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От Сильченко О.К.

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Stellar Inventory of the Solar Neighborhood using *Gaia* DR1

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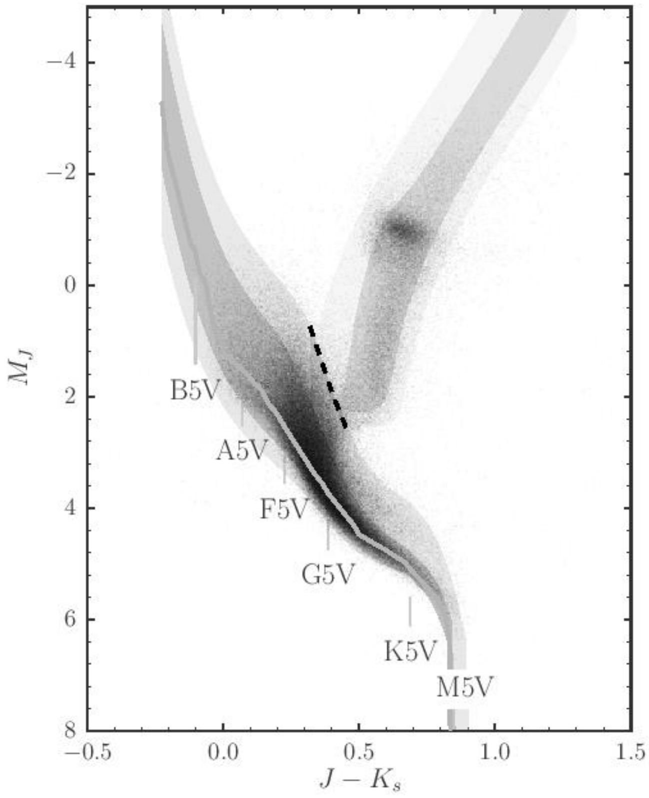
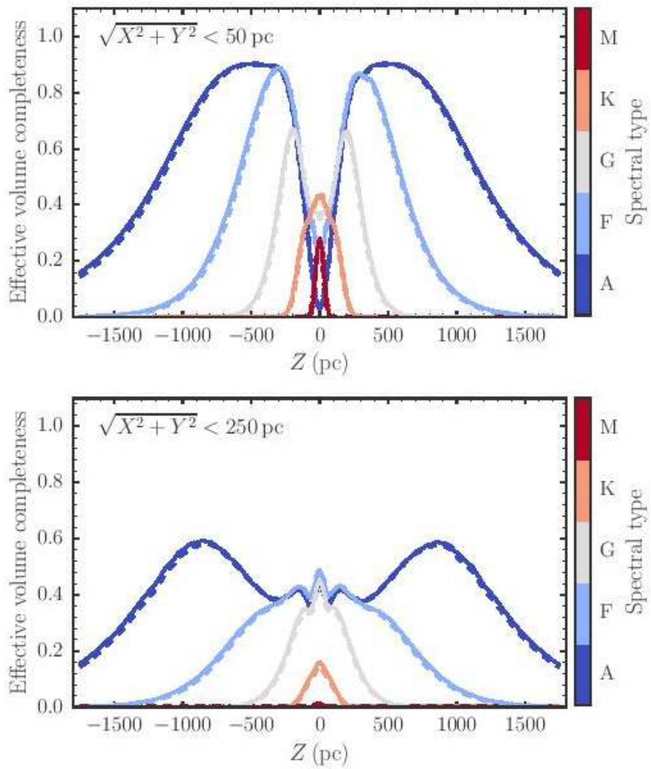
ABSTRACT
The absolute number and the density profiles of different types of stars in the solar neighborhood are a fundamental anchor for studies of the initial mass function, stellar evolution, and galactic structure. Using data from the *Gaia* DR1 *Tycho-Gaia Astrometric Solution*, we reconstruct *Gaia*'s selection function and we determine *Gaia*'s volume completeness, the local number density, and the vertical profiles of different spectral types along the main sequence from early A stars to late K stars as well as along the giant branch. We clearly detect the expected flattening of the stellar density profile near the mid-plane for all stellar types: All vertical profiles are well represented by sech^2 profiles, with scale heights ranging from $\approx$ 50 pc for A stars to $\approx$ 150 pc for G and K dwarfs and giants. We determine the luminosity func-

Выборка

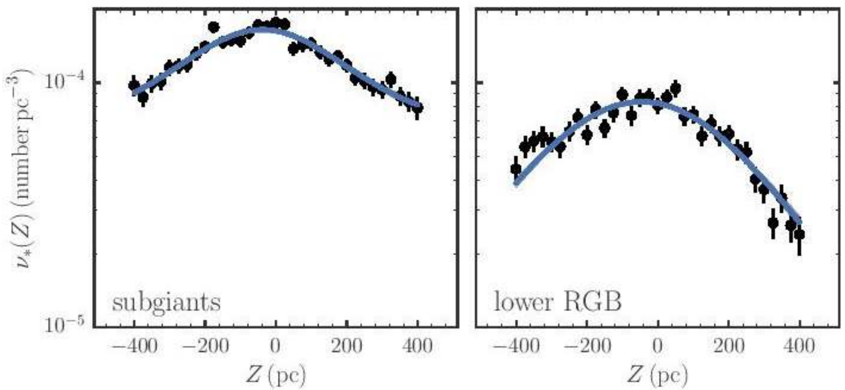


B5V
A5V
F5V
G5V
K5V
M5V
M_J
$J - K_s$



$\sqrt{X^2 + Y^2} < 50\,\mathrm{pc}$
$\sqrt{X^2 + Y^2} < 250\,\mathrm{pc}$
Effective volume completeness
Z (pc)
Spectral type
M
K
G
F
A

Вертикальное распределение хорошо описывается косекансом квадратным, шкала растет со средним возрастом звезд



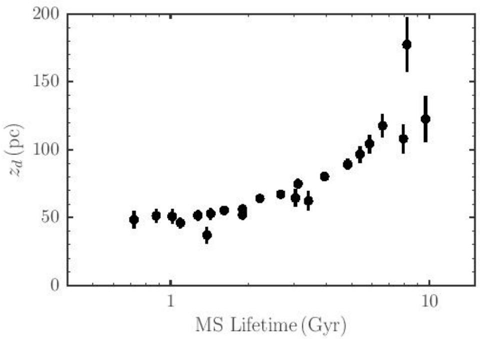


Figure 13. Scale height of the sech^2 fits for A, F, and early G-type dwarfs, displayed as a function of their main-sequence lifetime. The scale heights increase smoothly from ≈ 50 pc for A stars to ≈ 150 pc for early G dwarfs.

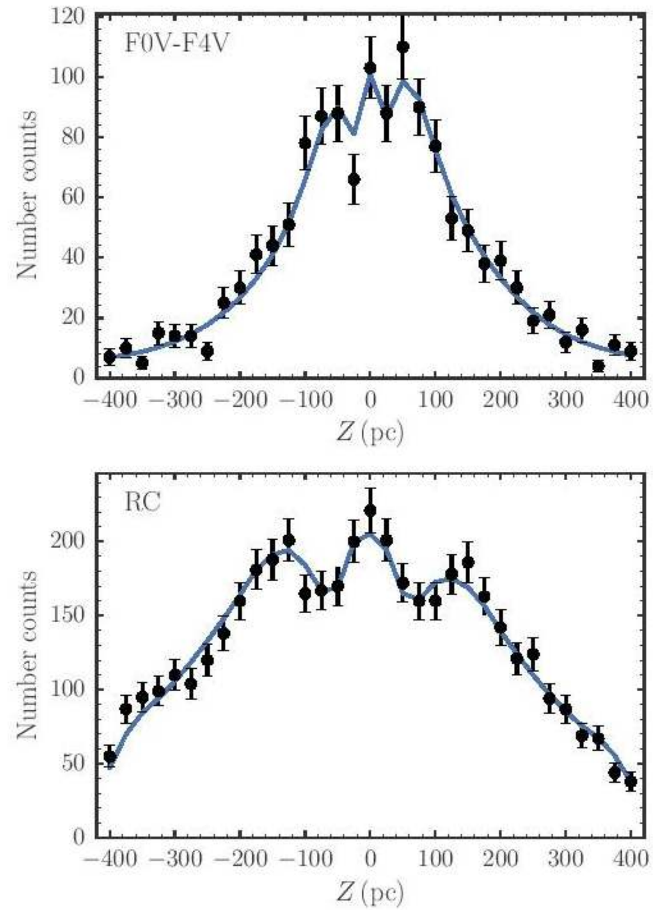
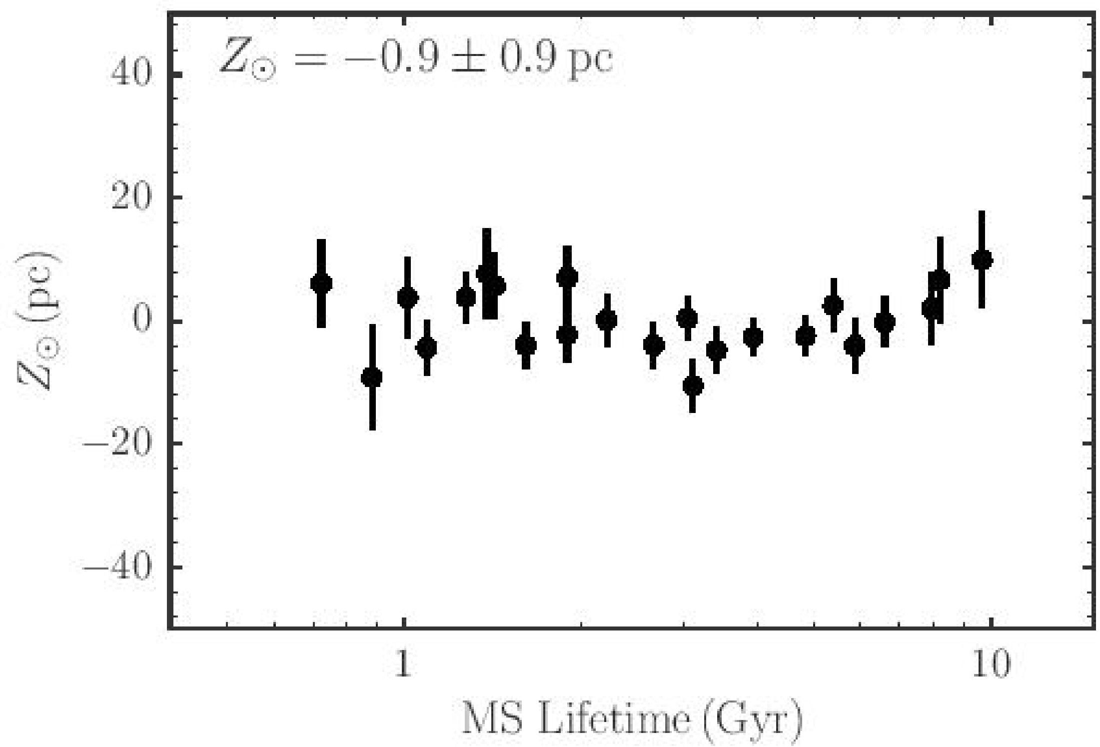


Figure 10. *TGAS* number counts of early F dwarfs (top) and

Вертикальный сдвиг Солнца относительно экваториальной плоскости диска Галактики



История звездообразования в окрестностях Солнца

$$\Sigma_{\rm SFR}(t) = 7.2 \pm 1.0 \, \exp(-t/7 \pm 1 \, {\rm Gyr}) \, M_\odot \, {\rm pc}^{-2} \, {\rm Gyr}^{-1} \, .$$

Astro-ph: 1704.05843

Properties of the cosmological filament between two clusters: A possible detection of a large-scale accretion shock by *Suzaku*

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Два сталкивающихся скопления в рентгене

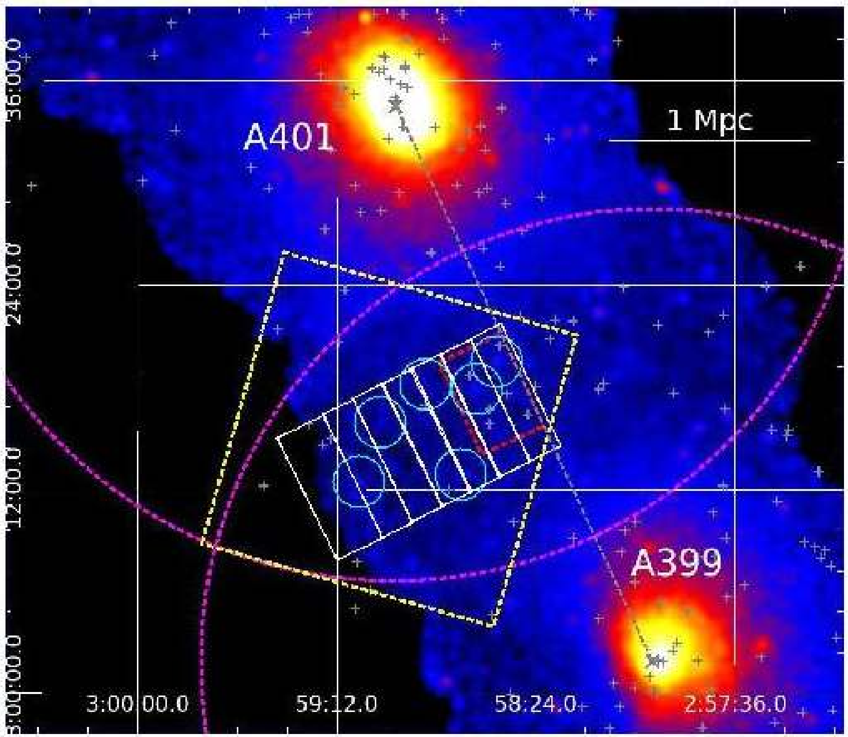


Fig. 1. *XMM-Newton* image of A399 and A401 in the 0.5–2.0 keV band. The yellow box shows the field of view of the *Suzaku* XIS. Each region is shown in the figure as a red (6′×4′)and white box (2′×8′or 3′×8′). Magenta circles indicate the virial radius of each cluster. Small cyan circles show the excluded point sources. Grey pluses represent galaxies with available redshift between $0.07 < z < 0.08$ in the NASA/IPAC Extragalactic Database (NED).

Table 1. Basic information of Abell 399 and Abell 401

Cluster	(R.A, DEC)[a]	z	kT^b keV	r^c_{200} Mpc
A399	(2h57m, +13d02m)	0.0724	7.23	2.19
A401	(2h58m, +13d34m)	0.0737	8.47	2.19

[a]: Oegerle & Hill (2001)
[b]: Sakelliou & Ponman (2004)
[c]: Reiprich & Böhringer (2002)

Спектральные характеристики газа ВДОЛЬ линии, соединяющей скопления (красный прямоугольник на рис.1)

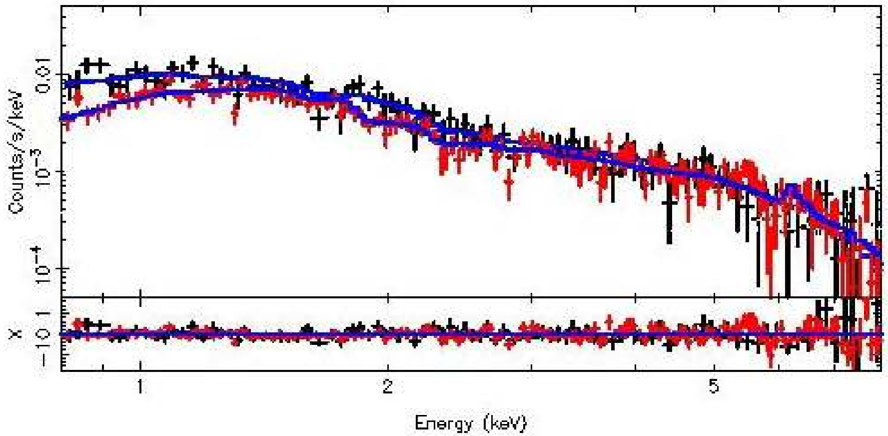
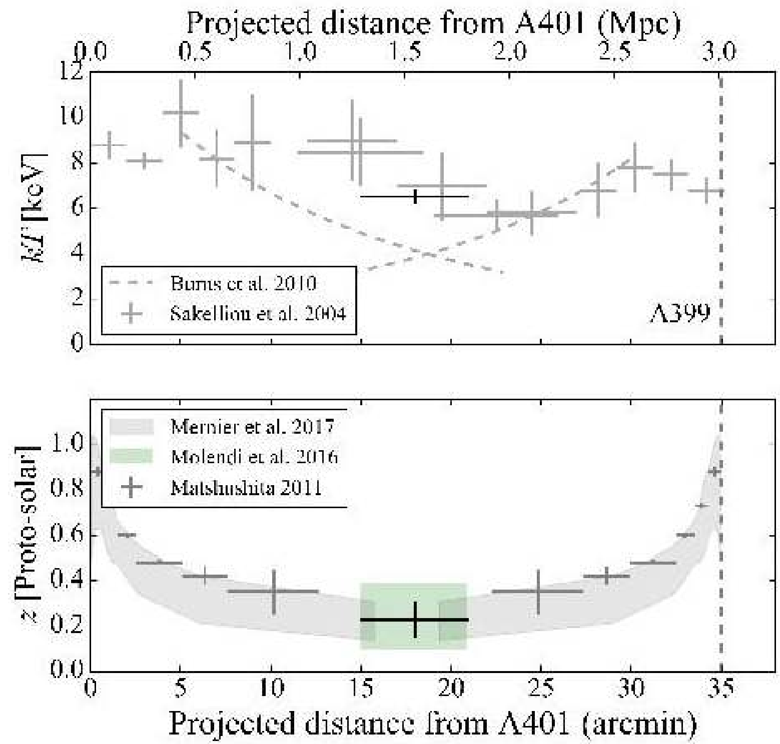


Fig. 2. Example of the spectral fitting. Spectra after subtraction of the NXB and the point sources. The XIS BI (Blue) and FI (Red) spectra are fitted with CXB + Galactic components (LHB and MWH) and the X-ray emission from the filamentary plasma.

Table 2. Best-fit parameters for the 4′×6′ box along with the collision axis

kT (keV)	Z ($Z_\odot$)	Norm (10^{69}/m^3/□′)	C-stat/d.o.f.
6.52 ± 0.35	0.23 ± 0.08	23.8 ± 0.5	377 / 299



А это уже поперек…

Table 3. Best-fit parameters of the filamentary plasma

Region[a] (arcmin)	Temperature (keV)	Abundance ($Z_\odot$)	*Norm* ($10^{69}/m^3/\square'$)	C-stat/d.o.f.
1.0 ± 1.0	6.43 ± 0.87	0.33 ± 0.15	24.3 ± 0.6	235.60 / 207
3.0 ± 1.0	6.33 ± 0.43	0.23 ± 0.10	21.8 ± 0.5	302.03 / 233
5.0 ± 1.0	6.37 ± 0.47	0.13 ± 0.11	18.4 ± 0.5	261.96 / 223
7.0 ± 1.0	6.36 ± 0.41	0.33 ± 0.10	16.4 ± 0.4	254.83 / 229
9.0 ± 1.0	5.91 ± 0.42	0.25 ± 0.10	14.5 ± 0.4	278.48 / 231
11.0 ± 1.0	5.07 ± 0.33	0.31 ± 0.11	13.3 ± 0.4	253.28 / 221
13.5 ± 1.5	4.86 ± 0.27	0.17 ± 0.08	12.9 ± 0.3	425.51 / 276

[a]: Distance from the collision axis

Table 4. Best-fit parameters for inside and outside the temperature break

Region[a] (arcmin)	Temperature (keV)	Abundance ($Z_\odot$)	*Norm* ($10^{69}/m^3/\square'$)	C-stat/d.o.f.
10.0–14.0	5.05 ± 0.21	0.27 ± 0.07	13.5 ± 0.3	488.24 / 346
2.0–8.0	6.27 ± 0.27	0.28 ± 0.07	18.6 ± 0.3	369.97 / 309

[a]: Distance from the collision axis

Падение температуры расценивают как ударную волну – признак аккреции газа извне поперек филамента

Astro-ph: 1704.05962

Bimodal morphologies of massive galaxies at the core of a protocluster at z = 3.09 and the strong size growth of a brightest cluster galaxy

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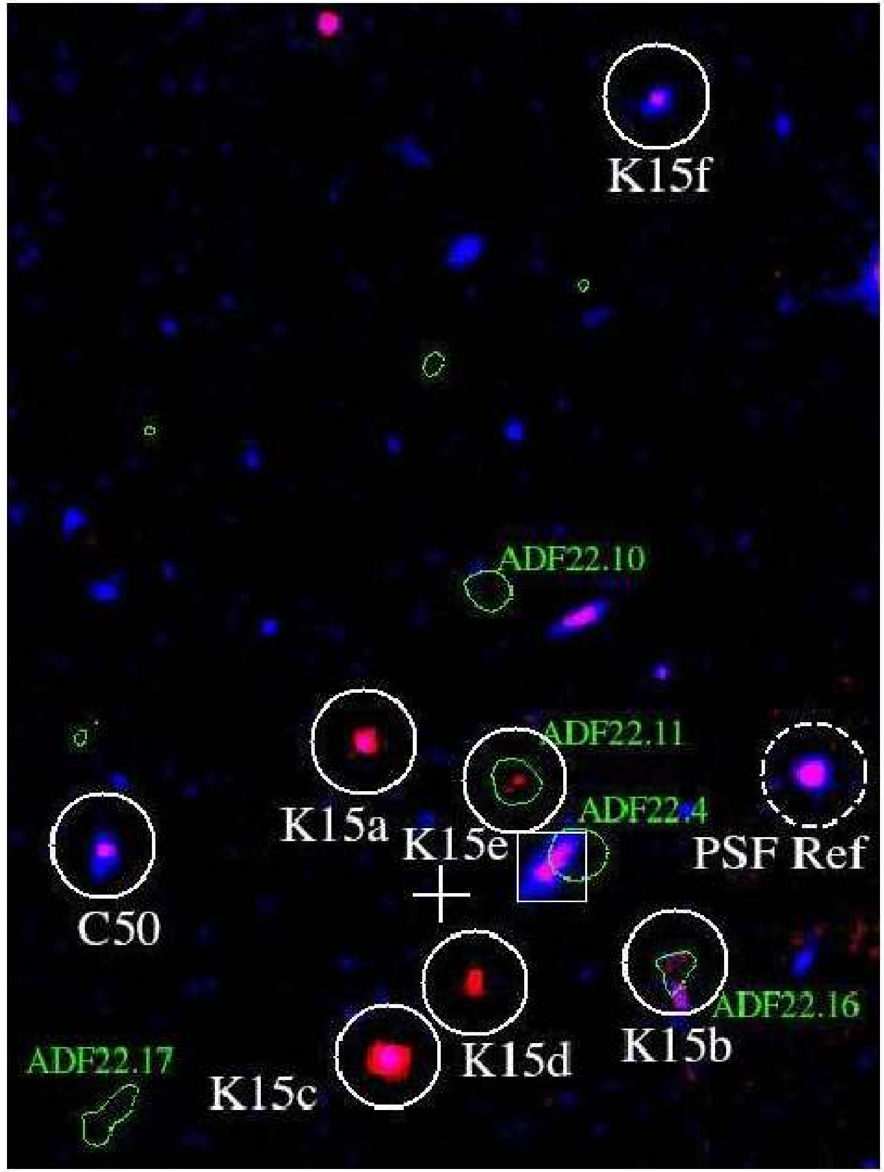

Figure 1. The combined image of the IRCS-AO K' (red) and *HST/ACS* $I_{\rm F814W}$ (blue)-band images of the AzTEC14 group ($20''.0 \times 27''.0$). The white circles show the objects with spectroscopic redshifts $z_{\rm spec} \approx 3.09$. The object IDs are the same as those in Kubo et al. (2016) and Umehata et al. (2017). The white cross

Наличие/отсутствие звездообразования – по двум цветам

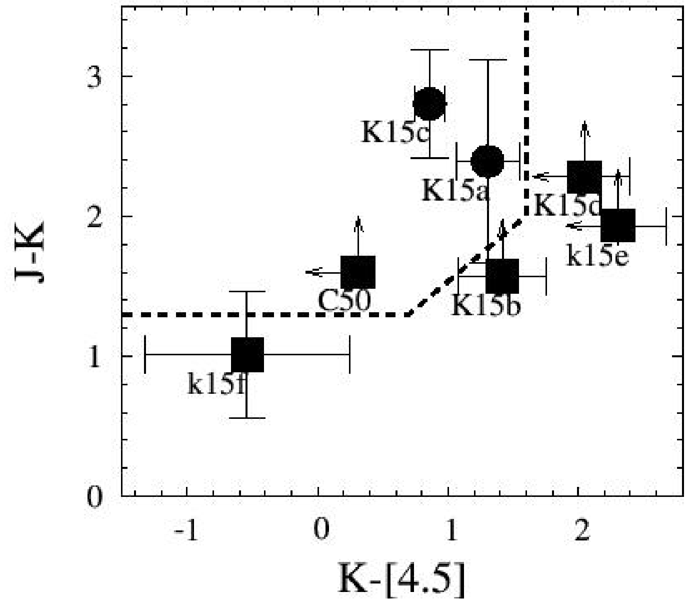

Figure 3. $J - K$ v.s. $K - [4.5]$ or rest-frame UVJ color diagram of galaxies in the AzTEC14 group. The black dashed line shows the rest-frame UVJ color criterion for QGs in previous studies. The black filled circles and squares show the galaxies classified as QGs and SFGs in the AzTEC14 group, respectively. C50 looks satisfying QG color criterion but there is a large uncertainty in its rest-frame UVJ color. K15d and K15e suffer from deblendings with adjacent sources on the 4.5 μm-band image.

GALFIT

Table 1. GALFIT Morphological Parameters

Object	K_{tot} (mag)	M_* ($10^{10}\ M_\odot$)	r_e (kpc)	Sérsic n	b/a	PA (deg)	χ^2/dof
Az14-K15a	22.50 ± 0.10	$8.0^{+5.7}_{-2.9}$	1.37 ± 0.75	9.5 ± 4.5	0.58 ± 0.09	-61 ± 8	1.18
Az14-K15a (AGN-subtracted)			4.26 ± 0.60	2.2 ± 0.6	0.60 ± 0.09	-62 ± 12	1.18
Az14-K15c	21.55 ± 0.04	$25.4^{+7.3}_{-5.8}$	1.01 ± 0.04	2.5 ± 0.2	0.89 ± 0.03	-5 ± 11	1.10
Az14-K15d	23.06 ± 0.16	$5.3^{+5.7}_{-2.9}$	3.23 ± 1.56	4.6 ± 1.8	0.35 ± 0.07	85 ± 4	1.06
Az14-K15e	23.35 ± 0.21	$7.2^{+9.8}_{-5.2}$	11.9 ± 27.1	7.3 ± 8.9	0.09 ± 0.05	35 ± 3	1.07
Az14-K15f	23.30 ± 0.20	$1.7^{+2.2}_{-0.8}$	1.76 ± 0.32	1.3 ± 0.4	0.90 ± 0.12	-10 ± 52	0.91
C50	24.09 ± 0.37	$1.1^{+1.1}_{-0.7}$	1.84 ± 1.24	3.9 ± 2.8	0.64 ± 0.19	78 ± 20	0.99

Е-галактики – компактные, а вот звездообразующие – неожиданно протяженные

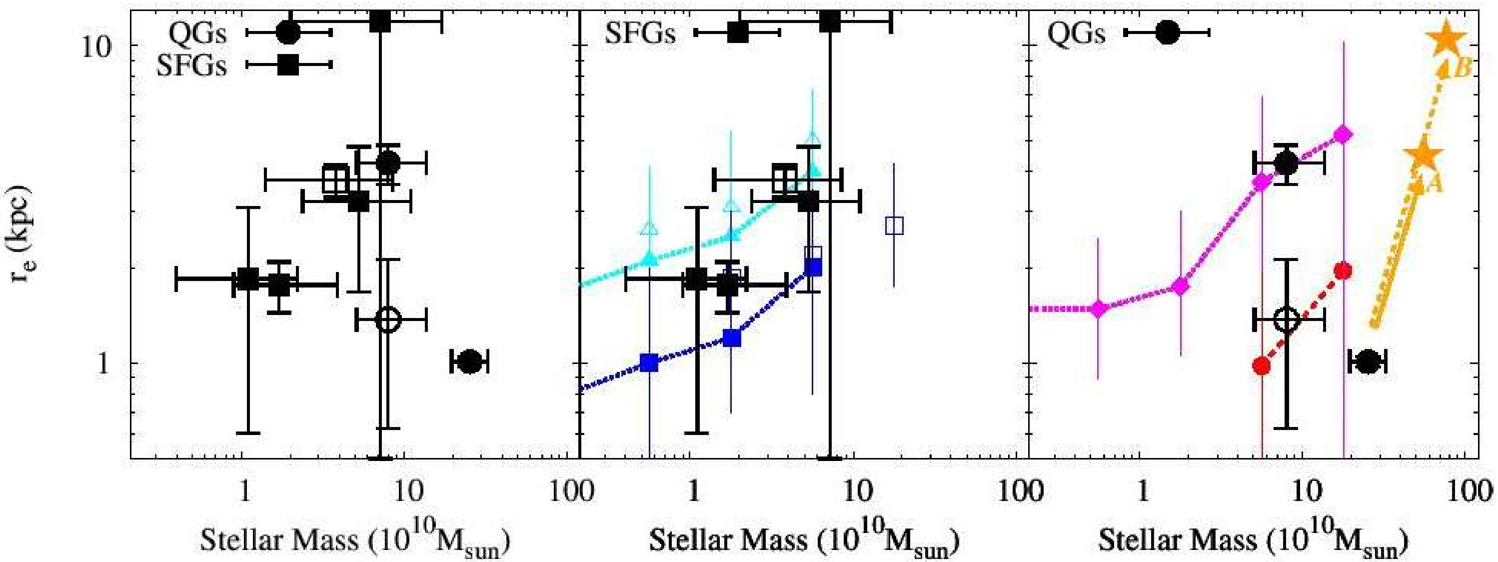

Figure 5. *Left:* The effective radius (r_e) to stellar mass relation. The black filled circles and squares show the QGs and SFGs in the AzTEC14 group, respectively. The large black open square shows the stack of the SFGs. The large black open circle shows the result of a single Sérsic fit of Az14-K15a. *Central:* Focusing on SFGs. The cyan filled triangles and small blue filled squares with dot lines show SFGs at $z = 0$ and $z = 3$ from S15, respectively. The cyan open triangles and small blue open squares show SFGs at $z = 0.25$ and $z = 2.75$ from vdW14, respectively. *Right:* Focusing on QGs. The magenta filled diamonds with dot line and small red filled circles with dot line show QGs $z = 0$ and $z = 3$ from vDW14, respectively. The orange stars at the point of the arrows are the expected sizes and stellar masses of Az14-K15c at $z \sim 1$ in cases all the members merge into this object without (Case A) or with (Case B) in situ star formation.

Astro-ph- 1704.06219

First results on the cluster galaxy population from the Subaru Hyper Suprime-Cam survey. I. The role of group or cluster environment in star formation quenching from z = 0.2 to 1.1

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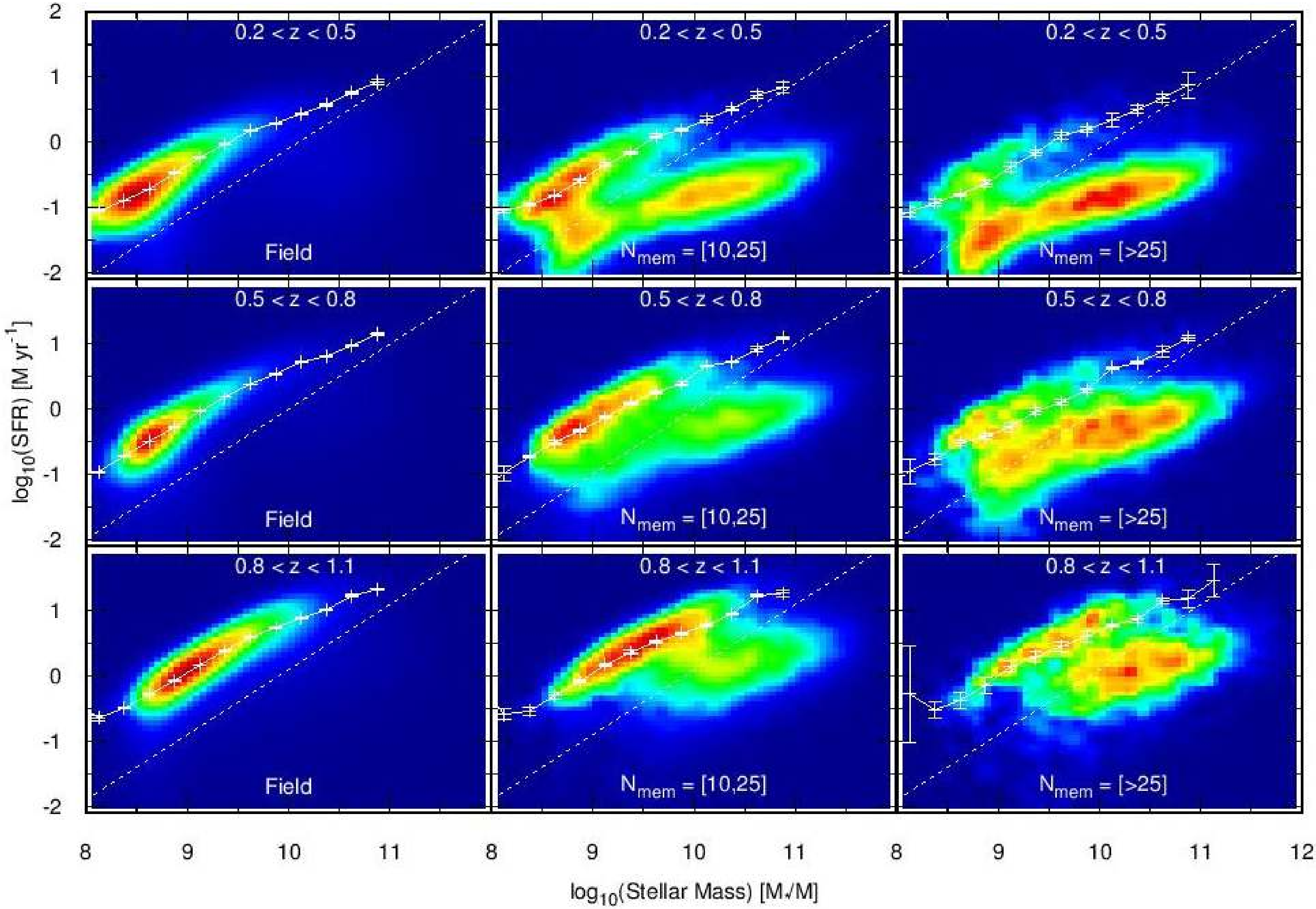
Выборка

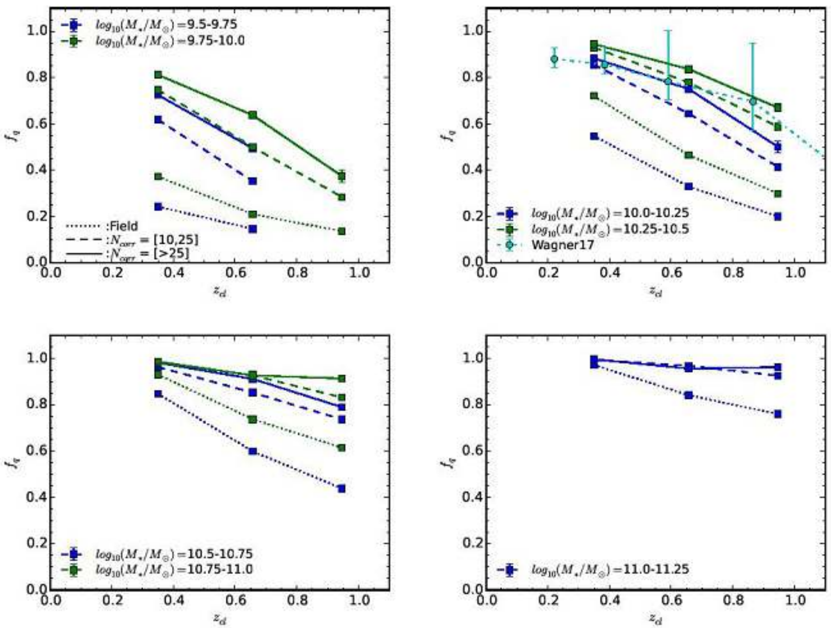
Table 1. CAMIRA Cluster Catalog

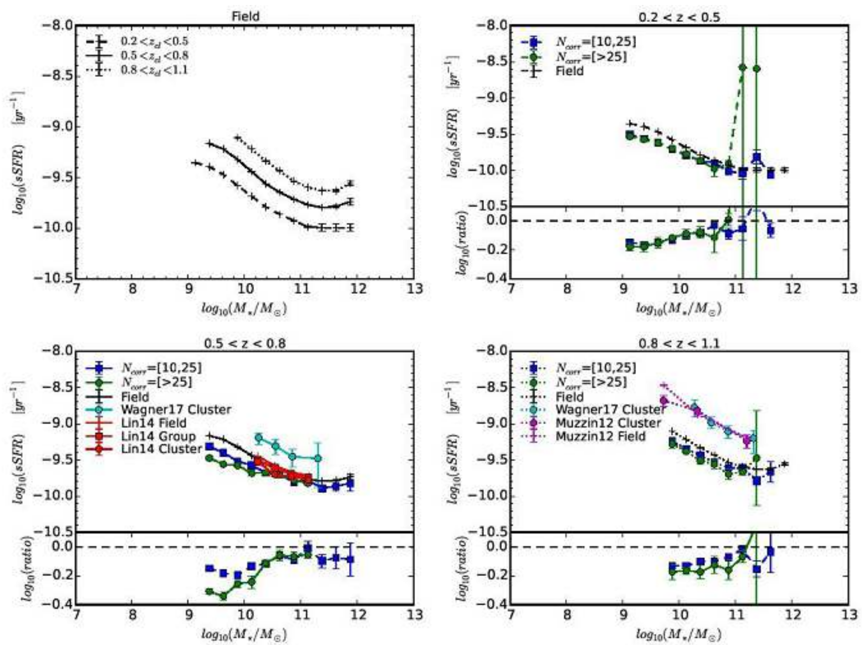
Redshift	z_{median}	Group	Cluster
		$10 < N_{mem} < 25$	$N_{mem} > 25$
		$M_{vir}/M_{\odot} = 10^{13.6-14.2}$	$10^{>14.2}$
$0.2 < z < 0.5$	0.33	1139	194
$0.5 < z < 0.8$	0.68	1506	153
$0.8 < z < 1.1$	0.92	1611	95



g. 1. The images show the color-coded number densities of stacked galaxies for the SFR-M$_*$ relation in three redshift ranges from [0.2,0.5], [0.5, 08] to

Эволюция (слева) и зависимость от массы (справа) доли галактик без звездообразования





Апофеоз: в эволюции массивных галактик окружение роли не играет; да и эволюции как таковой не видно