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От Сильченко О.К.

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THE DRAGONFLY NEARBY GALAXIES SURVEY. II. ULTRA DIFFUSE GALAXIES NEAR THE ELLIPTICAL GALAXY NGC 5485

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ABSTRACT

We present the unexpected discovery of four ultra diffuse galaxies (UDGs) in a group environment. We recently identified seven extremely low surface brightness galaxies in the vicinity of the spiral galaxy M101, using data from the Dragonfly Telephoto Array. The galaxies have effective radii of $10'' - 38''$ and central surface brightnesses of $25.6 - 27.7$ mag arcsec^{-2} in g-band. We subsequently obtained follow-up observations with *HST* to constrain the distances to these galaxies. Four remain persistently unresolved even with the spatial resolution of *HST*/ACS, which implies distances of $D > 17.5$ Mpc. We show that the galaxies are most likely associated with a background group at ~ 27 Mpc containing the massive ellipticals NGC 5485 and NGC 5473. At this distance, the galaxies have sizes of $2.6 - 4.9$ kpc, and are classified as UDGs, similar to the populations that have been revealed in clusters such as Coma, Virgo and Fornax, yet even more diffuse. The discovery of four UDGs in a galaxy group

Искали спутники M101…

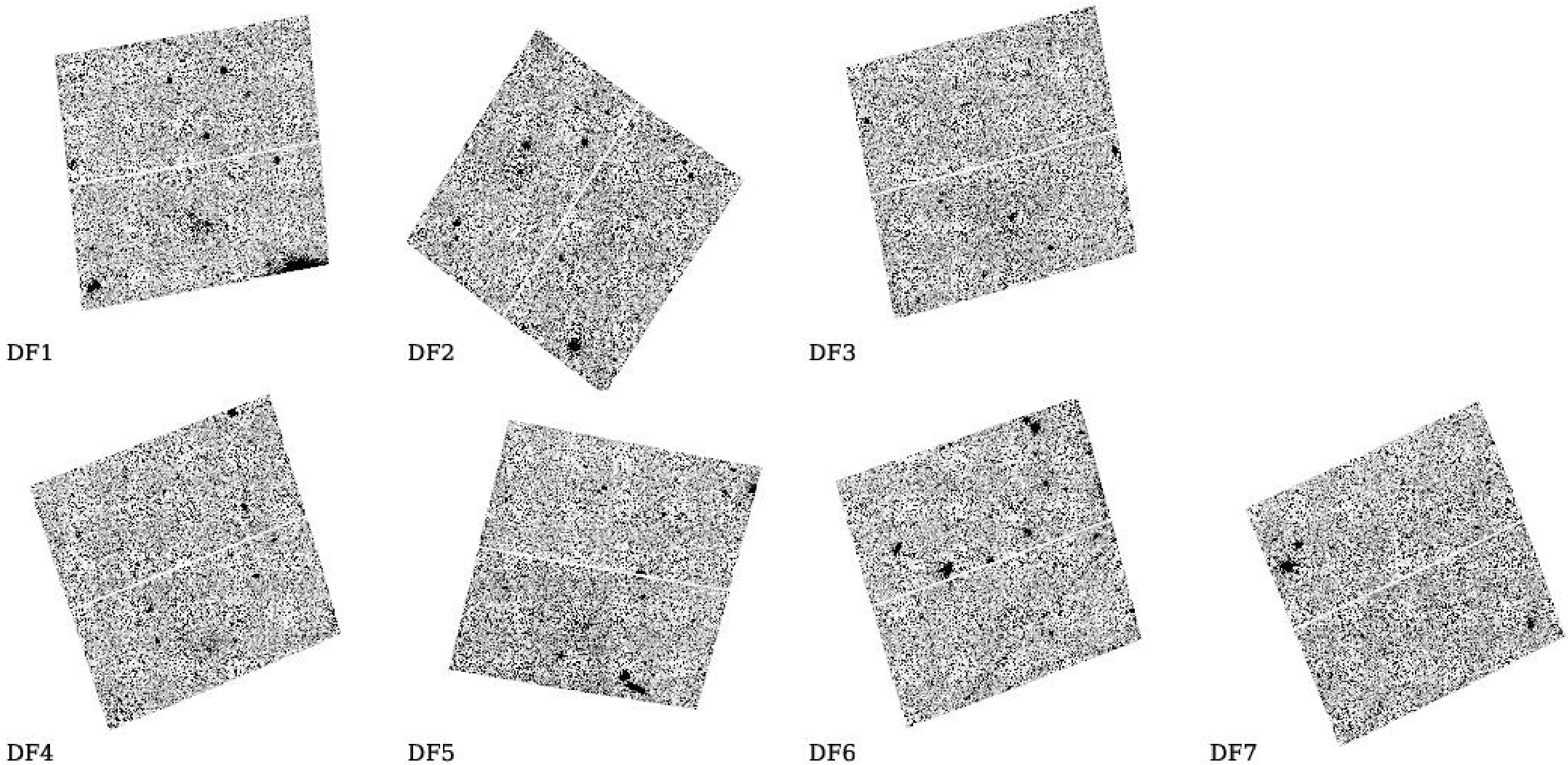
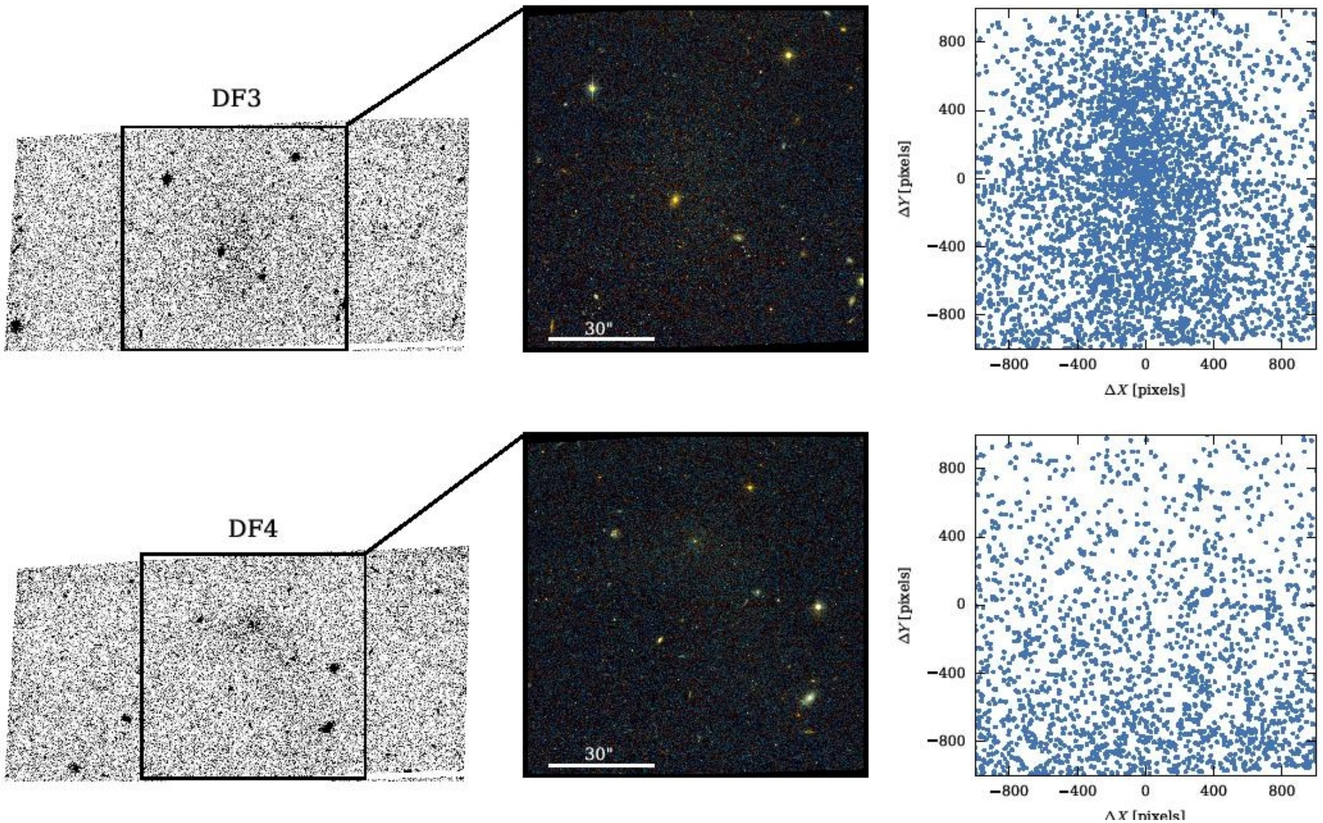
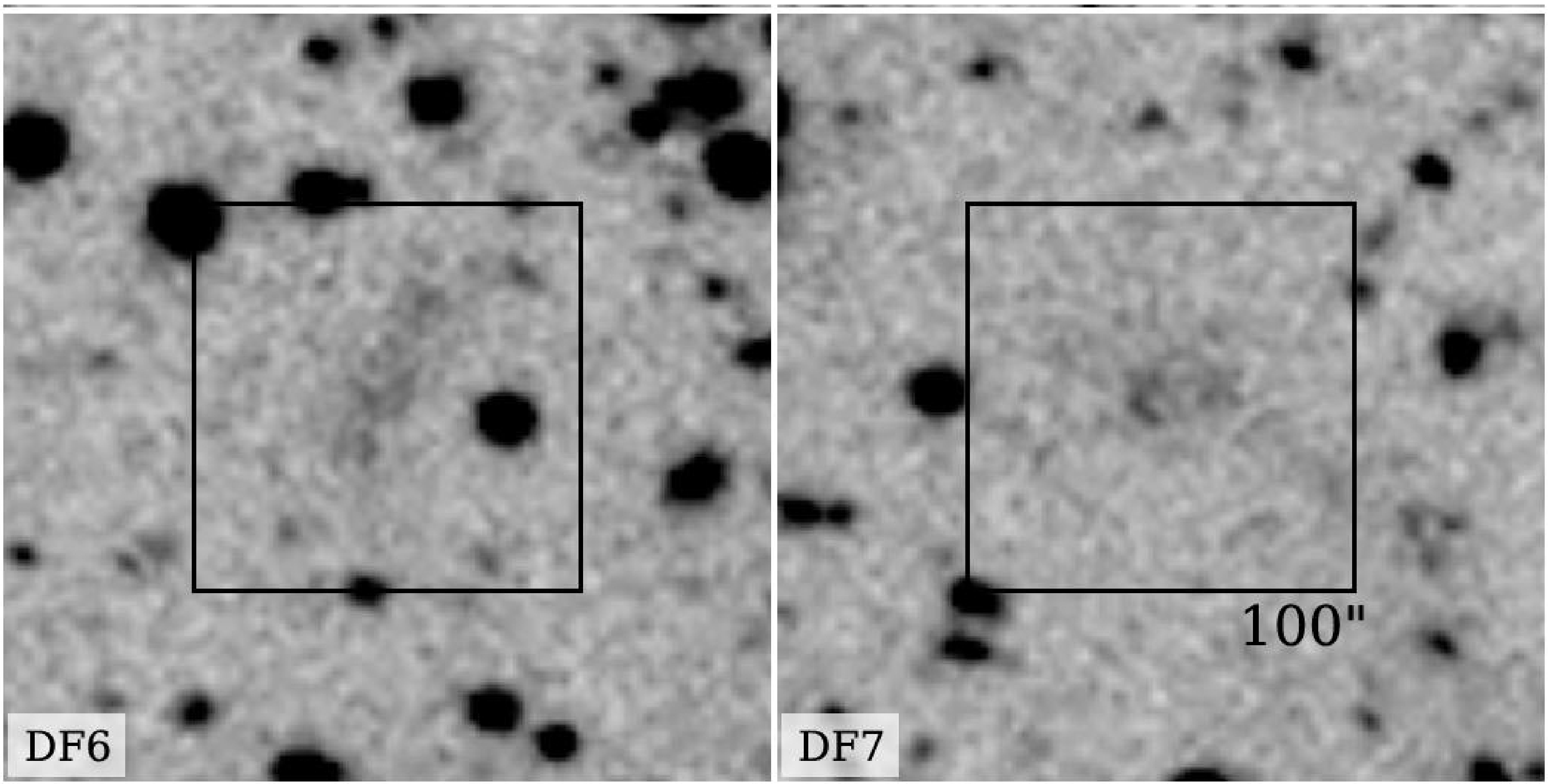


Figure 1. HST images of all seven LSB galaxies reported in Merritt et al. (2014). Observations were obtained in F606W and F814W, with 0.5 orbits each, although here we show only F606W. North is up and East is to the left. The field of view is ~ 3.5 arcminutes on a

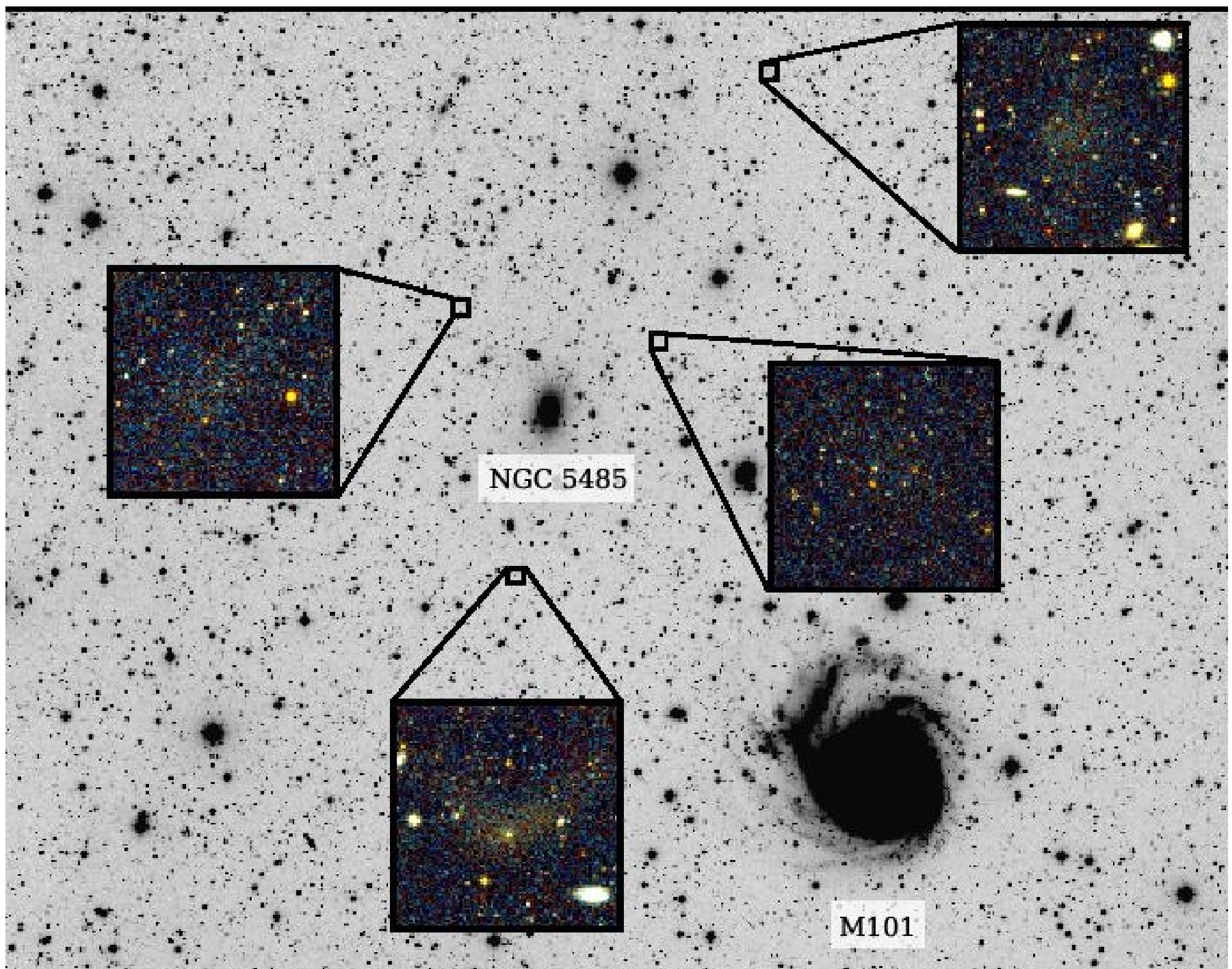
Некоторые разрешились на звезды с HST, а 4 галактики – нет…



Морфологии разные и неправильные



Расположение на небе 4х далеких



Члены группы NGC 5485

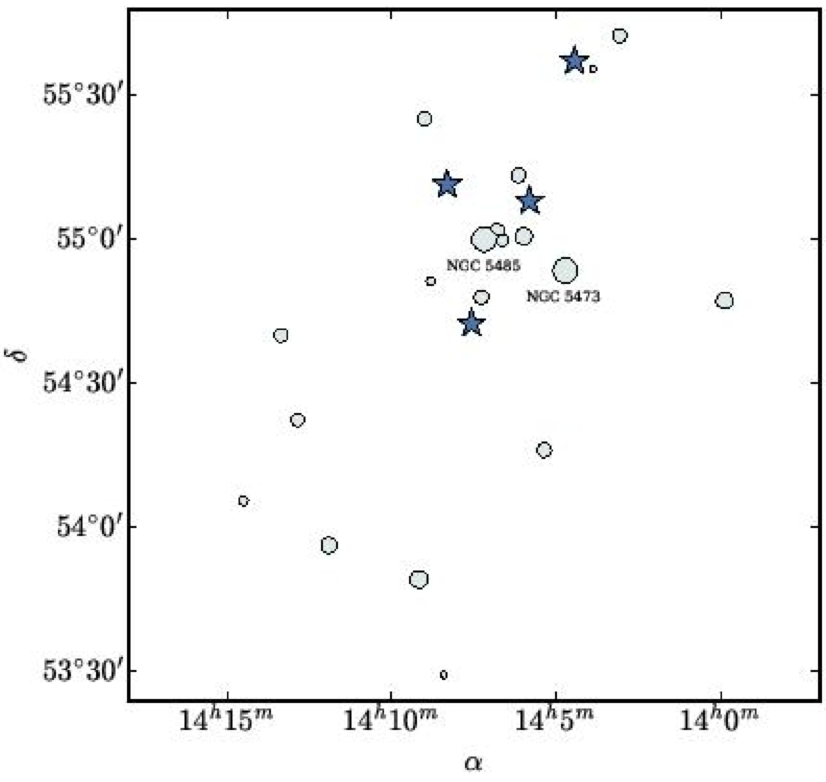
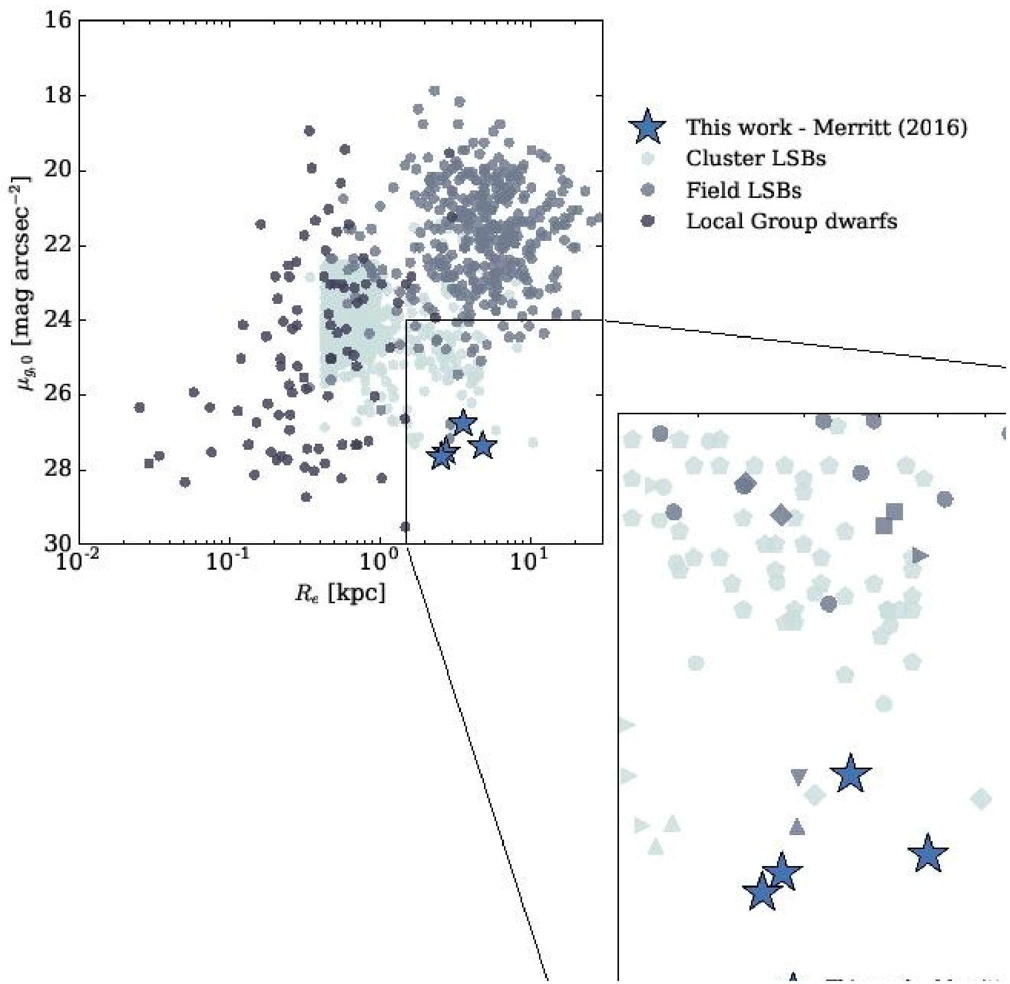


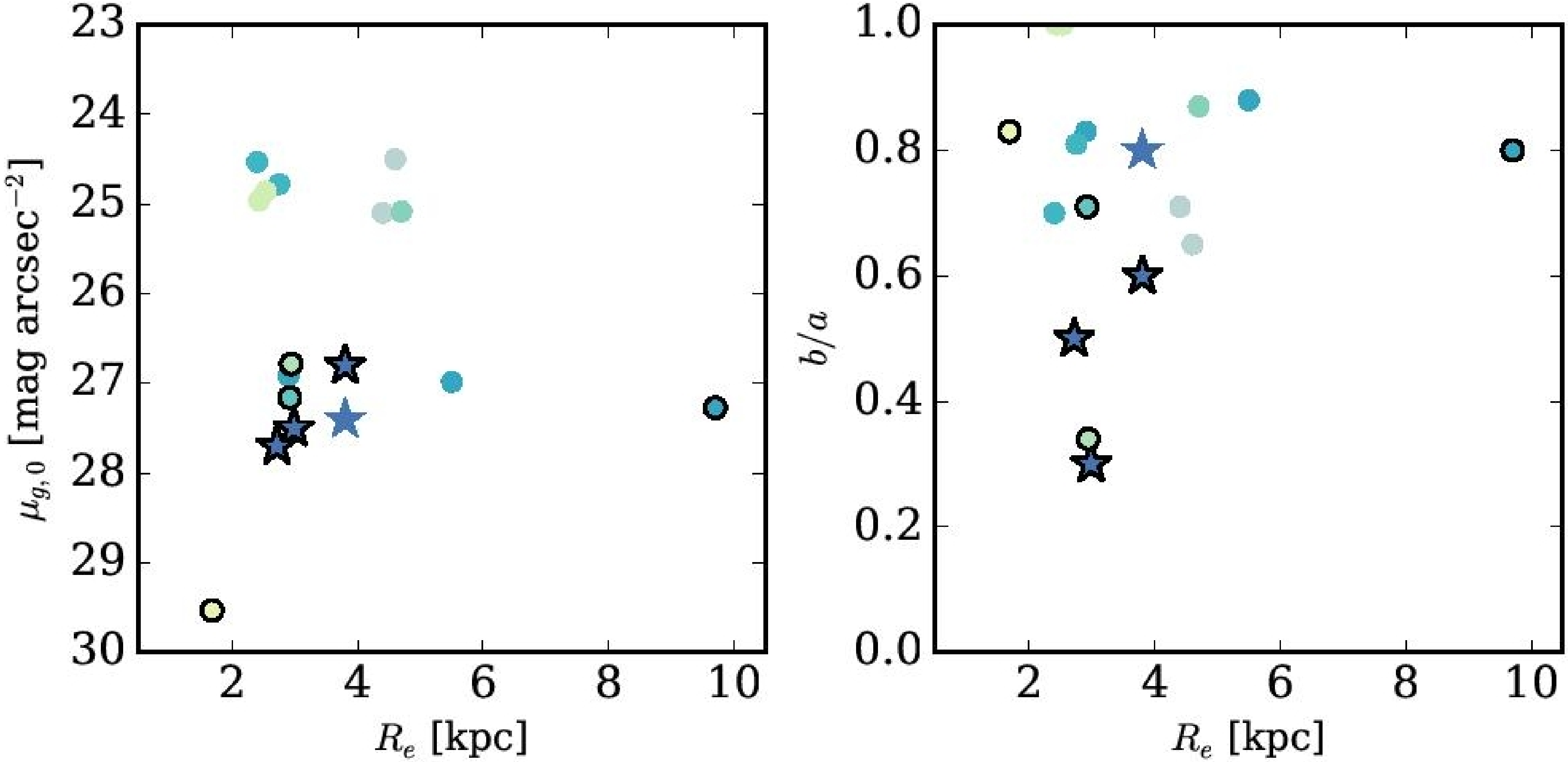
Figure 9. The members of the NGC 5485 group (Makarov & Karachentsev 2011), with symbol sizes scaled by absolute B magnitude (Makarov et al. 2014). The locations of the four LSBGs are shown as well (blue stars; no luminosity scaling); the projected positions are consistent with group membership.

He LSB, a UDG!



This work - Merritt (2016)
Cluster LSBs
Field LSBs
Local Group dwarfs
$\mu_{g,0}$ [mag arcsec^{-2}]
R_e [kpc]
16
18
20
22
24
26
28
30
10^{-2}
10^{-1}
10^{0}
10^{1}

Только толстенькие



Astro-ph: 1610.02404

ULTRAVIOLET HALOS AROUND SPIRAL GALAXIES. I. MORPHOLOGY

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accepted by ApJ

ABSTRACT

We examine ultraviolet halos around a sample of highly inclined galaxies within 25 Mpc to measure their morphology and luminosity. Despite contamination from galactic light scattered into the wings of the point-spread function, we find that UV halos occur around each galaxy in our sample. Around most galaxies the halos form a thick, diffuse disk-like structure, but starburst galaxies with galactic superwinds have qualitatively different halos that are more extensive and have filamentary structure. The spatial coincidence of the UV halos above star-forming regions, the lack of consistent association with outflows or extraplanar ionized gas, and the strong correlation between the halo and galaxy UV luminosity suggest that the UV light is an extragalactic reflection nebula. UV halos may thus represent $10^6 - 10^7 M_\odot$ of dust within 2–10 kpc of the disk, whose properties may change with height in starburst galaxies.

Выборка

TABLE 1
Basic Galaxy Parameters

Name (1)	Type (2)	T (3)	i (deg) (4)	M_B (mag) (5)	d (Mpc) (6)	$v_{\rm rot}$ (km s^{-1}) (7)	$E(B-V)$ (mag) (8)	$B-V$ (mag) (9)	m_K (mag) (10)	M_* ($10^{10} M_\odot$) (11)	$L_{\rm H\alpha}$(10^{40} erg s^{-1}) (12)	SFR(IR) ($M_\odot$ yr^{-1}) (13)
Starbursts												
NGC0253	SABc	5.1	90	-21.23	3.25	189.8	0.019	0.69	3.772	4.36	9.59	3.97
M82	Scd	7.5	76.9	-20.13	3.93	65.6	0.138	0.68	4.665	1.83	15.0	9.42
NGC4631	SBcd	6.6	90	-22.42	6.02	138.4	0.015	0.39	6.465	0.98	15.0	1.03
NGC3628	Sb	3.1	79.3	-21.54	10.89	215.4	0.024	0.68	6.074	4.47	4.59	3.30
NGC4666	SABc	5.1	69.6	-21.10	17.28	192.9	0.022	0.64	7.055	3.10	16.8	4.83
NGC3079	SBcd	6.6	90	-21.56	19.28	208.4	0.01	0.53	7.262	2.91	16.9	8.17
NGC5775	SBc	5.2	83.2	-21.09	20.34	187.2	0.037	0.66	7.763	2.45	0.014	3.97
NGC4388	Sb	2.7	90	-22.13	20.5	171.2	0.029	0.57	8.004	1.55	2.35	3.16
Normal Spirals												
NGC0055	SBm	8.8	90	-20.09	1.94	58.7	0.012	0.33	6.249	0.09	3.42	0.06
NGC0891	Sb	3.1	90	-20.37	9.96	212.1	0.058	0.70	5.938	3.99	5.30	2.43
NGC2683	Sb	3.0	82.8	-20.42	10.08	202.6	0.029	0.75	6.328	2.98	5.56	0.41
NGC4517	Sc	6.0	90	-21.46	10.56	139.6	0.021	0.53	7.329	0.73		0.34
NGC4565	Sb	3.3	90	-22.55	12.18	243.6	0.014	0.68	6.060	5.65	2.20	0.80
NGC4096	SABc	5.3	80.5	-20.39	12.68	144.8	0.016	0.50	7.806	0.088	5.18	0.56
NGC4313	Sab	2.1	90	-20.16	14.62	117.6	0.033		8.468			0.37
NGC3623	Sa	1.0	90	-21.02	12.77	231.2	0.022	0.78	6.066	7.17	5.76	0.38
NGC5907	SABc	5.3	90	-21.08	16.37	226.6	0.009	0.62	6.757	5.03	14.1	2.04
NGC4216	SABb	3.0	90	-20.80	16.78	244	0.028	0.83	6.524	6.06		0.44
NGC4607	SBbc	4.0	90	-20.18	17.78	98.9	0.028	0.75	9.584	0.60	1.17	0.68
NGC4522	SBc	5.9	79.2	-20.91	18.29	96.4	0.018		9.8		1.67	0.40
NGC0134	SABb	4.0	90	-21.49	18.71	220.2	0.016	0.69	6.844	5.95		4.51
NGC4157	SABb	3.3	90	-19.88	18.7	188.9	0.019	0.64	7.363	3.03	8.11	2.71
ESO358-063	Scd	6.9	75.6	-20.34	18.98	135	0.005	0.7	9.144	0.61		0.87
NGC4217	Sb	3.1	81	-20.08	19.37	187.6	0.015	0.75	7.582	3.67	3.08	
NGC4330	Sc	6.0	78.9	-20.02	19.61	115.7	0.021		9.51			0.36

Учет PSF при вычитании центральной галактики

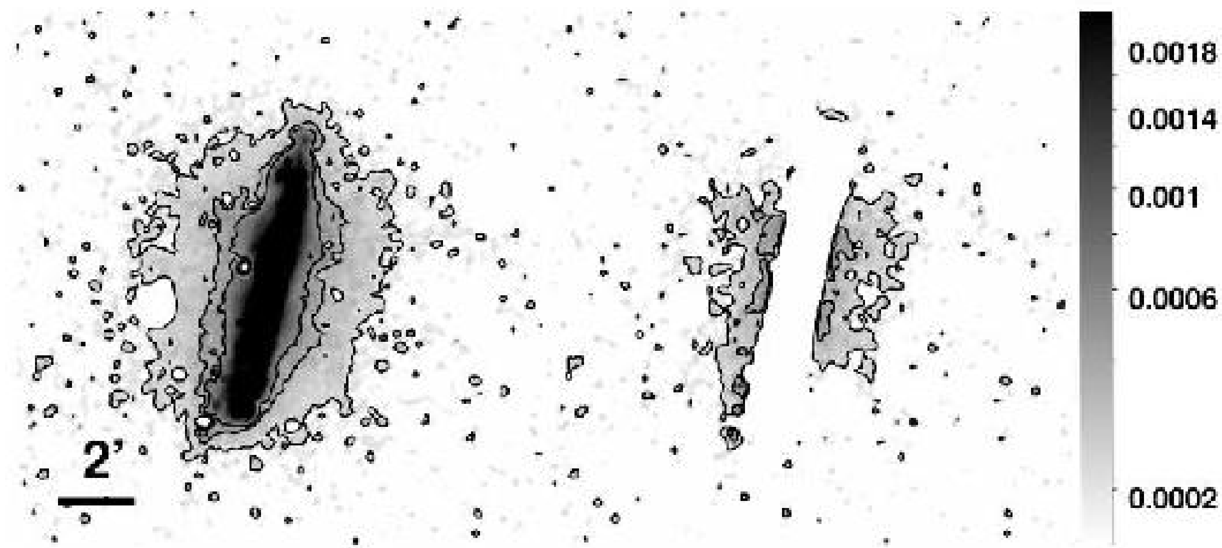
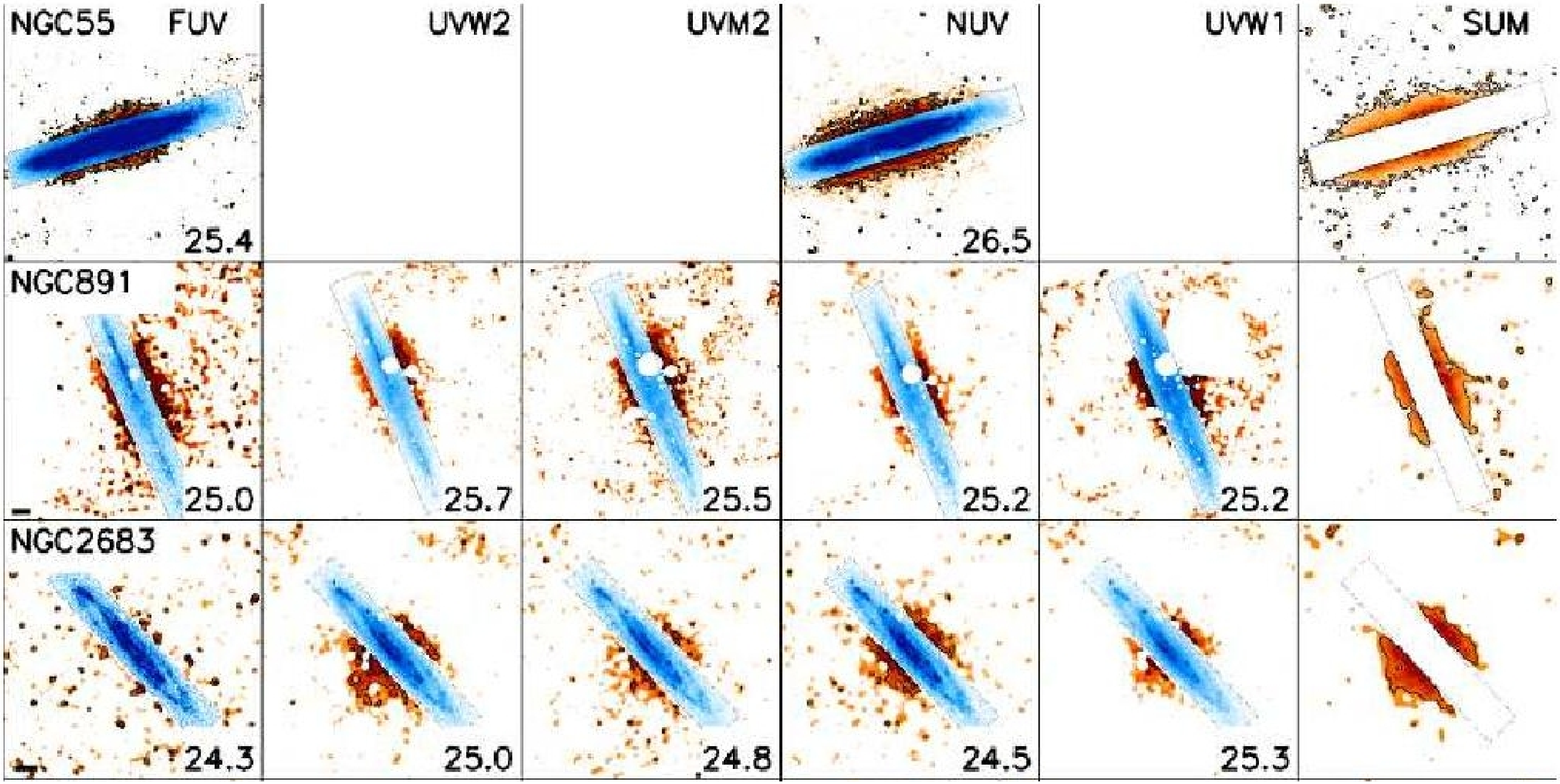
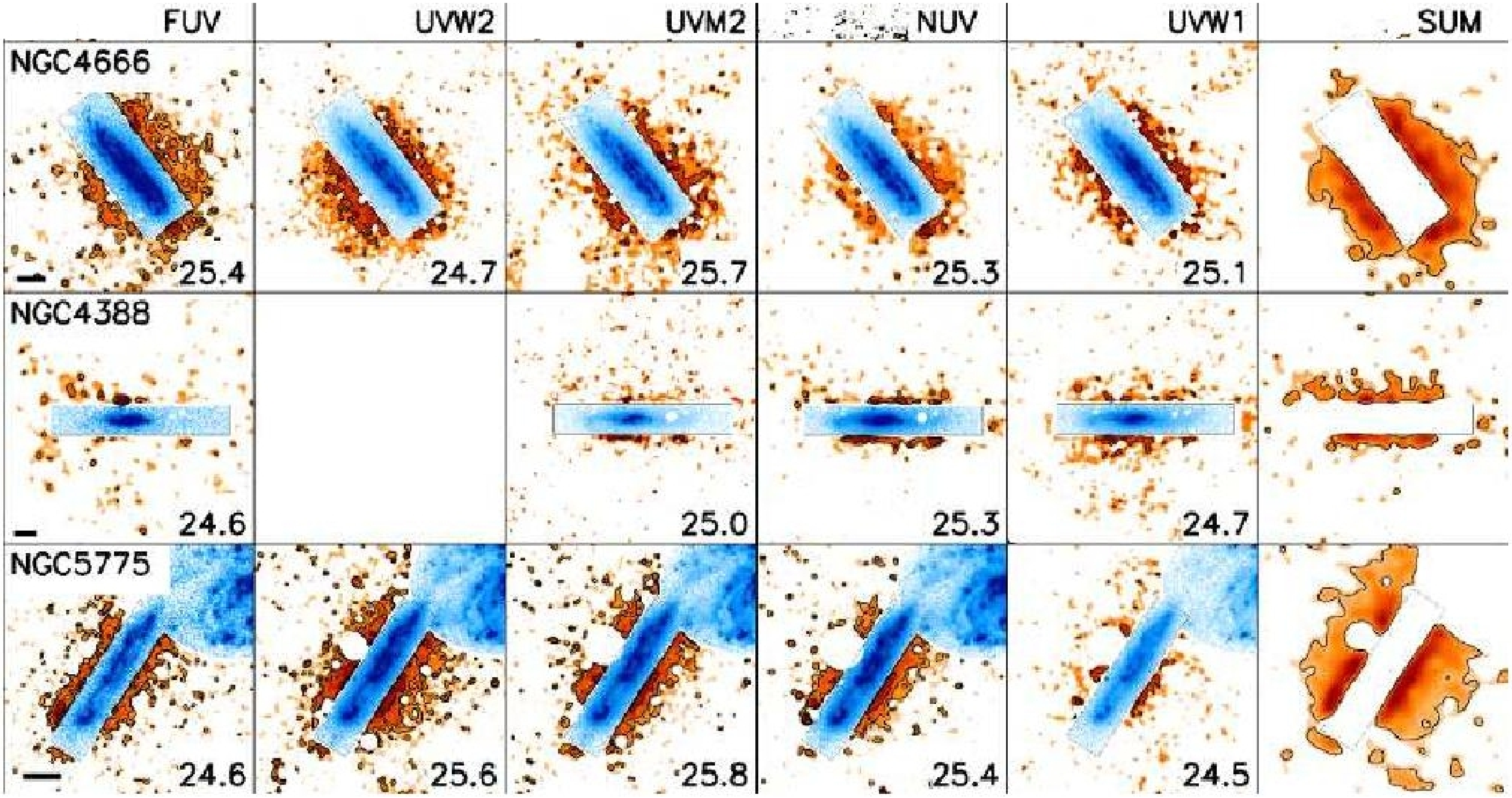


FIG. 2.— *Left*: The FUV image of NGC 3079 before correcting for galactic light scattered into the PSF wings. The contours are 3, 4, and 5σ above background. *Right*: The same image after correction for PSF-wing contamination. The galaxy image used to compute the correction has been masked.

«Нормальные» галактики



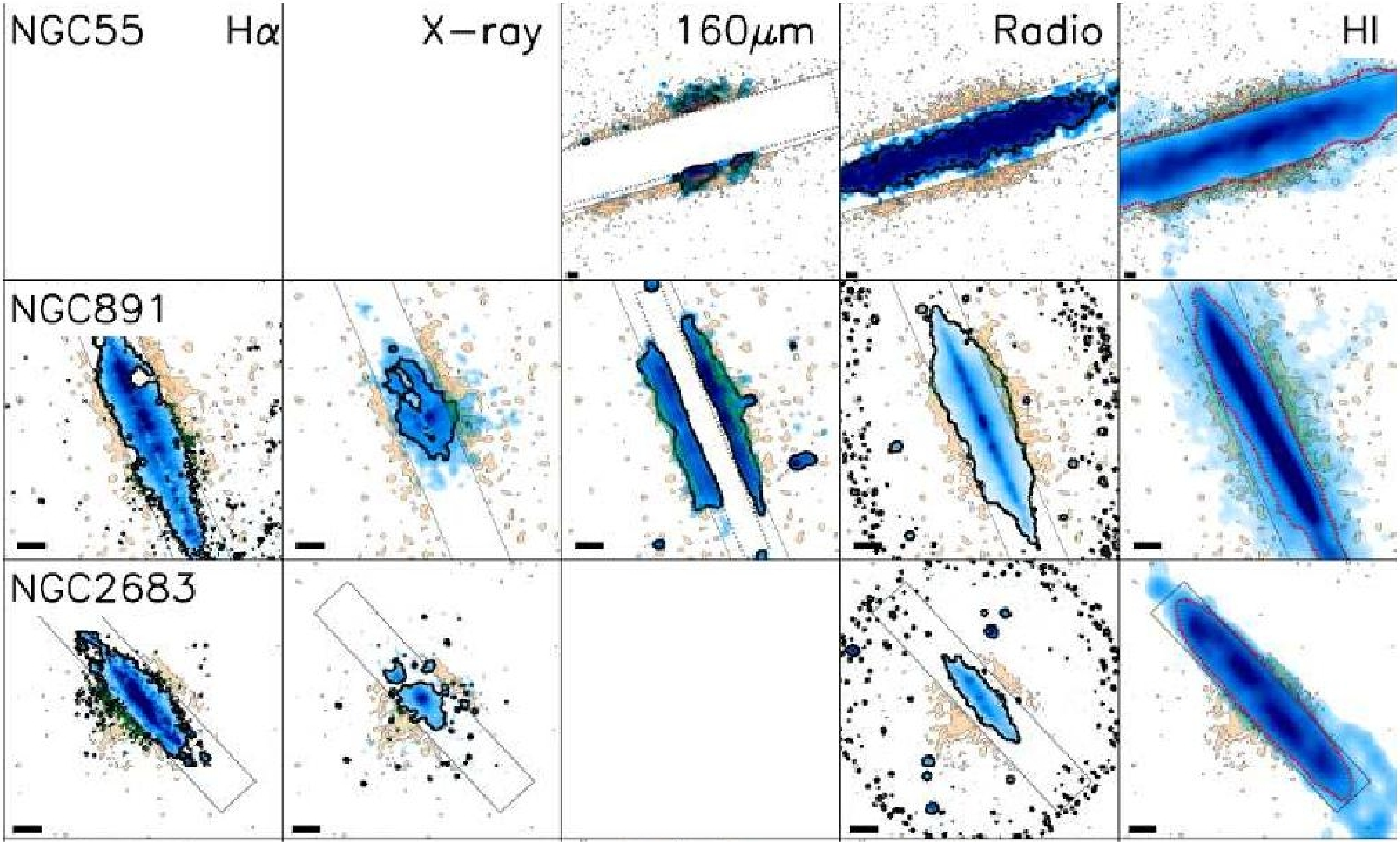
Галактики со вспышкой звездообразования



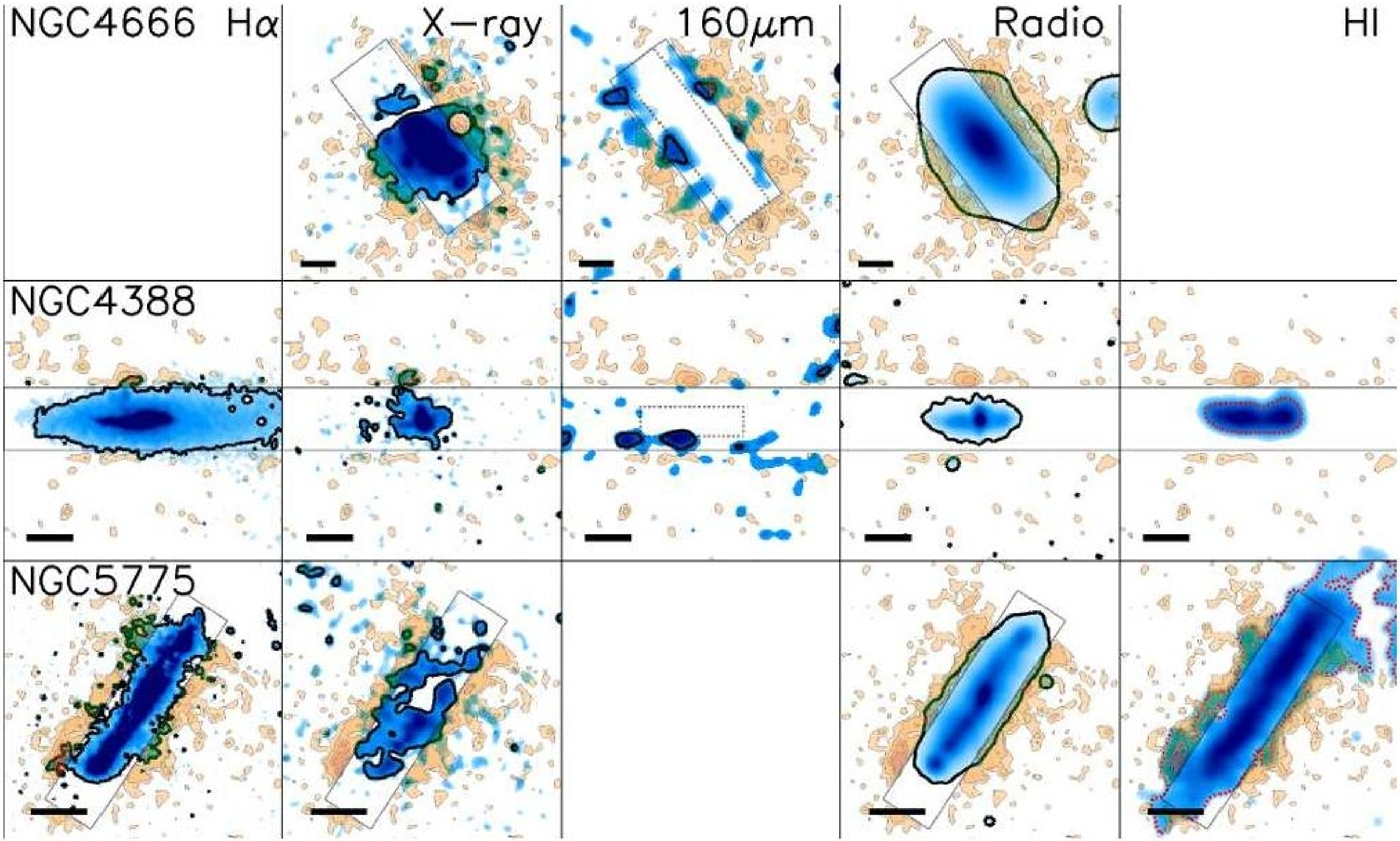
Типичные морфологии: вид сбоку

Пунктир – R_{25}, точки – толщина звездного диска

«Нормальные» галактики: корреляции



Галактики со вспышкой звездообразования: корреляции



Astro-ph: 1609.02457

CLUSTERING OF LOCAL GROUP DISTANCES: PUBLICATION BIAS OR CORRELATED MEASUREMENTS? IV. THE GALACTIC CENTER

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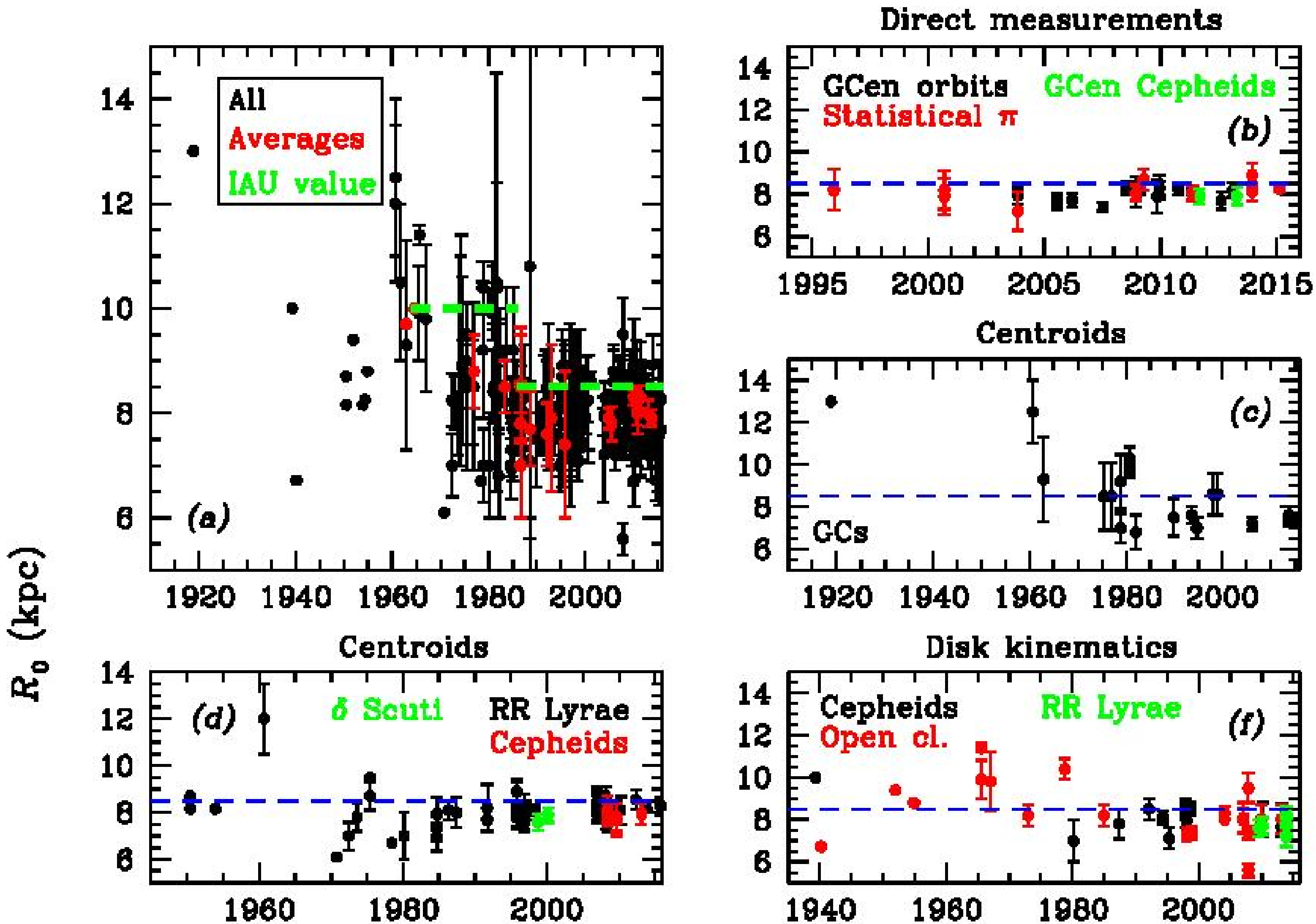
ABSTRACT

Aiming at deriving a statistically well-justified Galactic Center distance, R_0, and reducing any occurrence of publication bias, we compiled the most comprehensive and most complete database of Galactic Center distances available to date, containing 273 new or revised R_0 estimates published since records began in October 1918 until June 2016. We separate our R_0 compilation into direct and indirect distance measurements. The latter include a large body of estimates that rely on centroid determinations for a range of tracer populations as well as measurements based on kinematic observations of objects at the solar circle, combined with a mass and/or rotational model of the Milky Way. Careful assessment of the Galactic Center distances resulting from orbital modeling and statistical parallax measurements in the Galactic nucleus yields our final Galactic Center distance recommendation of $R_0 = 8.3 \pm 0.2$ (statistical) $\pm\, 0.4$ (systematic) kpc. The centroid-based distances are in good

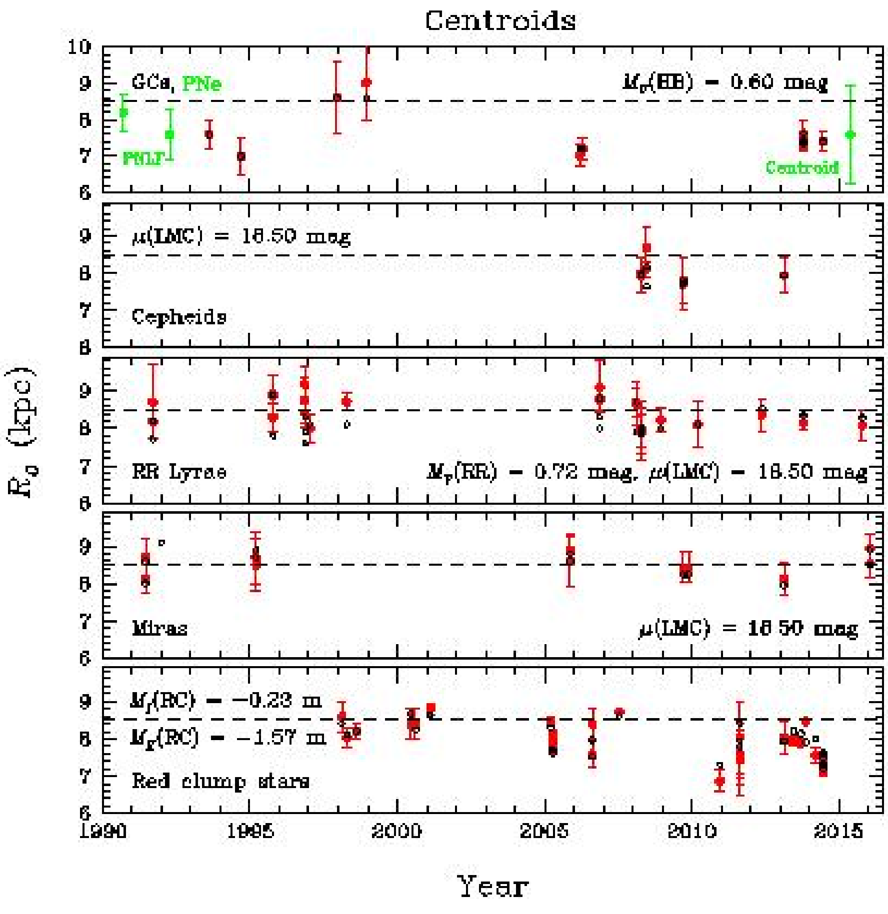
Полная статистика по методам

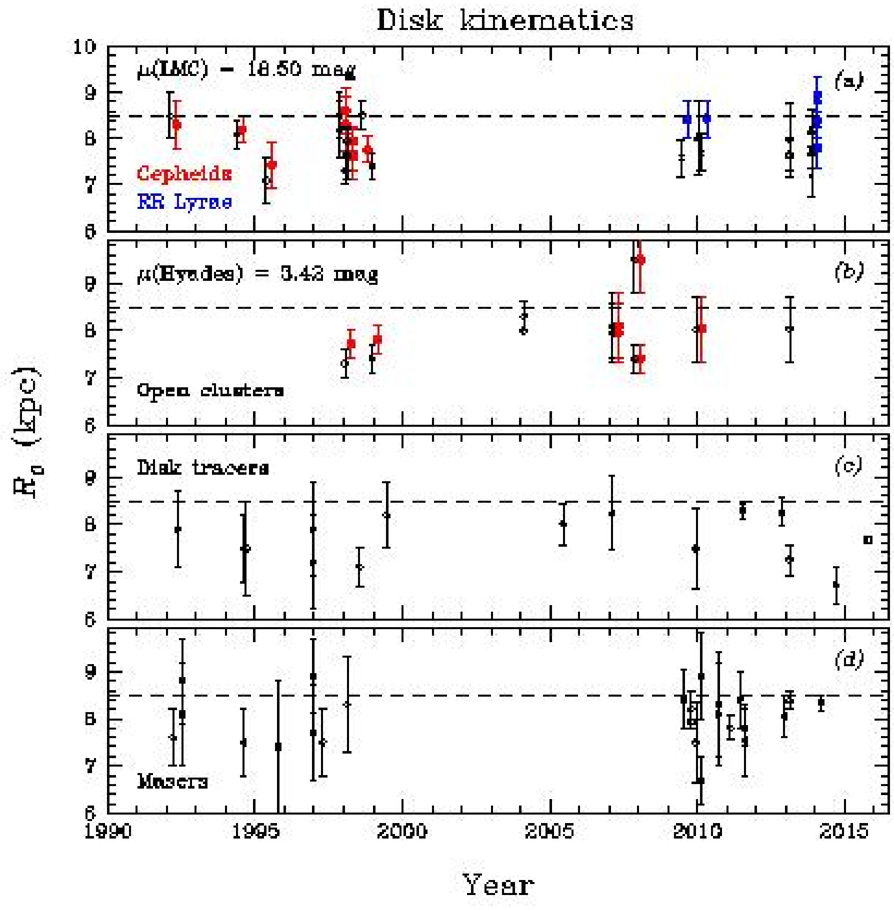


Только прямые методы

(mm/yyyy)	(kpc)		
		Galactic Center orbital modeling	
11/2003	7.94 ± 0.33	Eisenhauer et al. (2003)	S2 only, 1992–2001; systematic uncertainty 0.16 kpc
07/2005	7.62 ± 0.32	Eisenhauer et al. (2005)	S2 only, 1992–2004
07/2005	7.72 ± 0.33	Eisenhauer et al. (2005)	S2 only, 1992–2004, excl. data from 2002
03/2006	7.73 ± 0.32	Zucker et al. (2006)	S2 only, 1992–2004; corrected for relativistic effects
07/2007	7.4 ± 0.2	Olling (2007; Ghez, priv. commun.)	bias-free 'orbital parallax method' (Armstrong et al. 1992)
07/2008	8.3 ± 0.3	Ghez et al. (2008)	S2 only, 1995–2007
12/2008	8.0 ± 0.6	Ghez et al. (2008)	S2 only, 1995–2007; black hole freely moving
12/2008	8.4 ± 0.4	Ghez et al. (2008)	S2 only, 1995–2007; black hole at rest
02/2009	8.33 ± 0.35	Gillessen et al. (2009b)	S stars, 1992–2008; incl. systematic uncertainties
02/2009	8.40 ± 0.29	Gillessen et al. (2009b)	S stars excl. S2, 1992–2008; incl. syst. errors
12/2009	8.28 ± 0.15	Gillessen et al. (2009b)	S stars, 1992–2008, combined ESO/Keck data sets; syst. unc. 0.29 kpc
12/2009	8.34 ± 0.27	Gillessen et al. (2009b)	S2 only, 1992–2008, combined ESO/Keck data sets; syst. unc. 0.52 kpc
05/2011	8.0 ± 0.3	Yelda et al. (2011)	S2 only, 1995–2007; new distortion corrections
08/2012	7.7 ± 0.4	Morris et al. (2012)	S stars, 1995–2011
02/2013	8.2 ± 0.34	Gillessen et al. (2013)	5 S stars, 1992–2012
		Nuclear star cluster: Statistical parallaxes	
12 1995	8.21 ± 0.98	Huterer et al. (1995)	50 M giants
09 2000	8.2 ± 0.9	Genzel et al. (2000)	104 stars with proper motions; 71 stars with z velocities
09 2000	7.9 ± 0.85	Genzel et al. (2000)	Corrected for the effects of a central point mass
11 2003	7.2 ± 0.9	Eisenhauer et al. (2003)	Uniform, isotropic, phase-mixed system
12 2008	8.07 ± 0.35	Trippe et al. (2008)	664 late-type giants
05 2011	8.07 ± 0.32	Trippe et al. (2011)	Velocity dispersion; systematic uncertainty 0.13 kpc
12 2013	$8.12^{+0.43}_{-0.41}$	Do et al. (2013)	Isotropic velocity distribution
12 2013	8.92 ± 0.58	Do et al. (2013)	Anisotropic spherical Jeans models
12 2013	$8.46^{+0.42}_{-0.38}$	Do et al. (2013)	Combined with Ghez et al. (2008)
02 2015	8.27 ± 0.09	Chatzopoulos et al. (2015)	Systematic uncertainty 0.1 kpc
02 2015	8.33 ± 0.11	Chatzopoulos et al. (2015)	Combined with Gillessen et al. (2009a)

Косвенные методы





Результат

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