

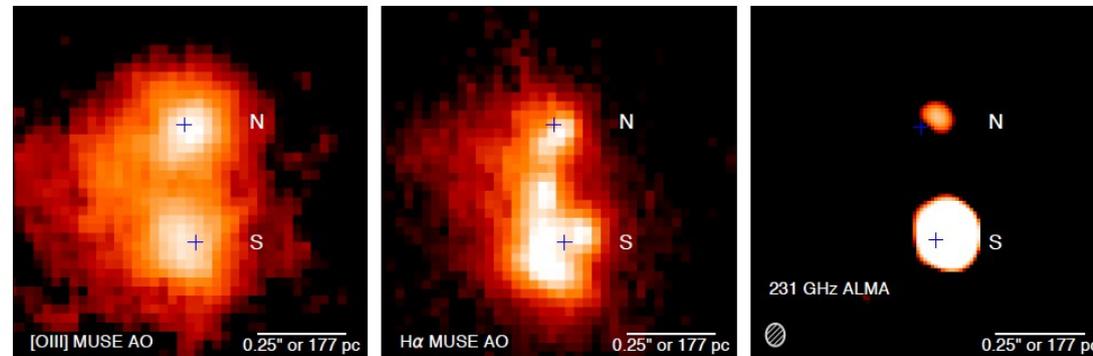
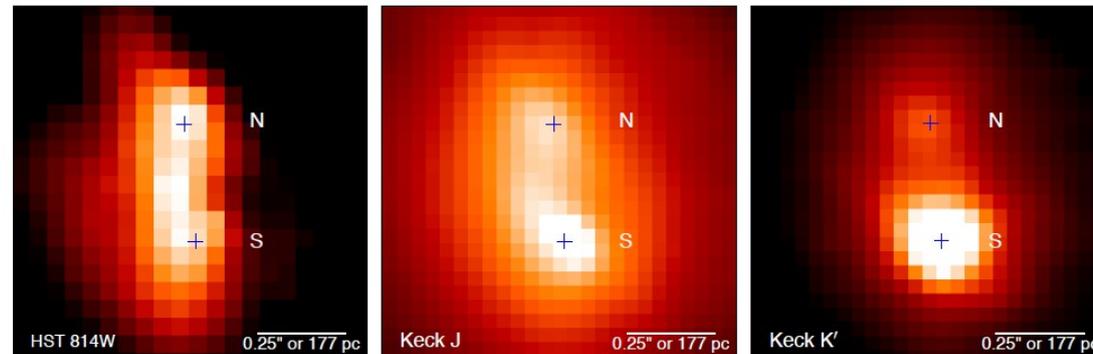
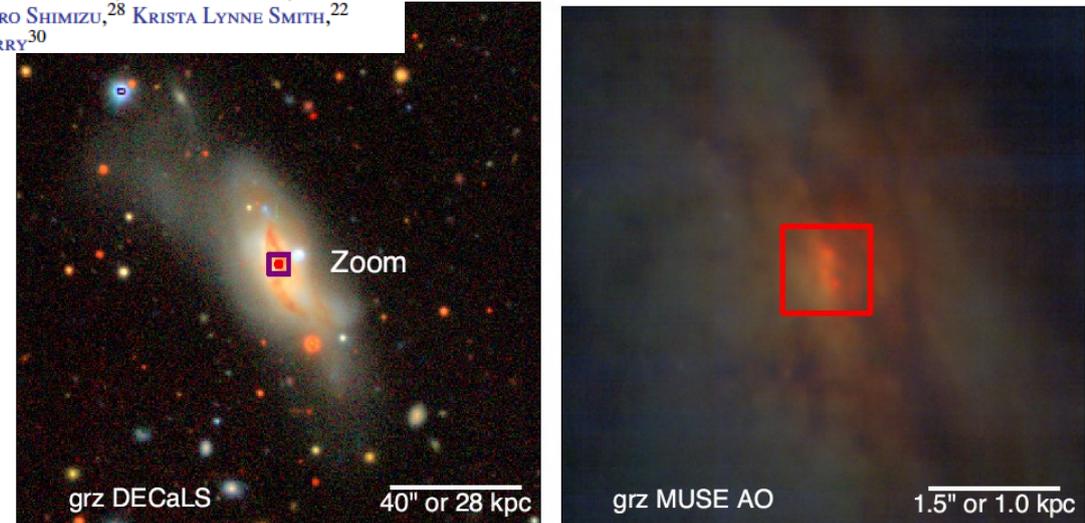
UGC 4211: A Confirmed Dual Active Galactic Nucleus in the Local Universe at 230 pc Nuclear Separation

2212.01239
ApJL, published

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$\chi = 0.03474$, $0.32'' = 230$ pc

Observatory	Instrument	Date	Range	Res (")	Exp. (ks)
NuSTAR		2017-03-11	3–70 keV	8	20.3
Chandra	ACIS	2019-02-08	0.5–8 keV	0.5	10
HST	WFC3	2021-01-21	2365 Å	0.08	1.05
HST	STIS	2017-02-05	2870–5680 Å	0.1	1.1
HST	STIS	2017-02-05	6480–7045 Å	0.1	1.4
VLT	MUSE	2021-11-30 to 2	4800–9300 Å	0.09–0.05	6.6
HST	ACS	2018-12-28	8045 Å	0.08	0.67
Keck	OSIRIS	2021-01-20	1.18–1.44 μm	0.2	2.4
Keck	OSIRIS	2017-11-02	1.47–1.80 μm	0.1	1.2
Keck	OSIRIS	2017-11-02	1.97–2.38 μm	0.1	3.6
ALMA		2021-10-24, 20	221–240 Ghz	~0.06	2.3
JVLA		2018-12-04	22 Ghz	1.7–1	0.6



Ближайшая, среди dual AGN, найденных в обзоре с помощью NIR AO ($\chi_{\text{ray}} > 10$ keV)

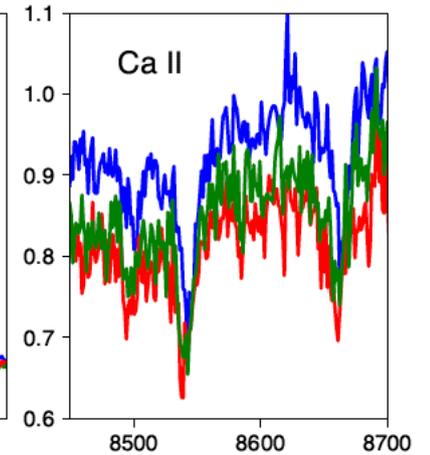
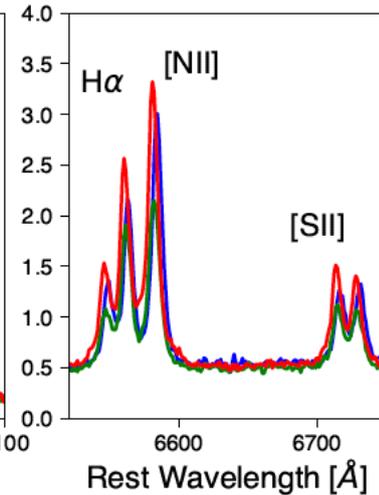
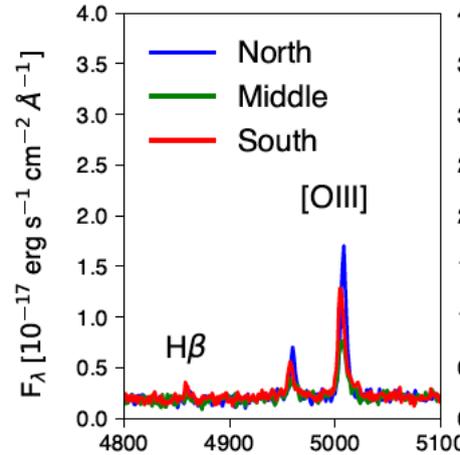
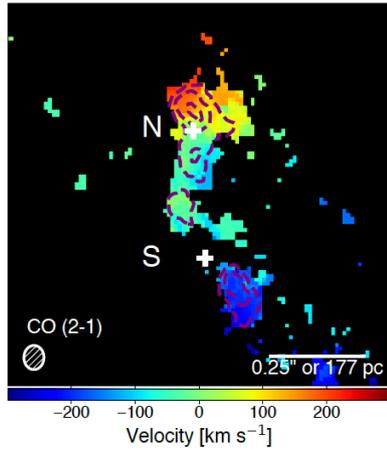
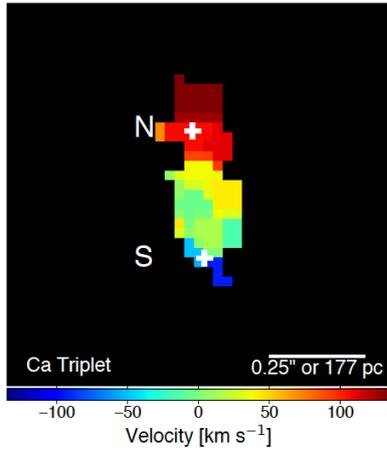
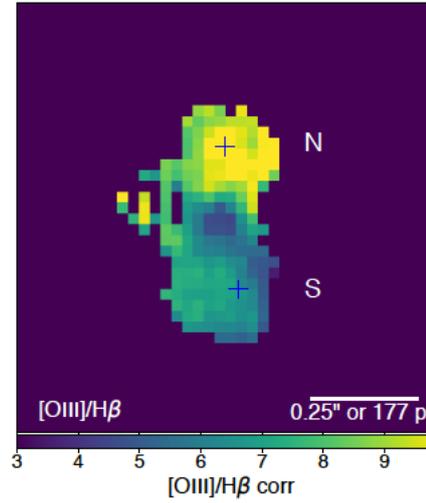
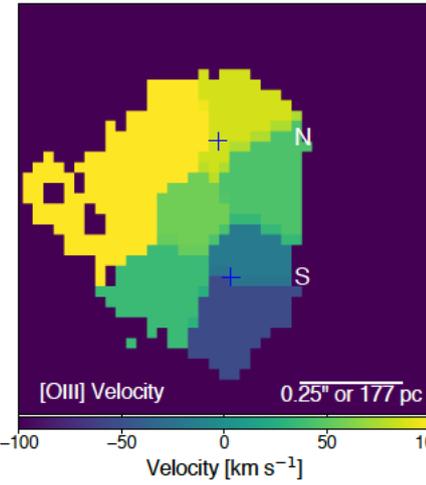
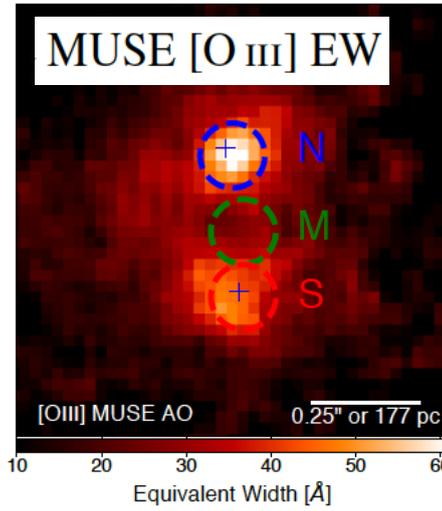
Оба ядра – Sy, но northern nucleus is powered by a harder radiation field

hidden BLR component (> 1000 km/s in S)

MUSE CaT:

$$\sigma_* = 200 \pm 14 \text{ km s}^{-1}$$

$$\sigma_* = 165 \pm 17 \text{ km s}^{-1}$$



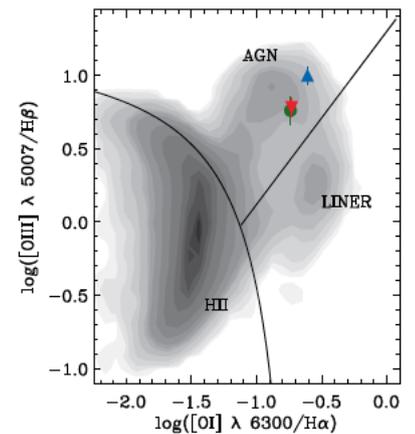
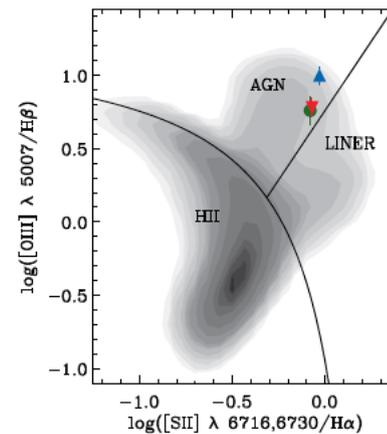
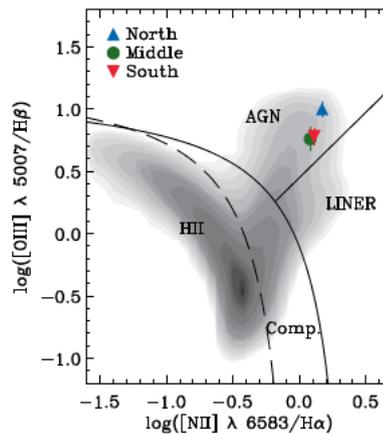
Массы ЧД

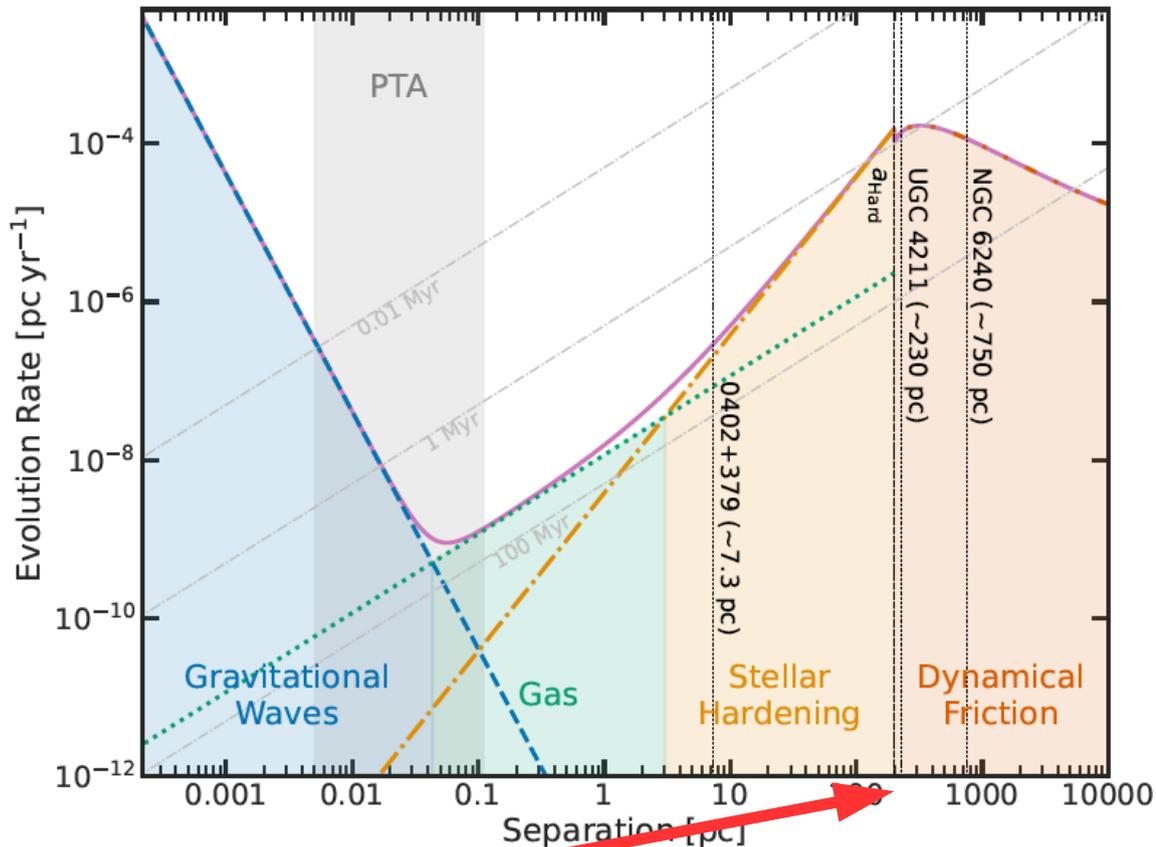
the σ_* relation derived by Kormendy & Ho (2013).

$$\log(M_{\text{BH}}/M_{\odot}) = 8.4 \text{ and } 8.1$$

$$L_{\text{bol}}/L_{\text{Edd}}=0.002$$

$$L_{\text{bol}}/L_{\text{Edd}}=0.1$$





Сценарий одиночной ЧД + ионизованное облако – не может объяснить весь набор данных, от радио до X-ray

Богатое приложение (X-ray, optics...)

Заканчивается фаза динамического трения, разделение ~ 6 радиусов влияния ЧД
 Далее – уменьшение расстояния за счет сближений со звездами

Оценки дают ~ 1 Gyr – для сближения без газа (газовых спиралей не видно), либо до 200 Myr при достаточном количестве газа.

И тогда – на краю частотного диапазона LISA, но ждть долго

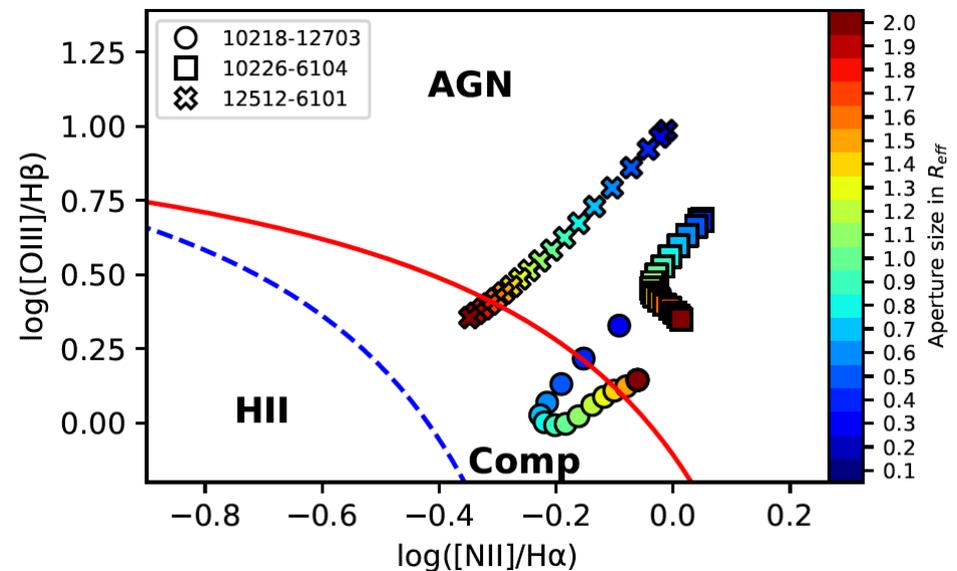
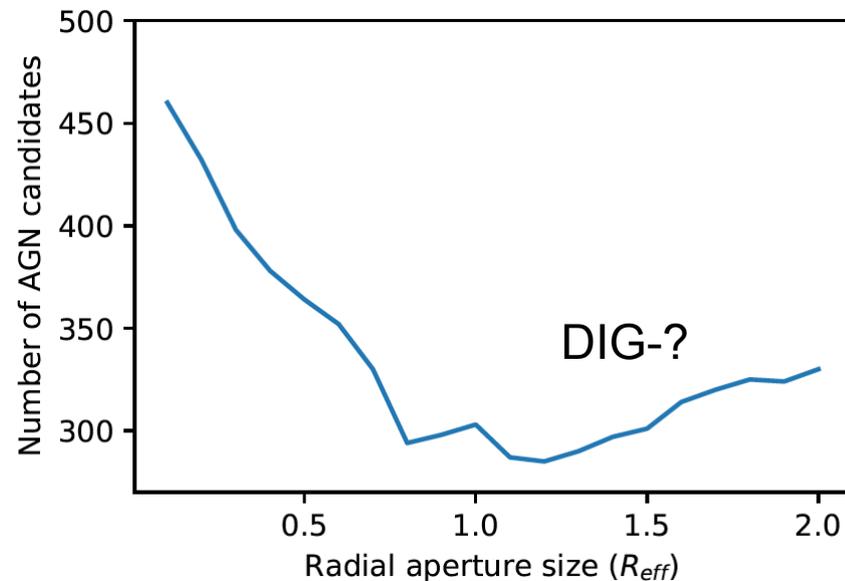
Classifying the full SDSS-IV MaNGA Survey using optical diagnostic diagrams: presentation of AGN catalogs in flexible apertures

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2302.08519
MNRAS

Zentrum für Astronomie der Universität Heidelberg, Astronomisches Rechen-Institut, Mönchhofstr, 12-14 69120 Heidelberg,

Работа хороша, разве тем, что есть сводка разных каталогов AGN в MaNGA (и разных релизов). Включая и основанные только на X-ray, radio, mid-IR



The AGN catalog will soon be available as supplementary material of the paper. In the meantime, we will provide this aperture-dependent optical classification (60 apertures) by private request (malban@unithis [http URL](http://URL)) **Не работает!**

Недооценка наших любимых EELR ?!

This is commonly referred to as the narrow line region (NLR, see [Netzer 2015](#)). The typical sizes of the NLR have been studied over the past decades (e.g., [Bennert et al. 2006](#); [Chen et al. 2011](#); [Netzer 2015](#); [Padovani et al. 2017](#)), with a consensus of a lower limit between **hundreds of pc up to ~ 1 kpc of radius**. Therefore, the ionizing source of some AGN can be easily diluted even at small apertures.

Показательно,
что BPT – не все
решает

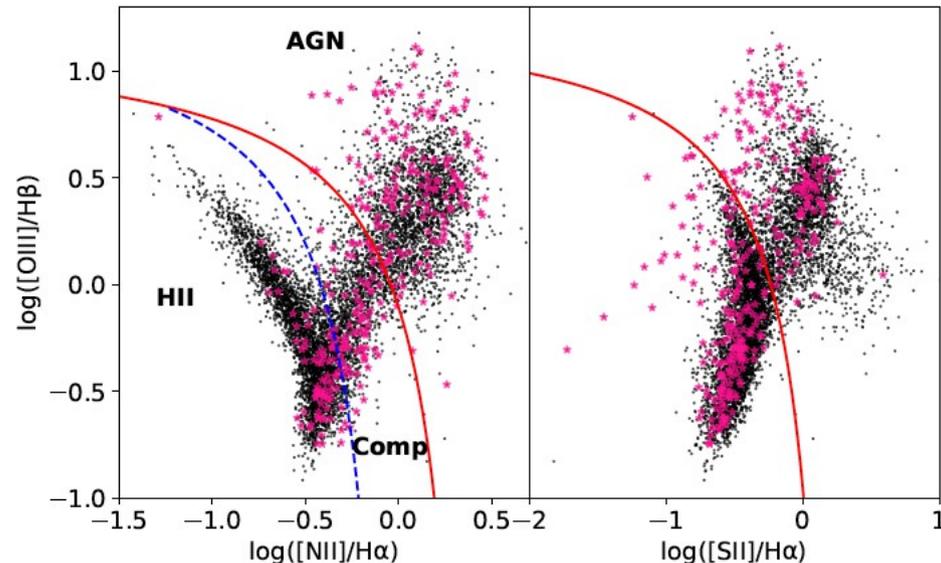


Fig. 14. We show our MaNGA BPT classification using a 2 kpc aperture. We highlight the multi-wavelength (based on radio, infrared, broad-line, and X-ray selection methods, see Section [2.5](#)) selected AGN candidates from [Comerford et al. \(2020\)](#) with pink-colored star-like symbols.