $M_\odot$)	$L_{\rm IR}$ [g] (10^{11} $L_\odot$)	M_* [‡] (10^{10} $M_\odot$)
CDFS 467	1.220	1.221	53.05850	−27.85678	0.11(0.05)	1.4(0.6)	0.55(0.19)	1.5(0.1)	$2.2^{+0.4}_{-0.8}$
CDFS 4409	1.220	1.220	53.18124	−27.76566	0.25(0.06)	3.3(0.8)	1.4 (0.4)	3.1(0.1)	$1.7^{+0.3}_{-0.3}$
CDFS 6497	1.215	1.215	53.04564	−27.72493	0.33(0.04)	4.3(0.6)	2.3 (0.3)	2.3(0.3)	$2.0^{+0.3}_{-0.5}$
CDFS 8193	1.326	1.326	53.07405	−27.69459	0.31(0.05)	4.9(0.8)	2.0 (0.4)	2.2 (0.3)	$1.9^{+0.1}_{-0.2}$

Доля газа

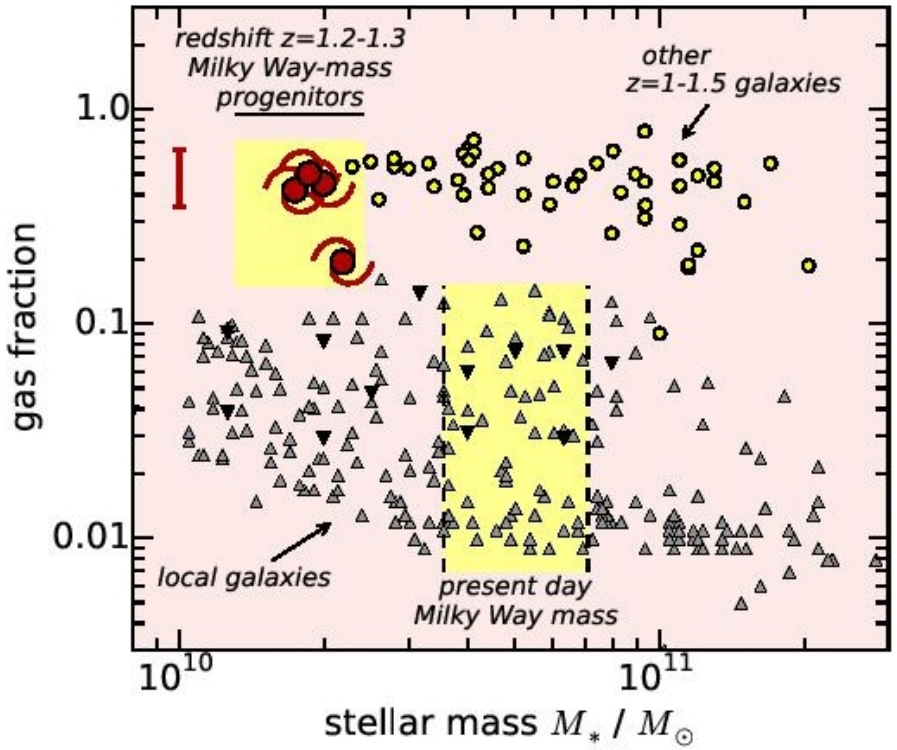

Figure 3 | The relation between the molecular gas fraction and total stellar mass in galaxies at $z = 1 - 1.5$ compared to local galaxies. Here the gas fraction is defined as the ratio $M_{\rm gas}/(M_{\rm gas} + M_*)$. The progenitors of Milky Way-mass galaxies at $z = 1.2 - 1.3$ are denoted by large, red spirals. The red

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The metal enrichment of passive galaxies in cosmological simulations of galaxy formation

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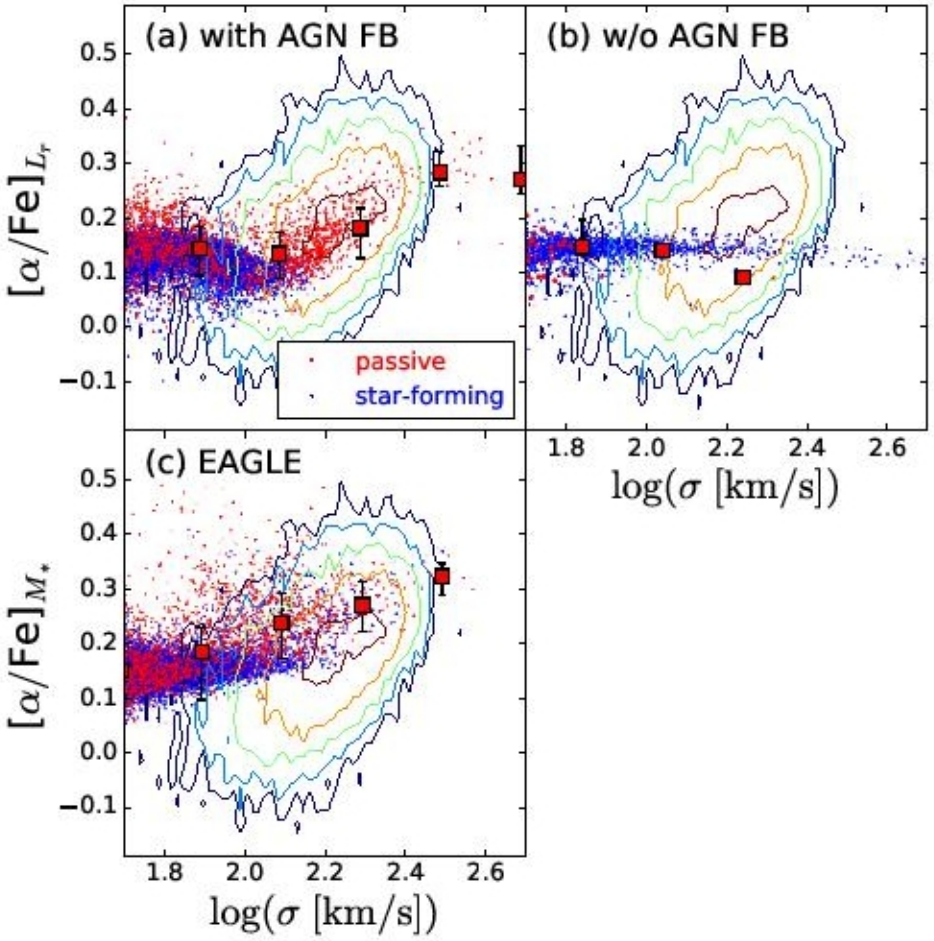
Альфа-элементы удалось поправить…



Нос вытащили, хвост увяз…