Modelovanje SAGA galaksija u infracrvenom delu spektra

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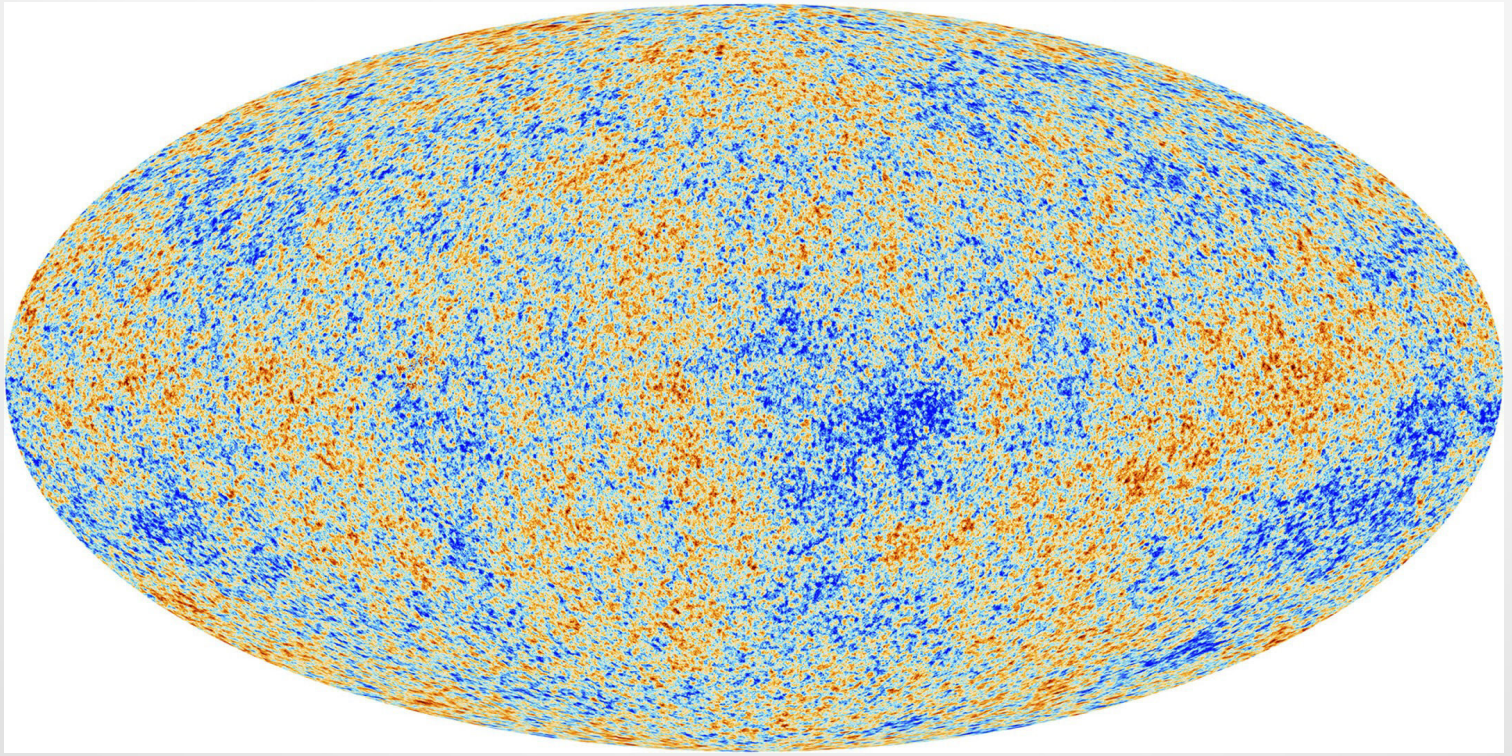
Uvod

- ΛCDM model
- Slaganje sa posmatranjima
- Motivacija rada



SAGA uzorak

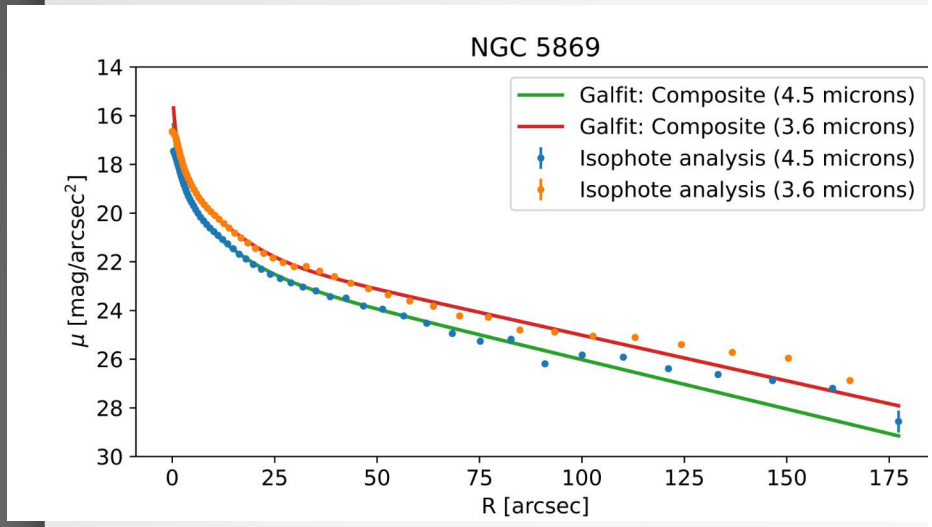
- *Satellites Around Galactic Analogs Survey*
- Do M < -12.3
- Za sad, 36 galaksija
- Naš uzorak: NGC5633, NGC5869, NGC6181, NGC6278

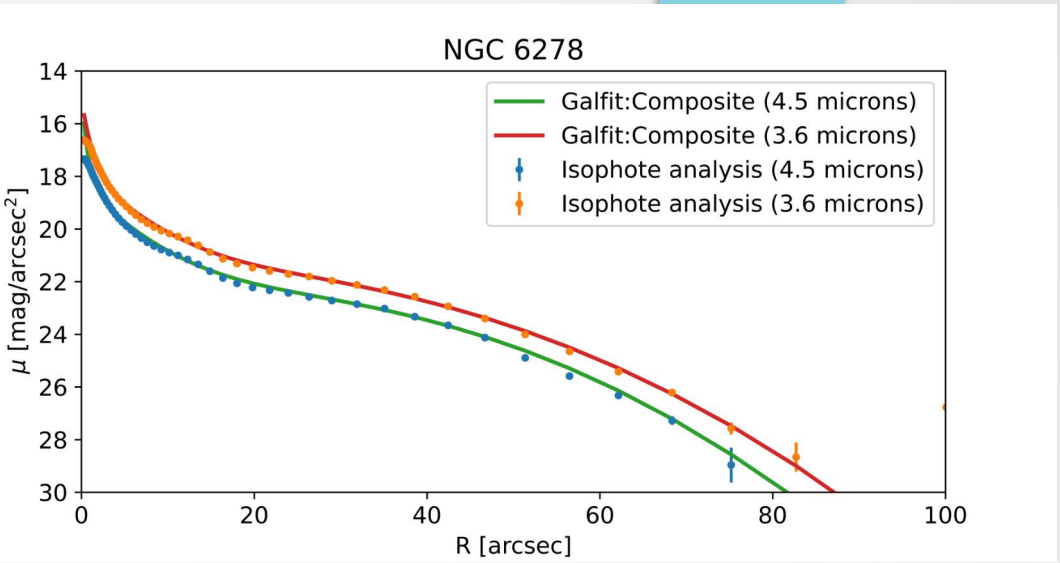


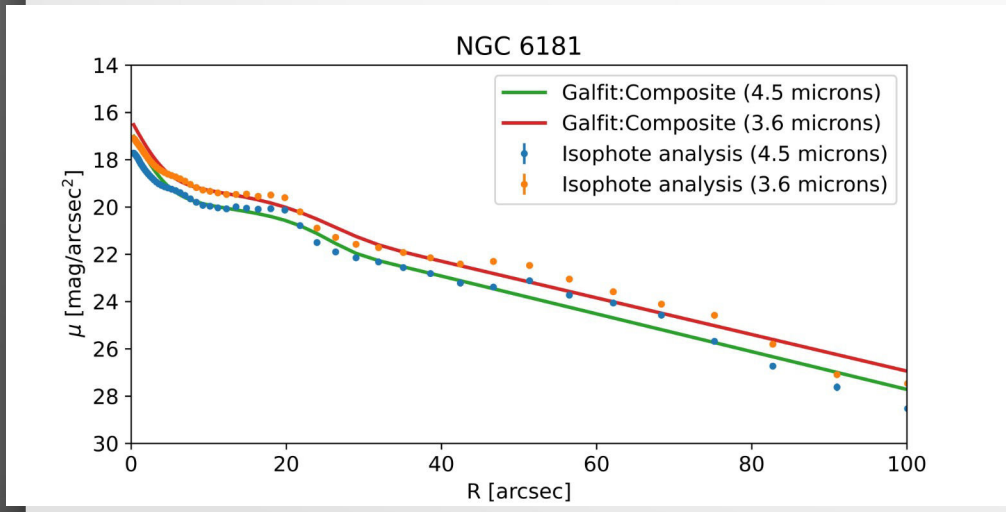

Podaci i obrada

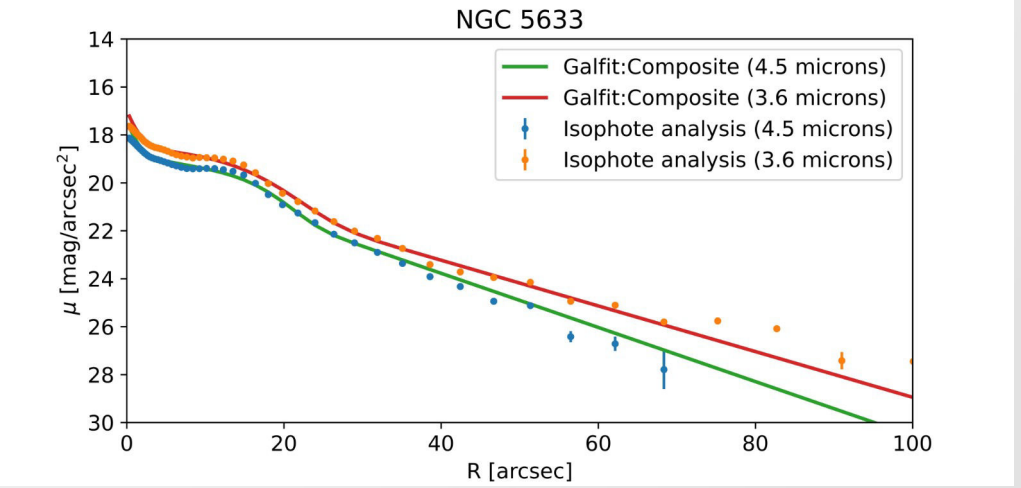
- *Spitzer Heritage Archive (SHA)* slike u 3.6μm i 4.5μm
- Maska dobijena uz pomoć *Source Extractor*-a
- IRAF-ov *ellipse* task
- GALFIT modelovanje

Rezultati

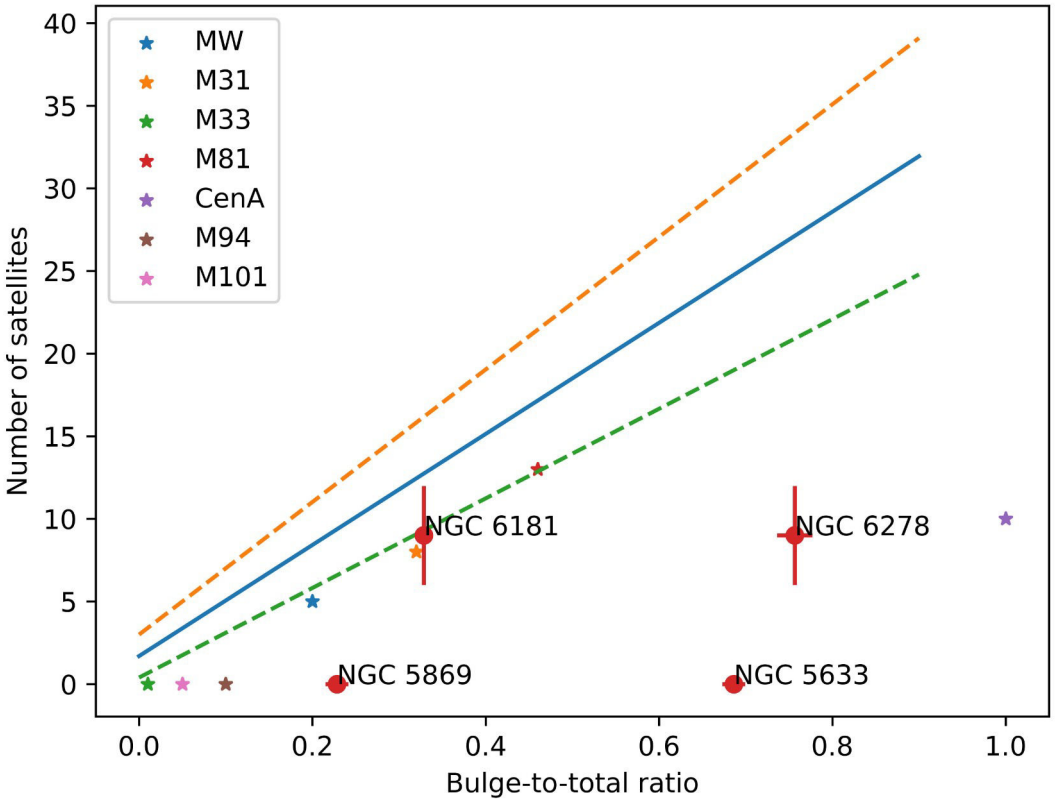

NGC 5869
Galfit: Composite (4.5 microns)
Galfit: Composite (3.6 microns)
Isophote analysis (4.5 microns)
Isophote analysis (3.6 microns)
μ [mag/arcsec²]
R [arcsec]


NGC 6278
Galfit:Composite (4.5 microns)
Galfit:Composite (3.6 microns)
Isophote analysis (4.5 microns)
Isophote analysis (3.6 microns)
μ [mag/arcsec²]
R [arcsec]


NGC 6181
Galfit:Composite (4.5 microns)
Galfit:Composite (3.6 microns)
Isophote analysis (4.5 microns)
Isophote analysis (3.6 microns)
μ [mag/arcsec²]
R [arcsec]


NGC 5633
Galfit:Composite (4.5 microns)
Galfit:Composite (3.6 microns)
Isophote analysis (4.5 microns)
Isophote analysis (3.6 microns)
μ [mag/arcsec²]
R [arcsec]

- Barionska masa = zvezdana masa + masa gasa
- $$\frac{\mathcal{M}_*}{\mathcal{M}_\odot} = 64.87 \times 10^{10} \times 10^{-0.4\cdot(m_{[3.6]}-m_{[4.5]})} \times 10^{-0.4\cdot m_{[3.6]}} \times D[\mathrm{Mpc}]^2$$
- Masa hladnog gasa = masa neutralnog vodonika + masa molekulskog gasa
- $$\mathcal{M}_{\mathrm{HI}}/\mathcal{M}_\odot = 2.36 \times 10^5 \; D[\mathrm{Mpc}]^2 \int \mathrm{F_{HI}} \; \mathrm{dV}$$


MW
M31
M33
M81
CenA
M94
M101
NGC 6181
NGC 6278
NGC 5869
NGC 5633
Number of satellites
Bulge-to-total ratio
0
5
10
15
20
25
30
35
40
0.0
0.2
0.4
0.6
0.8
1.0

- r = 0.19

Hvala na pažnji.