MW M31

Satellite >60 >30

M\* = -20 alpha - -1.0 M\*= -20 alpha = -1.21

Mass=3\*10^4 Msun = 3.5 \*10^4 Msun

dE(dwarf elliptical) 0 3

Circumgalactic Medium: Made of neutral hydrogen (content is same in both galaxies, HVCs and gas from LMC/M33)

Basically they are same

Let’s talk about stars now

MW M31

Stellar

Halo Order of 10\*7 Msun First difference, 8\*10\*\*9 Msun

I

Surface

Brightness alpha =2.9 alpha =2.2 not as bright

DISK Sbc Sb

STRUCTURE

Luminosity Lv=1.5\*10\*\*10 Lsun < Lv= 2.7 \*10\*\*10 Lsun = 10\*\*11 Msun

= 8 \*10\*\*10 Msun

Velocity

Dispersion <40 km/s < 30-100 km/s

Bulge “pseudo bulge “ < “boxy”/classical bulge

N-shaped 2.5 \*10\*\*10

10\*\*10 Msun

Bar yes yes

SMBH

(Supermassive

Black hole at centre) 4\*10\*\*6 Msun 5.33 \*10\*\*7Msun

SFR rate 1 Msun/year 1 Msun/year

Rotation curve VLSR

Peak rotation speed 230-240 km/h < 250-270 km/h

Halo Mass ~10\*\*12 Msun

0.9-12 2.5-3 \*10\*\*12 Msun