Table 1: Dynamical properties for each model. For each property, the Header Data Unit (HDU) in which it is stored, the name, its units, and a brief description are presented. The HDU ranging from 2 to 9 correspond to models JAM_{cyl} + MFL, JAM_{sph} + MFL, JAM_{cyl} + NFW, JAM_{sph} + NFW, JAM_{cyl} + fixedNFW, JAM_{sph} + fixedNFW, JAM_{cyl} + gNFW, JAM_{sph} + gNFW. The NFW profile is written as $\rho_{\rm DM}(r) = \rho_s \left(\frac{r}{r_s}\right)^{-1} \left(\frac{1}{2} + \frac{1}{2}\frac{r}{r_s}\right)^{-2}$, while the gNFW profile is written as $\rho_{\rm DM}(r) = \rho_s \left(\frac{r}{r_s}\right)^{\gamma} \left(\frac{1}{2} + \frac{1}{2}\frac{r}{r_s}\right)^{-\gamma-3}$. The properties with prefix 'nsa_' are taken from the NSA catalogue (Blanton & Roweis 2007; Blanton et al. 2011).

HDU (1)	Name (2)	Units (3)	Description (4)
0	Primary		Empty primary header
1	plate		The plate ID (e.g. 7443)
	ifudsgn		The IFU design ID (e.g.12703)
	plateifu		The plate+ifudsgn name (e.g. 7443-12703)
	mangaid		Unique MaNGA ID (e.g. 1-114145)
	obj_ra	degree	Right ascension of the science object in J2000
	obj_dec	degree	Declination of the science object in J2000
	ebvgal		E(B-V) value from sdss dust routine for this IFU
	target		Flag for subsample of MaNGA (Primary: 0, Secondary: 1, colour-Enhanced: 2)
	rmax_arcsec	arcsec	The kinematic data range, which is defined as the largest radius of the Voronoi bins
	DA	Mpc	Adopted angular-diameter distance, with a flat Universe of $\Omega_{\rm m} = 0.307$, $h = 0.677$ (Planck Collaboration et al. 2016)
	Re_arcsec_MGE	arcsec	Effective radius (projected circular half-light radius from MGE fitting, in SDSS r-band)
	Rmaj_arcsec_MGE	arcsec	Major axis of elliptical half-light isophote from MGE fitting, in SDSS r-band
	Lum_tot_MGE	$\lg(L_\odot)$	Total luminosity from MGE fitting, in SDSS r-band, not corrected for the Galactic and internal dust extinction
	Lambda_Re		Specific stellar angular momentum within elliptical half-light isophote, beam corrected⋆
	Sigma_Re	$\mathrm{km\,s^{-1}}$	Effective velocity dispersion within elliptical half-light isophote
	Eps_MGE		Ellipticity of the half-light isophote from MGE fitting
	PA_phot	degree	The photometric position angle (PA†) measured from MGE fitting, in SDSS r-band
	PA_kin	degree	The kinematic PA measured from MaNGA velocity field
	PA_kin_flag		The flag for kinematic PA (0 for unreliable, 1 for reliable)
	nsa_iauname		The accepted IAU name
	z		Redshift of the galaxy
	nsa_field		The SDSS field covering the target
	nsa_run		The SDSS run covering the target
	nsa_camcol		The SDSS camcol covering catalogue position
	nsa_version		The version of the NSA catalogue used to select these targets
	nsa_id		The NSAID field in the NSA catalogue v1
	nsa_nsaid_v1b		The NSAID of the target in the NSA_v1b_0_0_v2 catalogue (if applicable)
	nsa_sersic_absmag		Absolute magnitude estimates for FNugriz from K-corrections ($\Omega_{\rm m} = 0.3$, $\Omega_\Lambda = 0.7$, $h = 1$), the value is interpreted as $M - 5\lg h$
	nsa_elpetro_absmag		As nsa_sersic_absmag but from elliptical Petrosian apertures
	nsa_sersic_mass	$\lg(h^{-2}\,M_\odot)$	Stellar mass from K-correction fit for Sersic fluxes
	nsa_elpetro_mass	$\lg(h^{-2}\,M_\odot)$	Stellar mass from K-correction fit for elliptical Petrosian fluxes
	nsa_sersic_ba		Axial ratio b/a from 2D Sersic fit in SDSS r-band
	nsa_sersic_n		Sersic index from 2D Sersic fit in SDSS r-band
	nsa_sersic_phi	degree	Angle (E of N) of major axis in 2D Sersic fit (r-band)
	nsa_sersic_th50	arcsec	Sersic 50% light radius along major axis (r-band)
	nsa_sersic_flux	nanomaggies	2D Sersic fit flux in FNugriz (GALEX-SDSS photometric systems)
	Qual		Visual quality of JAM models, classified as -1, 0, 1, 2, 3 (from worst to best)
	drp3qual		Data reduction quality marked by DRP pipeline, 1 for high-quality, 0 for critical-quality or unusual quality

Continued on next page

⋆ Following eq. 5 of Graham et al. (2018)
† The standard astronomical PA measured counter-clockwise from the image Y-axis (assumed to coincide with North).

Table 1 – continued

HDU (1)	Parameters (2)	Units (3)	Description (4)
2	inc_deg	degree	Best-fit inclination angle (being 90° for edge-on)
(JAM_{cyl}+	beta_z		Best-fit radial velocity anisotropy in cylindrical coordinates
MFL)	log_ML_dyn	$lg(M_\odot/L_\odot)$	Best-fit dynamical mass-to-light ratio
	kappa		The ratio between modelled line-of-sight velocity field and the observed one
	log_Mt_Re	$lg(M_\odot)$	Enclosed total mass within a sphere of effective radius
	chi2_dof		The reduced chi-square of the best-fit model (The values are scaled to account for the effect of standard deviation of the χ^2 itself, should be only used in the comparison between different models)
	rhalf_arcsec	arcsec	Radius of the sphere which encloses half the total luminosity
	log_Mt_rhalf	$lg(M_\odot)$	Enclosed total mass within a sphere of 3D half-light radius
	MW_Gt_Re		Mass-weighted total density slope within a sphere of effective radius
	MW_Gt_rhalf		Mass-weighted total density slope within a sphere of 3D half-light radius
	Gt_Re		Average logarithmic total density slope between 0.1 and 1 effective radius
3	inc_deg	degree	Best-fit inclination angle (being 90° for edge-on)
(JAM_{sph}+	beta_r		Best-fit radial velocity anisotropy in spherical coordinates
MFL)	log_ML_dyn	$lg(M_\odot/L_\odot)$	Best-fit dynamical mass-to-light ratio
	kappa		The ratio between modelled line-of-sight velocity field and the observed one
	log_Mt_Re	$lg(M_\odot)$	Enclosed total mass within a sphere of effective radius
	chi2_dof		The reduced chi-square of the best-fit model (The values are scaled to account for the effect of standard deviation of the χ^2 itself, should be only used in the comparison between different models)
	rhalf_arcsec	arcsec	Radius of the sphere which encloses half the total luminosity
	log_Mt_rhalf	$lg(M_\odot)$	Enclosed total mass within a sphere of 3D half-light radius
	MW_Gt_Re		Mass-weighted total density slope within a sphere of effective radius
	MW_Gt_rhalf		Mass-weighted total density slope within a sphere of 3D half-light radius
	Gt_Re		Average logarithmic total density slope between 0.1 and 1 effective radius
4	inc_deg		Best-fit inclination angle (being 90° for edge-on)
(JAM_{cyl}+	beta_z		Best-fit radial velocity anisotropy in cylindrical coordinates
NFW)	log_ML_stellar	$lg(M_\odot/L_\odot)$	Best-fit stellar mass-to-light ratio
	log_rho_s	$lg(M_\odot\ kpc^{-3})$	The characteristic density of NFW profile
	rs	kpc	The break radius of NFW profile
	kappa		The ratio between modelled line-of-sight velocity field and the observed one
	log_Mt_Re	$lg(M_\odot)$	Enclosed total mass within a sphere of effective radius
	log_Ms_Re	$lg(M_\odot)$	Enclosed stellar mass within a sphere of effective radius
	log_Md_Re	$lg(M_\odot)$	Enclosed dark matter mass within a sphere of effective radius
	fdm_Re		Dark matter fraction within a sphere of effective radius
	log_ML_dyn_Re	$lg(M_\odot/L_\odot)$	Dynamical mass-to-light ratio within effective radius
	chi2_dof		The reduced chi-square of the best-fit model (The values are scaled to account for the effect of standard deviation of the χ^2 itself, should be only used in the comparison between different models)
	rhalf_arcsec	arcsec	Radius of the sphere which encloses half the total luminosity
	log_Mt_rhalf	$lg(M_\odot/L_\odot)$	Enclosed total mass within a sphere of 3D half-light radius
	log_Ms_rhalf	$lg(M_\odot/L_\odot)$	Enclosed stellar mass within a sphere of 3D half-light radius
	log_Md_rhalf	$lg(M_\odot/L_\odot)$	Enclosed dark matter mass within a sphere of 3D half-light radius
	MW_Gt_Re		Mass-weighted total density slope within a sphere of effective radius
	MW_Gs_Re		Mass-weighted stellar density slope within a sphere of effective radius
	MW_Gd_Re		Mass-weighted dark matter density slope within a sphere of effective radius
	MW_Gt_rhalf		Mass-weighted total density slope within a sphere of 3D half-light radius
	MW_Gs_rhalf		Mass-weighted stellar density slope within a sphere of 3D half-light radius
	MW_Gd_rhalf		Mass-weighted dark matter density slope within a sphere of 3D half-light radius
	Gt_Re		Average logarithmic total density slope between 0.1 and 1 effective radius
	Gs_Re		Average logarithmic stellar density slope between 0.1 and 1 effective radius
	Gd_Re		Average logarithmic dark matter density slope between 0.1 and 1 effective radius
5	inc_deg		Best-fit inclination angle (being 90° for edge-on)
(JAM_{sph}+	beta_r		Best-fit radial velocity anisotropy in spherical coordinates
NFW)	log_ML_stellar	$lg(M_\odot/L_\odot)$	Best-fit stellar mass-to-light ratio
	log_rho_s	$lg(M_\odot\ kpc^{-3})$	The characteristic density of NFW profile

Continued on next page

Table 1 – continued

HDU (1)	Parameters (2)	Units (3)	Description (4)
	rs	kpc	The break radius of NFW profile
	kappa		The ratio between modelled line-of-sight velocity field and the observed one
	log_Mt_Re	lg($M_\odot$)	Enclosed total mass within a sphere of effective radius
	log_Ms_Re	lg($M_\odot$)	Enclosed stellar mass within a sphere of effective radius
	log_Md_Re	lg($M_\odot$)	Enclosed dark matter mass within a sphere of effective radius
	fdm_Re		Dark matter fraction within a sphere of effective radius
	log_ML_dyn_Re	lg($M_\odot/L_\odot$)	Dynamical mass-to-light ratio within effective radius
	chi2_dof		The reduced chi-square of the best-fit model (The values are scaled to account for the effect of standard deviation of the χ^2 itself, should be only used in the comparison between different models)
	rhalf_arcsec	arcsec	Radius of the sphere which encloses half the total luminosity
	log_Mt_rhalf	lg($M_\odot/L_\odot$)	Enclosed total mass within a sphere of 3D half-light radius
	log_Ms_rhalf	lg($M_\odot/L_\odot$)	Enclosed stellar mass within a sphere of 3D half-light radius
	log_Md_rhalf	lg($M_\odot/L_\odot$)	Enclosed dark matter mass within a sphere of 3D half-light radius
	MW_Gt_Re		Mass-weighted total density slope within a sphere of effective radius
	MW_Gs_Re		Mass-weighted stellar density slope within a sphere of effective radius
	MW_Gd_Re		Mass-weighted dark matter density slope within a sphere of effective radius
	MW_Gt_rhalf		Mass-weighted total density slope within a sphere of 3D half-light radius
	MW_Gs_rhalf		Mass-weighted stellar density slope within a sphere of 3D half-light radius
	MW_Gd_rhalf		Mass-weighted dark matter density slope within a sphere of 3D half-light radius
	Gt_Re		Average logarithmic total density slope between 0.1 and 1 effective radius
	Gs_Re		Average logarithmic stellar density slope between 0.1 and 1 effective radius
	Gd_Re		Average logarithmic dark matter density slope between 0.1 and 1 effective radius
6	inc_deg		Best-fit inclination angle (being 90° for edge-on)
(JAM_{cyl}+	beta_z		Best-fit radial velocity anisotropy in cylindrical coordinates
fixed NFW)	log_ML_stellar	lg($M_\odot/L_\odot$)	Best-fit stellar mass-to-light ratio
	log_rho_s	lg($M_\odot$ kpc^{-3})	The characteristic density of NFW profile
	rs	kpc	The break radius of NFW profile
	kappa		The ratio between modelled line-of-sight velocity field and the observed one
	log_Mt_Re	lg($M_\odot$)	Enclosed total mass within a sphere of effective radius
	log_Ms_Re	lg($M_\odot$)	Enclosed stellar mass within a sphere of effective radius
	log_Md_Re	lg($M_\odot$)	Enclosed dark matter mass within a sphere of effective radius
	fdm_Re		Dark matter fraction within a sphere of effective radius
	log_ML_dyn_Re	lg($M_\odot/L_\odot$)	Dynamical mass-to-light ratio within effective radius
	chi2_dof		The reduced chi-square of the best-fit model (The values are scaled to account for the effect of standard deviation of the χ^2 itself, should be only used in the comparison between different models)
	rhalf_arcsec	arcsec	Radius of the sphere which encloses half the total luminosity
	log_Mt_rhalf	lg($M_\odot/L_\odot$)	Enclosed total mass within a sphere of 3D half-light radius
	log_Ms_rhalf	lg($M_\odot/L_\odot$)	Enclosed stellar mass within a sphere of 3D half-light radius
	log_Md_rhalf	lg($M_\odot/L_\odot$)	Enclosed dark matter mass within a sphere of 3D half-light radius
	MW_Gt_Re		Mass-weighted total density slope within a sphere of effective radius
	MW_Gs_Re		Mass-weighted stellar density slope within a sphere of effective radius
	MW_Gd_Re		Mass-weighted dark matter density slope within a sphere of effective radius
	MW_Gt_rhalf		Mass-weighted total density slope within a sphere of 3D half-light radius
	MW_Gs_rhalf		Mass-weighted stellar density slope within a sphere of 3D half-light radius
	MW_Gd_rhalf		Mass-weighted dark matter density slope within a sphere of 3D half-light radius
	Gt_Re		Average logarithmic total density slope between 0.1 and 1 effective radius
	Gs_Re		Average logarithmic stellar density slope between 0.1 and 1 effective radius
	Gd_Re		Average logarithmic dark matter density slope between 0.1 and 1 effective radius
7	inc_deg		Best-fit inclination angle (being 90° for edge-on)
(JAM_{sph}+	beta_r		Best-fit radial velocity anisotropy in spherical coordinates
fixed NFW)	log_ML_stellar	lg($M_\odot/L_\odot$)	Best-fit stellar mass-to-light ratio
	log_rho_s	lg($M_\odot$ kpc^{-3})	The characteristic density of NFW profile
	rs	kpc	The break radius of NFW profile
	kappa		The ratio between modelled line-of-sight velocity field and the observed one
	log_Mt_Re	lg($M_\odot$)	Enclosed total mass within a sphere of effective radius

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Table 1 – continued

HDU (1)	Parameters (2)	Units (3)	Description (4)
	log_Ms_Re	lg($M_\odot$)	Enclosed stellar mass within a sphere of effective radius
	log_Md_Re	lg($M_\odot$)	Enclosed dark matter mass within a sphere of effective radius
	fdm_Re		Dark matter fraction within a sphere of effective radius
	log_ML_dyn_Re	lg($M_\odot/L_\odot$)	Dynamical mass-to-light ratio within effective radius
	chi2_dof		The reduced chi-square of best-fit model (The values are scaled to account for the effect of standard deviation of the χ^2 itself, should be only used in the comparison between different models)
	rhalf_arcsec	arcsec	Radius of the sphere which encloses half the total luminosity
	log_Mt_rhalf	lg($M_\odot/L_\odot$)	Enclosed total mass within a sphere of 3D half-light radius
	log_Ms_rhalf	lg($M_\odot/L_\odot$)	Enclosed stellar mass within a sphere of 3D half-light radius
	log_Md_rhalf	lg($M_\odot/L_\odot$)	Enclosed dark matter mass within a sphere of 3D half-light radius
	MW_Gt_Re		Mass-weighted total density slope within a sphere of effective radius
	MW_Gs_Re		Mass-weighted stellar density slope within a sphere of effective radius
	MW_Gd_Re		Mass-weighted dark matter density slope within a sphere of effective radius
	MW_Gt_rhalf		Mass-weighted total density slope within a sphere of 3D half-light radius
	MW_Gs_rhalf		Mass-weighted stellar density slope within a sphere of 3D half-light radius
	MW_Gd_rhalf		Mass-weighted dark matter density slope within a sphere of 3D half-light radius
	Gt_Re		Average logarithmic total density slope between 0.1 and 1 effective radius
	Gs_Re		Average logarithmic stellar density slope between 0.1 and 1 effective radius
	Gd_Re		Average logarithmic dark matter density slope between 0.1 and 1 effective radius
8	inc_deg		Best-fit inclination angle (being 90° for edge-on)
(JAM_{cyl}+	beta_z		Best-fit radial velocity anisotropy in cylindrical coordinates
gNFW)	log_ML_stellar	lg($M_\odot/L_\odot$)	Best-fit stellar mass-to-light ratio
	log_rho_s	lg($M_\odot$ kpc^{-3})	The characteristic density of gNFW profile
	rs	kpc	The break radius of gNFW profile
	gamma_gNFW		The inner density slope of gNFW profile
	kappa		The ratio between modelled line-of-sight velocity field and the observed one
	log_Mt_Re	lg($M_\odot$)	Enclosed total mass within a sphere of effective radius
	log_Ms_Re	lg($M_\odot$)	Enclosed stellar mass within a sphere of effective radius
	log_Md_Re	lg($M_\odot$)	Enclosed dark matter mass within a sphere of effective radius
	fdm_Re		Dark matter fraction within a sphere of effective radius
	log_ML_dyn_Re	lg($M_\odot/L_\odot$)	Dynamical mass-to-light ratio within effective radius
	chi2_dof		The reduced chi-square of the best-fit model (The values are scaled to account for the effect of standard deviation of the χ^2 itself, should be only used in the comparison between different models)
	rhalf_arcsec	arcsec	Radius of the sphere which encloses half the total luminosity
	log_Mt_rhalf	lg($M_\odot/L_\odot$)	Enclosed total mass within a sphere of 3D half-light radius
	log_Ms_rhalf	lg($M_\odot/L_\odot$)	Enclosed stellar mass within a sphere of 3D half-light radius
	log_Md_rhalf	lg($M_\odot/L_\odot$)	Enclosed dark matter mass within a sphere of 3D half-light radius
	MW_Gt_Re		Mass-weighted total density slope within a sphere of effective radius
	MW_Gs_Re		Mass-weighted stellar density slope within a sphere of effective radius
	MW_Gd_Re		Mass-weighted dark matter density slope within a sphere of effective radius
	MW_Gt_rhalf		Mass-weighted total density slope within a sphere of 3D half-light radius
	MW_Gs_rhalf		Mass-weighted stellar density slope within a sphere of 3D half-light radius
	MW_Gd_rhalf		Mass-weighted dark matter density slope within a sphere of 3D half-light radius
	Gt_Re		Average logarithmic total density slope between 0.1 and 1 effective radius
	Gs_Re		Average logarithmic stellar density slope between 0.1 and 1 effective radius
	Gd_Re		Average logarithmic dark matter density slope between 0.1 and 1 effective radius
9	inc_deg		Best-fit inclination angle (being 90° for edge-on)
(JAM_{sph}+	beta_r		Best-fit radial velocity anisotropy in spherical coordinates
gNFW)	log_ML_stellar	lg($M_\odot/L_\odot$)	Best-fit stellar mass-to-light ratio
	log_rho_s	lg($M_\odot$ kpc^{-3})	The characteristic density of gNFW profile
	rs	kpc	The break radius of gNFW profile
	gamma_gNFW		The inner density slope of gNFW profile
	kappa		The ratio between modelled line-of-sight velocity field and the observed one
	log_Mt_Re	lg($M_\odot$)	Enclosed total mass within a sphere of effective radius
	log_Ms_Re	lg($M_\odot$)	Enclosed stellar mass within a sphere of effective radius

Continued on next page

Table 1 – continued

HDU (1)	Parameters (2)	Units (3)	Description (4)
	log_Md_Re	lg($M_\odot$)	Enclosed dark matter mass within a sphere of effective radius
	fdm_Re		Dark matter fraction within a sphere of effective radius
	log_ML_dyn_Re	lg($M_\odot/L_\odot$)	Dynamical mass-to-light ratio within effective radius
	chi2_dof		The reduced chi-square of the best-fit model (The values are scaled to account for the effect of standard deviation of the χ^2 itself, should be only used in the comparison between different models)
	rhalf_arcsec	arcsec	Radius of the sphere which encloses half the total luminosity
	log_Mt_rhalf	lg($M_\odot/L_\odot$)	Enclosed total mass within a sphere of 3D half-light radius
	log_Ms_rhalf	lg($M_\odot/L_\odot$)	Enclosed stellar mass within a sphere of 3D half-light radius
	log_Md_rhalf	lg($M_\odot/L_\odot$)	Enclosed dark matter mass within a sphere of 3D half-light radius
	MW_Gt_Re		Mass-weighted total density slope within a sphere of effective radius
	MW_Gs_Re		Mass-weighted stellar density slope within a sphere of effective radius
	MW_Gd_Re		Mass-weighted dark matter density slope within a sphere of effective radius
	MW_Gt_rhalf		Mass-weighted total density slope within a sphere of 3D half-light radius
	MW_Gs_rhalf		Mass-weighted stellar density slope within a sphere of 3D half-light radius
	MW_Gd_rhalf		Mass-weighted dark matter density slope within a sphere of 3D half-light radius
	Gt_Re		Average logarithmic total density slope between 0.1 and 1 effective radius
	Gs_Re		Average logarithmic stellar density slope between 0.1 and 1 effective radius
	Gd_Re		Average logarithmic dark matter density slope between 0.1 and 1 effective radius

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