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Andromeda chained to the Box – Dynamical Models for M31: Bulge & Bar

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Общая схема структуры М 31

Dynamical Models for M31 - Bulge & Bar 5

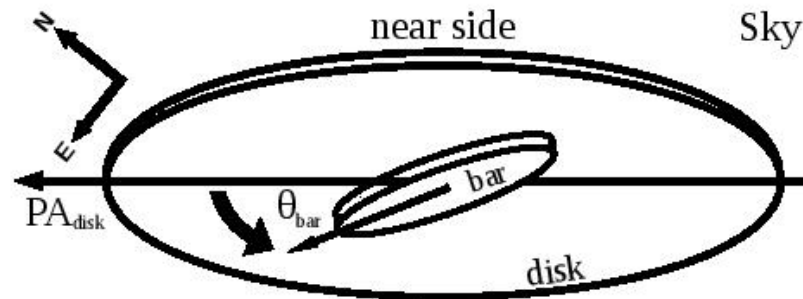


Figure 1. Schematic diagram of the orientation of the models. We project the models on the sky as M31, giving an inclination to the disk of $i=77^\circ$, locating the near side of the disk pointing to the north-west, and locating also the position angle of the projected major axis of the disk at $PA_{\text{disk}}=38^\circ$ anticlockwise from the north axis. The bar angle θ_{bar} is measured in the plane of the disk. The straight arrow shows the major axis of the bar that is aligned with the projected disk major axis when $\theta_{\text{bar}}=0^\circ$. The angle θ_{bar} increases anticlockwise, as shown by the curved arrow, until for $\theta_{\text{bar}}=90^\circ$ the bar is seen nearly end-on.

Подгонка фотометрии и кинематики

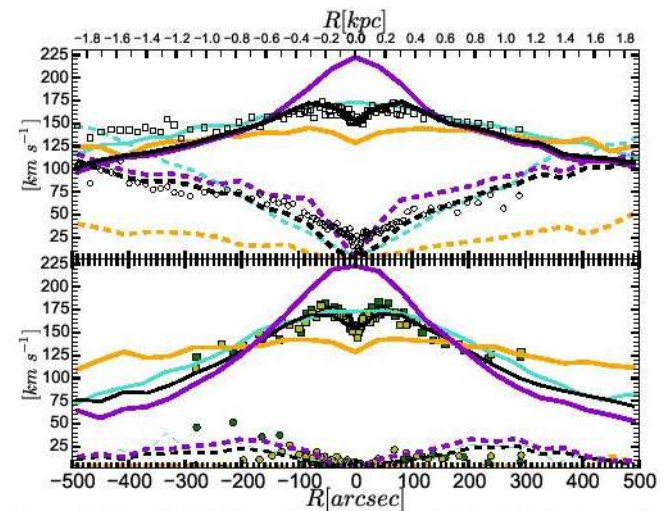
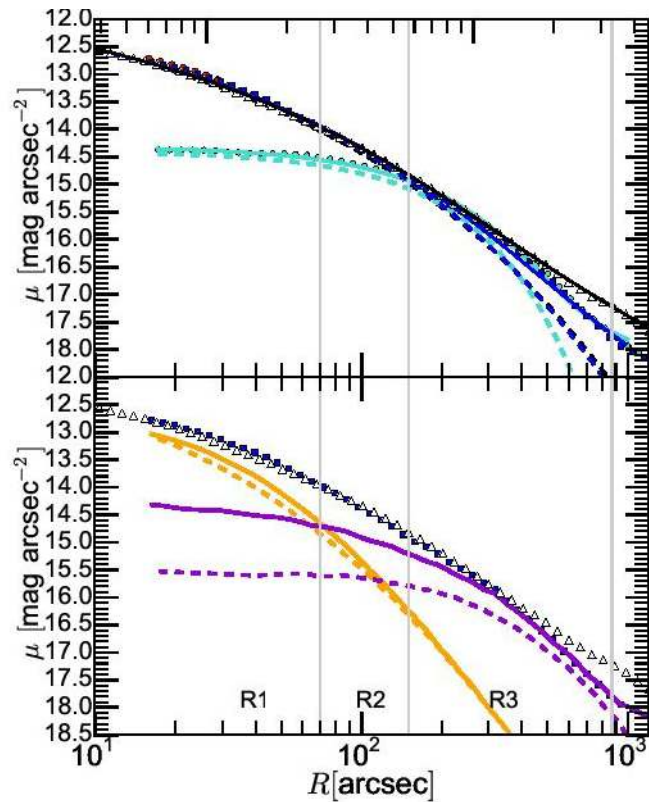


Figure 8. Line-of-sight kinematic profiles. We plot $|v_{\text{los}}|$ (dashed curves) and σ_{los} (solid curves), for Model 0 (cyan) and for Model 1 (black) (both at $600 u_1$). We also show the ICB component of Model 1 (orange) and the disk + B/P bulge component (purple). M31's $\sigma_{\text{los}}^{\text{fit}}$ (circles) and $|v_{\text{los}}^{\text{fit}}|$ (squares) for different PA. *Top panel:* M31 values measured along the photometric major axis of the bulge at PA=48° (Saglia et al. 2010). The kinematic profiles of Model 1 are calculated at the same PA. Positive velocities ($v_{\text{los}} > 0$ km s⁻¹) are located at the left side ($R < 0$ arcsec) and negative velocities at the right side. *Bottom panel:* M31 values measured at the minor axis of the bulge, at PA=138° (dark green), and values measured at PA=108° (light green). Here the kinematic profiles for Model 1 are calculated at PA=138°.

Все получилось в рамках модели: эвол. Бар + классический балдж

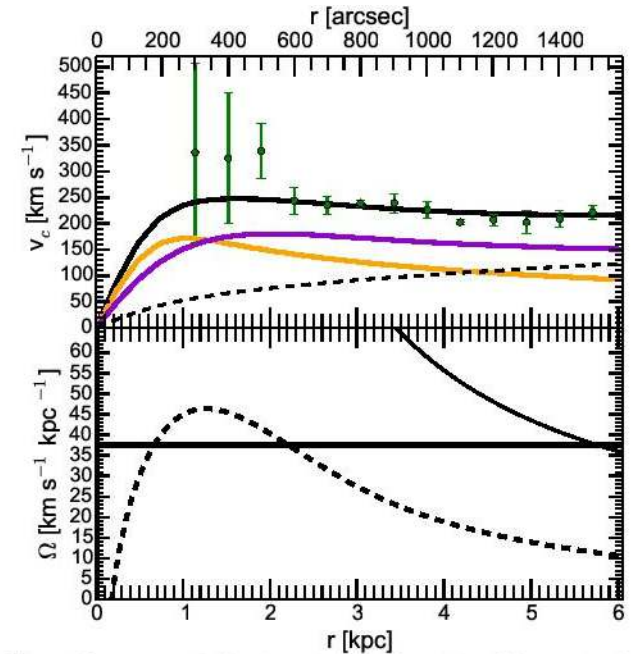
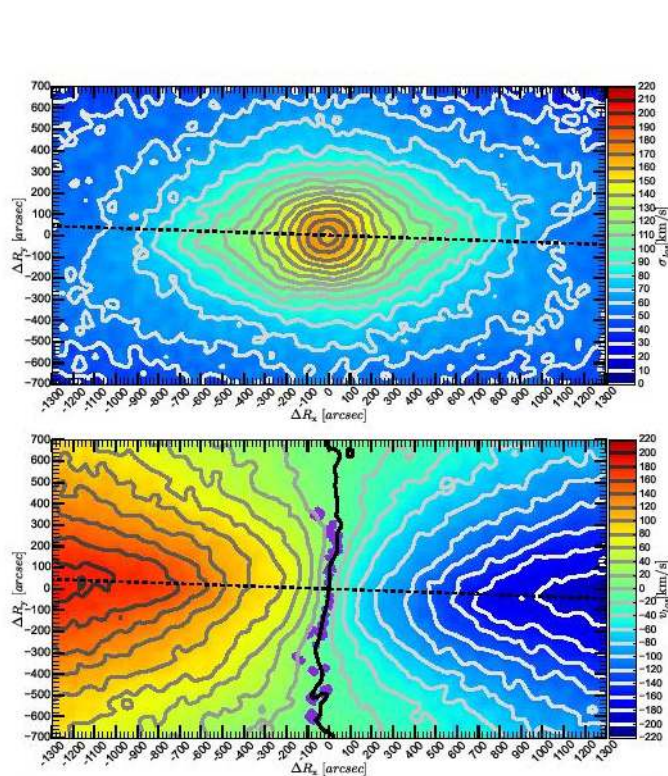


Figure 10. *Top panel:* Circular velocities of Model 1 ($600 u_i$) and M31. v_c curves of the different components of Model 1, the ICB (orange), the disk + B/P bulge (purple), the dark matter (dashed curve) and the total v_c (solid black curve). The rotation velocities estimated from HI observations (green dots) (Chemin et al, 2009). *Bottom panel:* The angular frequency profile (Ω) of Model 1 at $600 u_i$ (solid curve), and $\Omega_{\text{ILR}} = \Omega - \kappa/2$ (dashed curve). The pattern speed of the bar is $38 \text{ km s}^{-1} \text{ kpc}^{-1}$ (horizontal solid

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LETTER

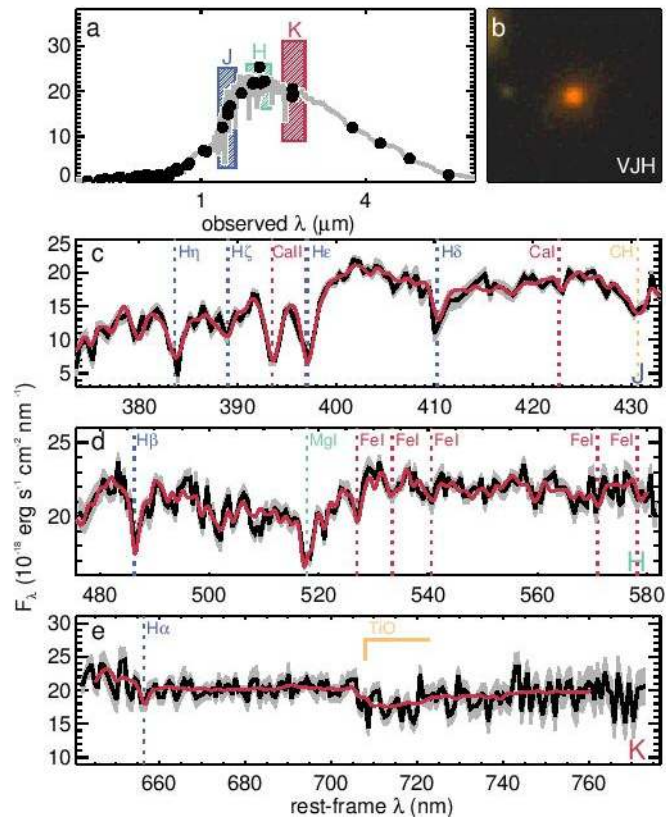
A massive, quiescent, population II galaxy at a redshift of 2.1

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Объект

We observed the galaxy COSMOS-11494 with the near-infrared multi-object spectrograph MOSFIRE on the *Keck I Telescope*⁸. It was also observed by two other programmes^{9,10}, and so we incorporated these publicly available archival data. COSMOS-11494 was selected from the 3D-HST survey^{11,12}. With a stellar mass M given by $\log_{10} M/M_{\odot} = 11.5 \pm 0.1$, COSMOS-11494 is among the most massive galaxies at its redshift, and it has a very low star-formation rate of less than $0.6 M_{\odot}/\text{yr}$ (see Methods). Similarly to the typical massive, quiescent galaxy at this redshift, it is smaller than its local counterparts of the same mass, with an effective radius of 2.1 kpc¹³. The MOS-

Спектр очень хороший



Результаты и модель

