



*II Zwicky 23 and Family:
a Group in Interaction*

Elizabeth H. Wehner
McMaster University

*In collaboration with John S. Gallagher,
Phillip J. Cigan, and Gwen C. Rudie*

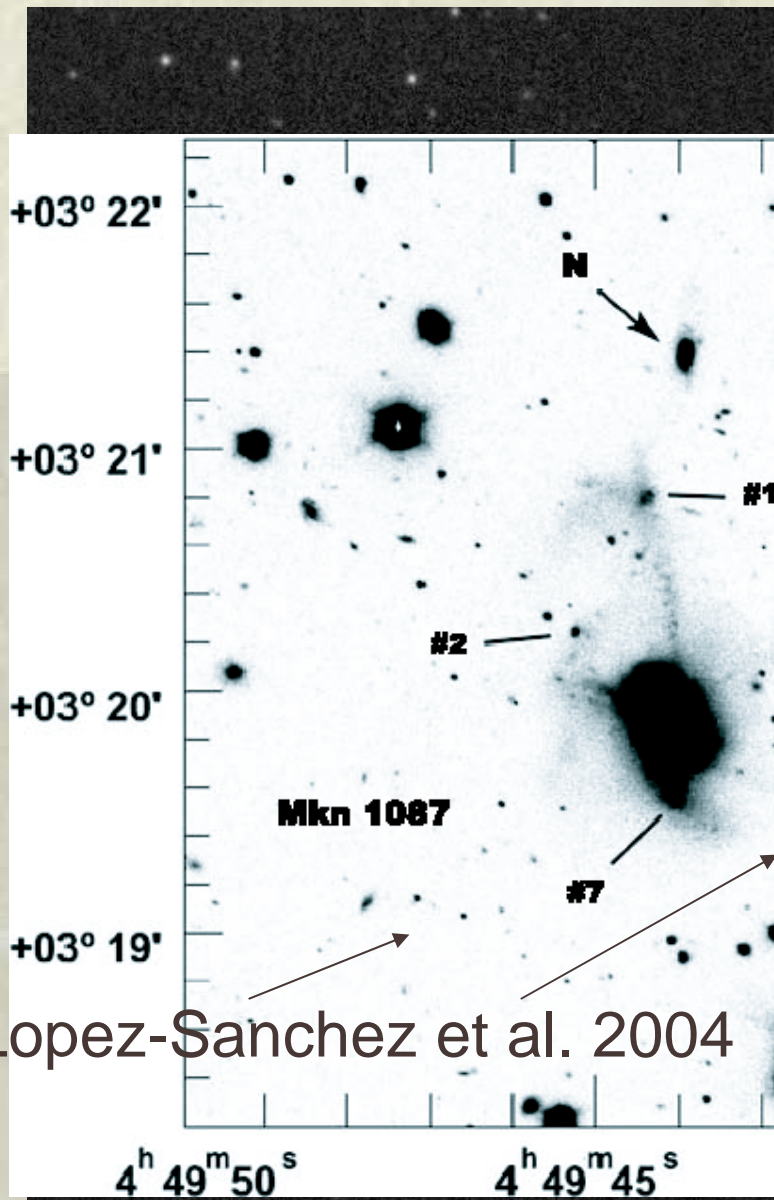
Groups of Galaxies in the Nearby Universe
Santiago, Chile -- December 2005

Outline

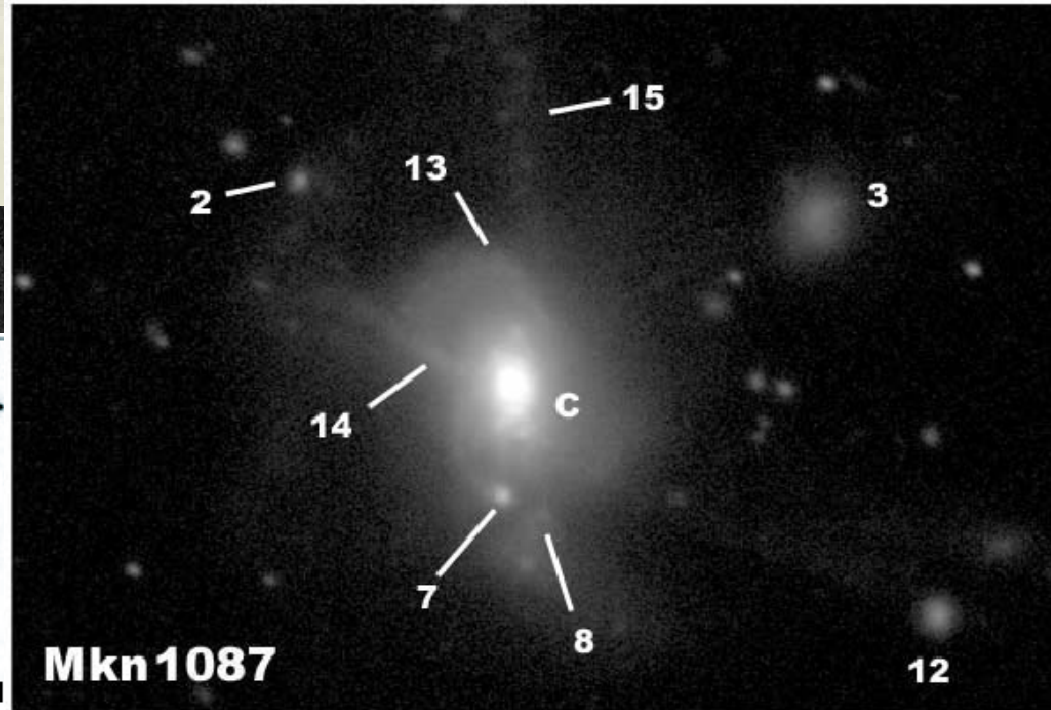
- ❖ Meet the Family!
- ❖ 2D Spectroscopy
 - Morphology
 - Rotation velocities
- ❖ H α narrow-band imaging
 - Equivalent widths
 - Structure of star formation
- ❖ Deep optical imaging
 - Low surface brightness extensions
 - Evidence of bridge?
 - Tidal dwarf, “N”
- ❖ Conclusions



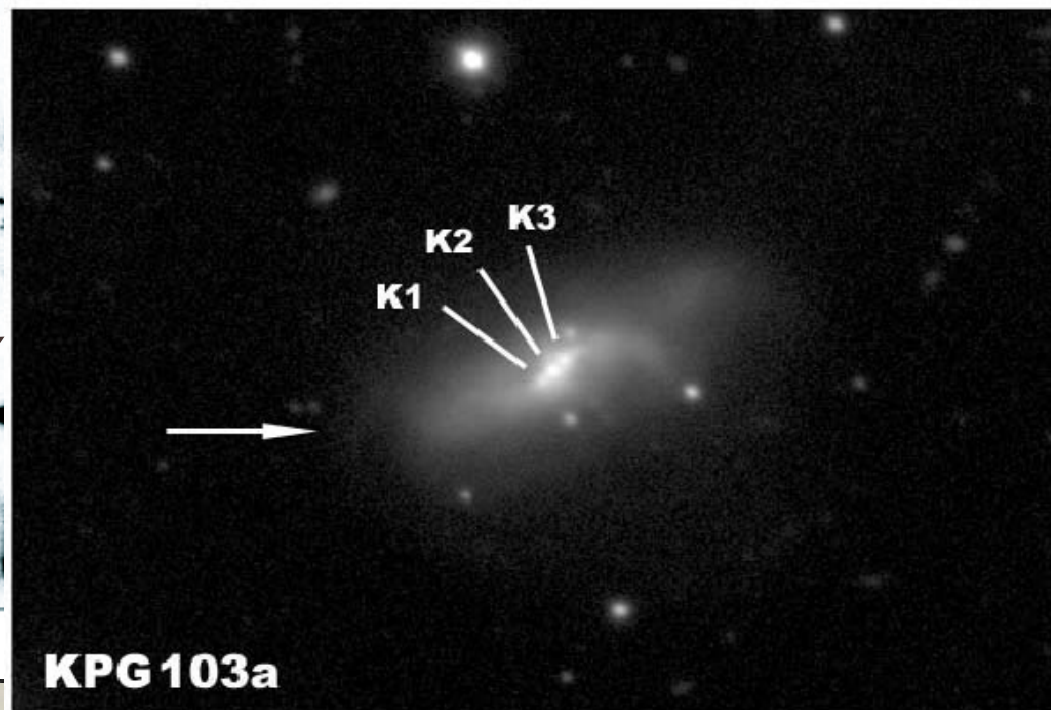
II Zwicky 23:



Lopez-Sanchez et al. 2004

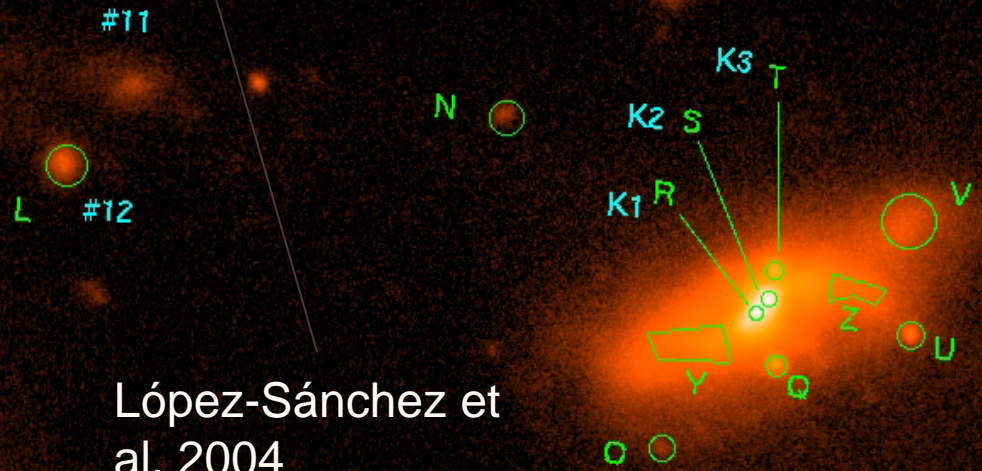
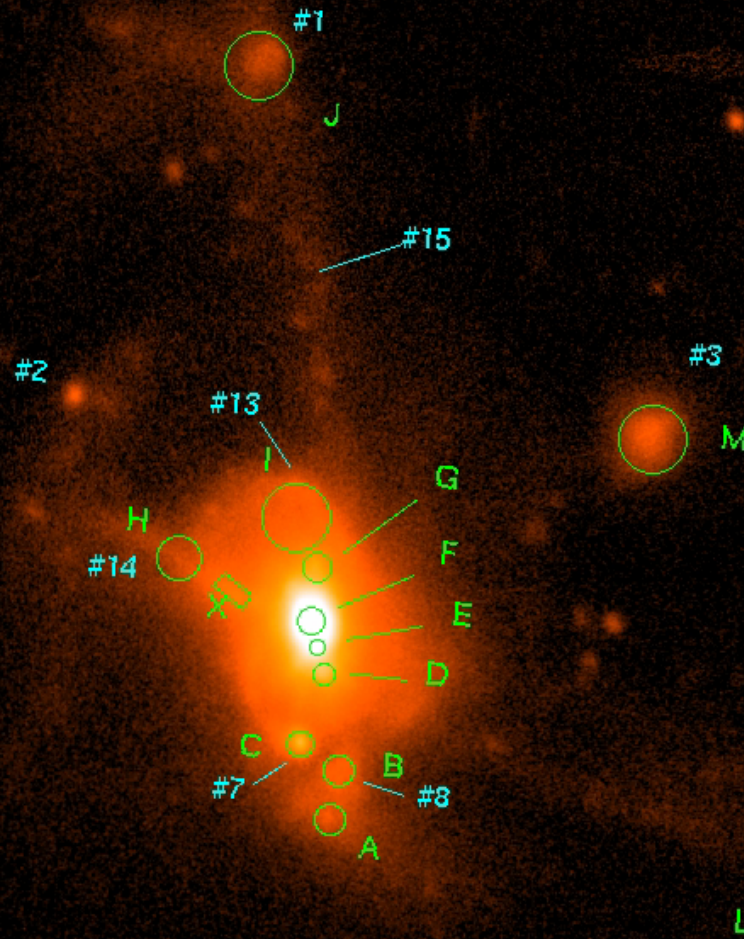
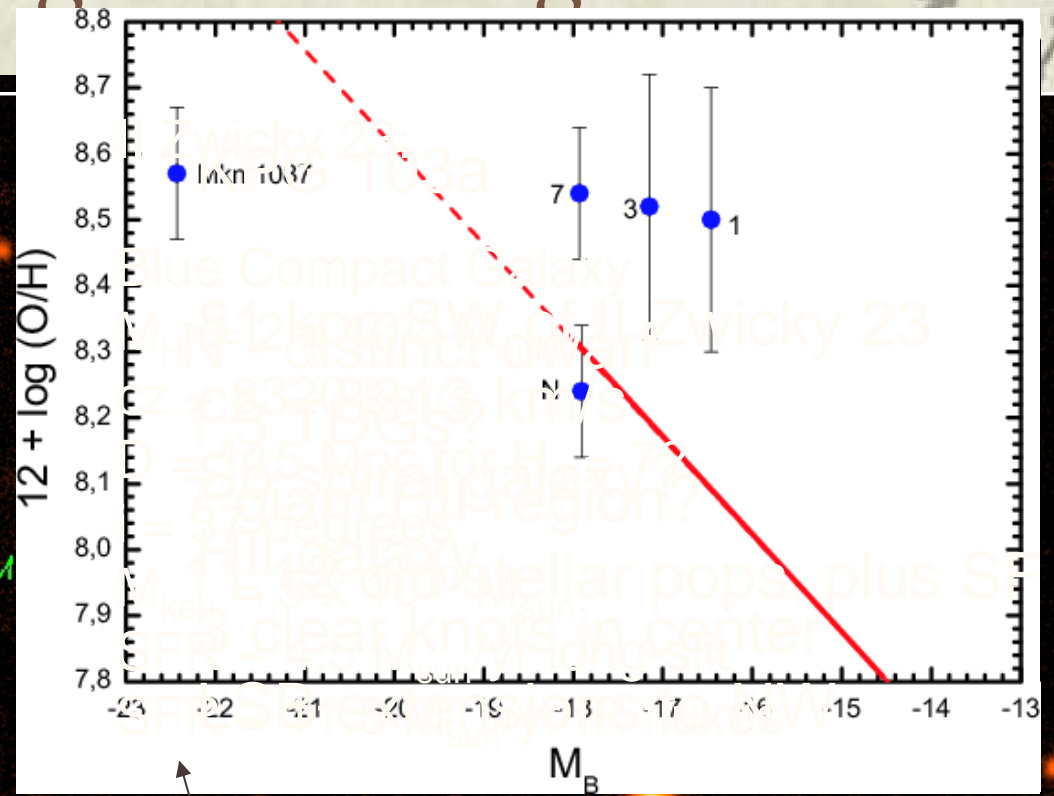


Mkn 1087



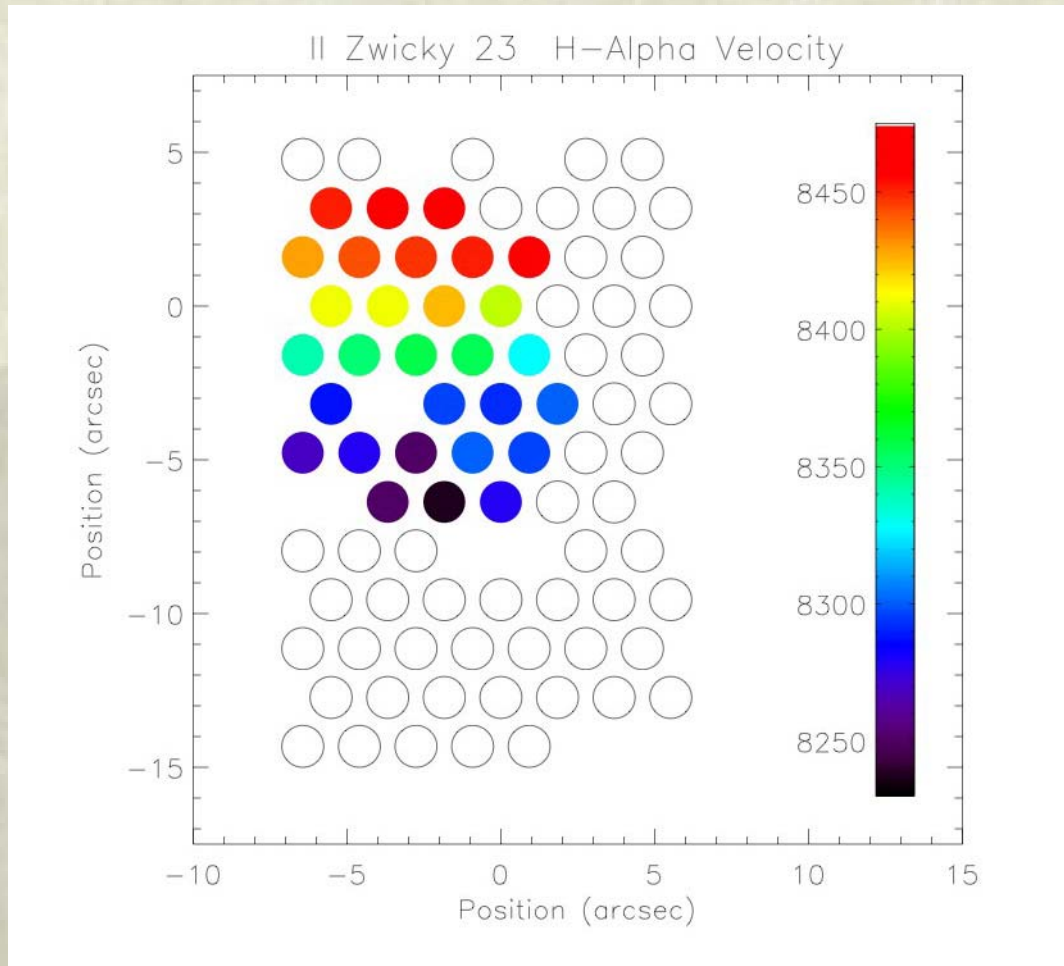
KPG 103a

B-Band Image - All Regions



López-Sánchez et al. 2004

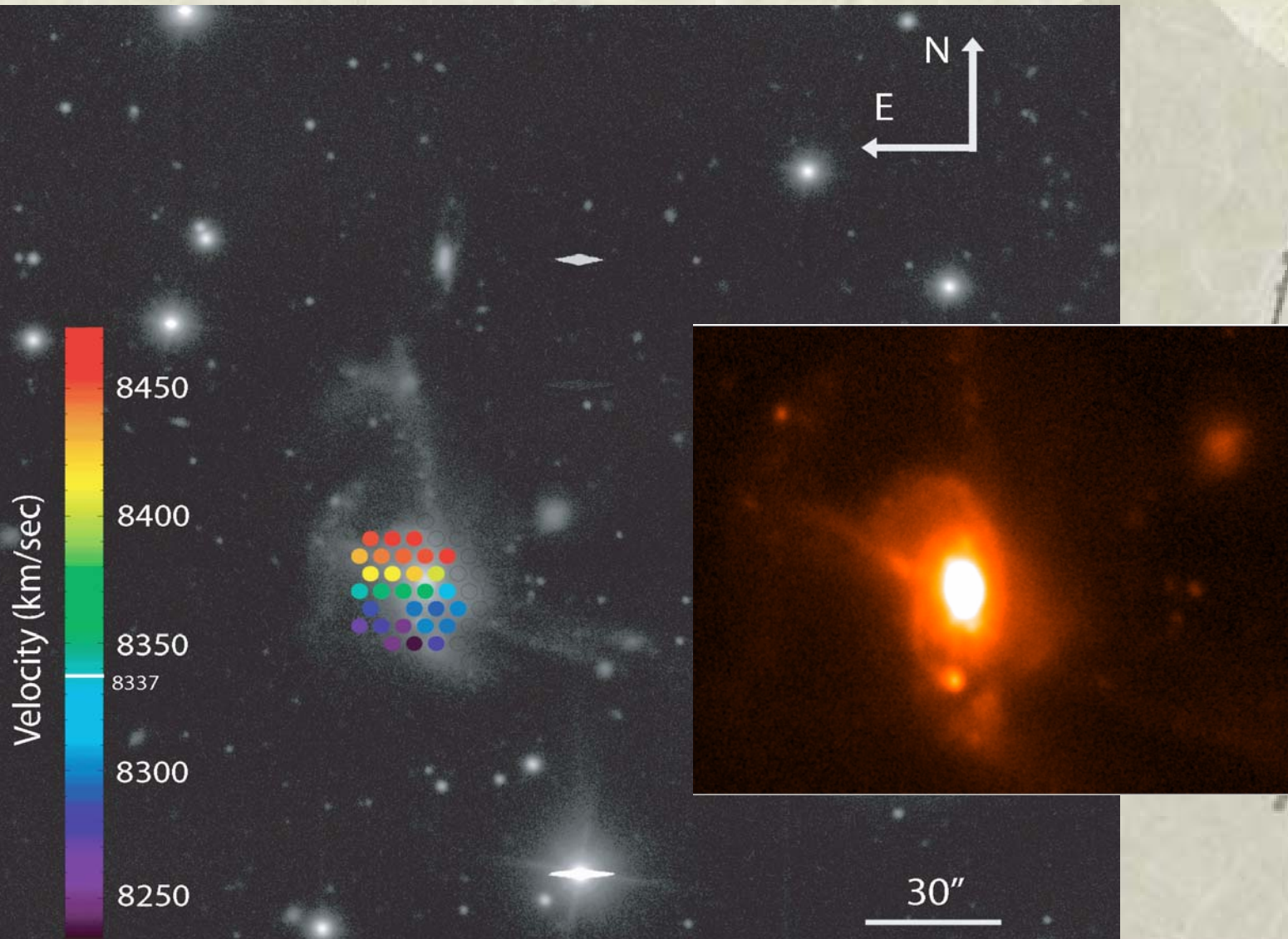
DensePak Velocity Map



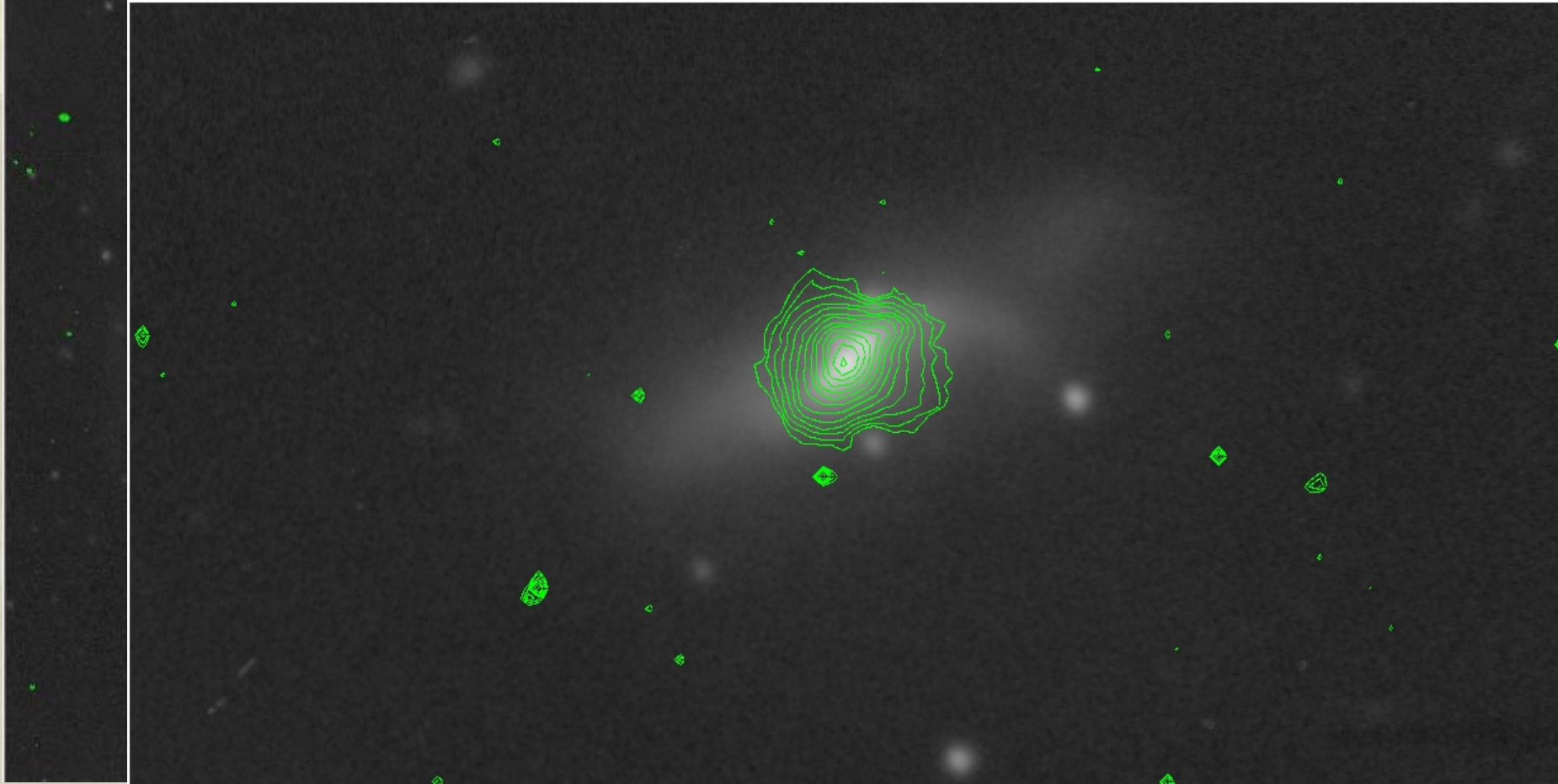
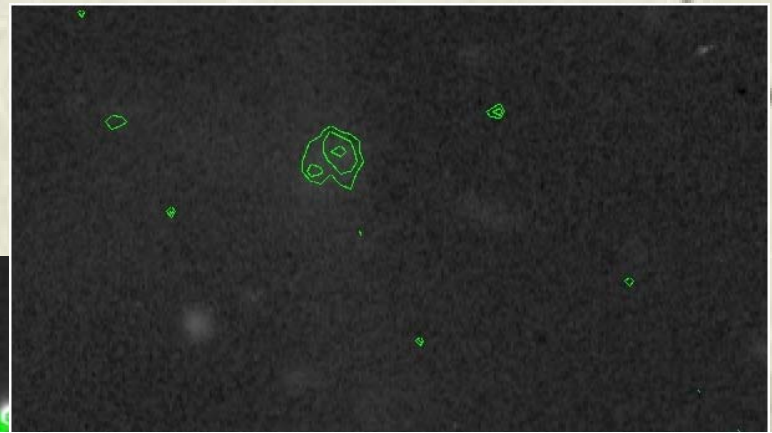
Δv across disk = 233 km/s

$\Delta v = 150$ km/s when $\Delta v = v_{\text{H}\alpha} - CZ$

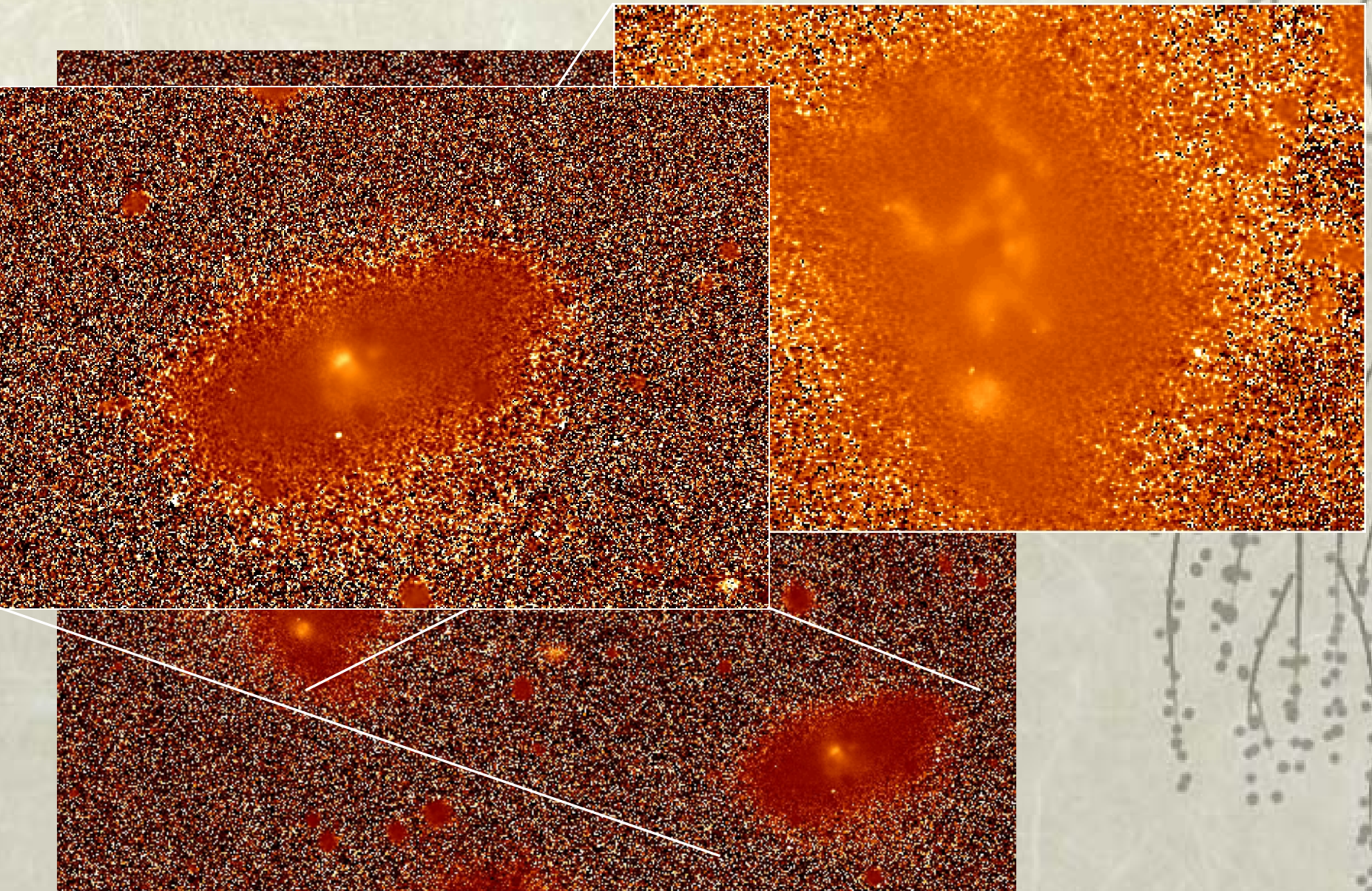
H α Velocity Map and Inner Disk



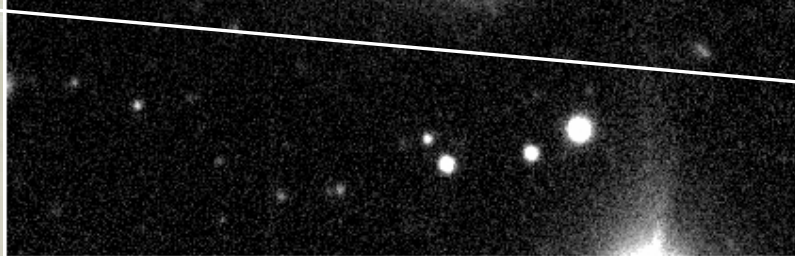
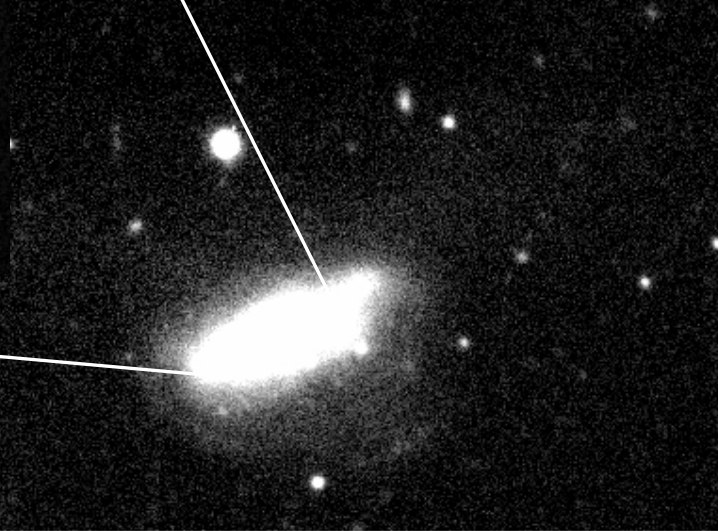
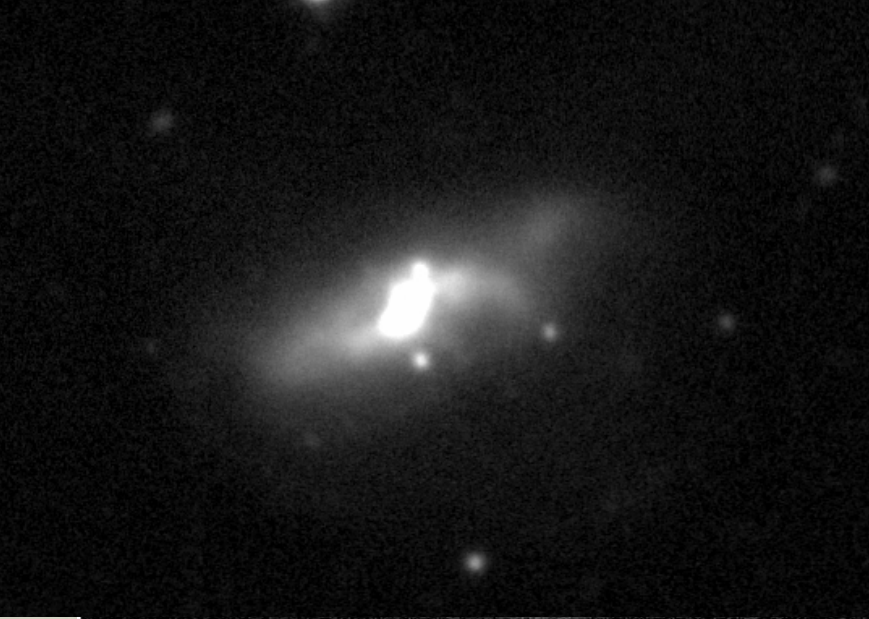
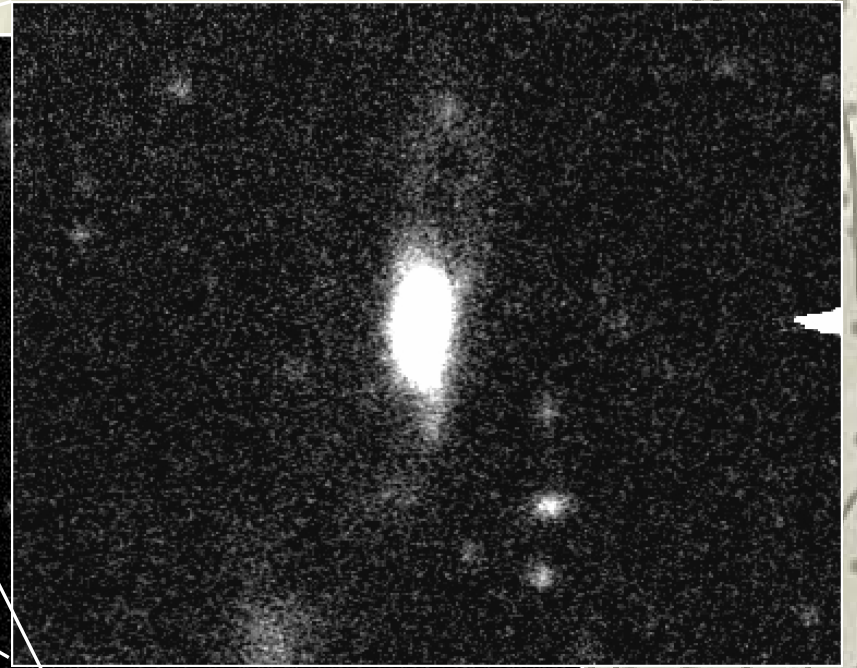
*R-band with
H α Contours*



$W_{H\alpha}$ Structure



Optical Imaging (B-band)



Conclusions

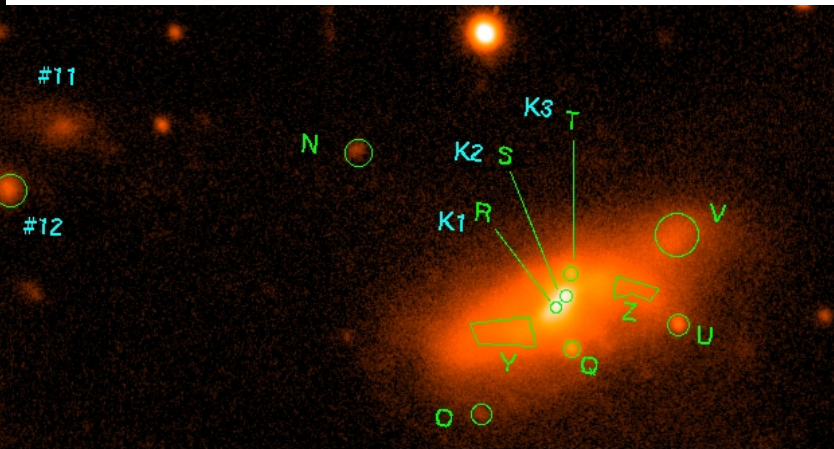
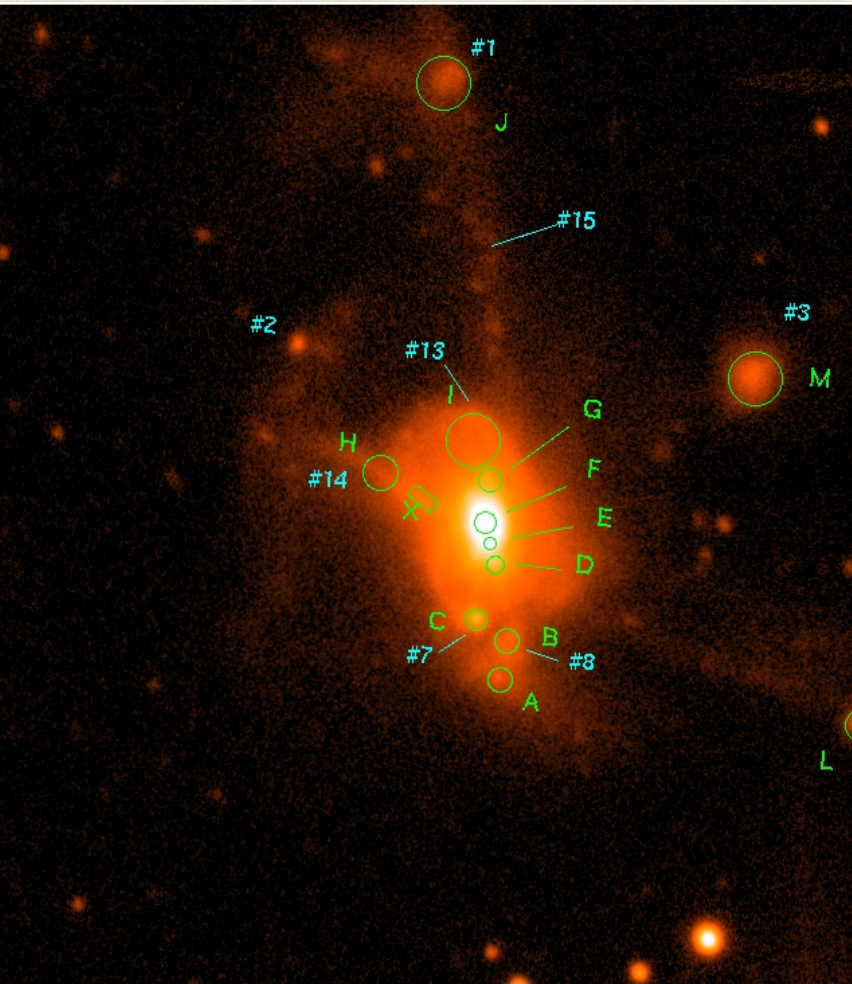
- ❖ 2D spectroscopy
 - supports classification of II Zw 23 as a spiral, disk galaxy
 - $\Delta v \sim 233$ km/s across fibers,
 - $(v-cz)_{\max} \sim 150$ km/s
- ❖ H α narrow-band imaging
 - Measured $W_{\text{H}\alpha}$ for each region
 - Lumpy structure in H α , follows debris and disk
 - Dwarf galaxy N has a high $W_{\text{H}\alpha}$
 - Region #7/C has most intense $W_{\text{H}\alpha}$ in group
- ❖ Optical imaging
 - II Zw 23 has possible disk-ripple structure
 - KPG103a has both small and large-scale stellar extensions to the W/NW
 - Tidal loop near N? Dwarf in disruption?

The End

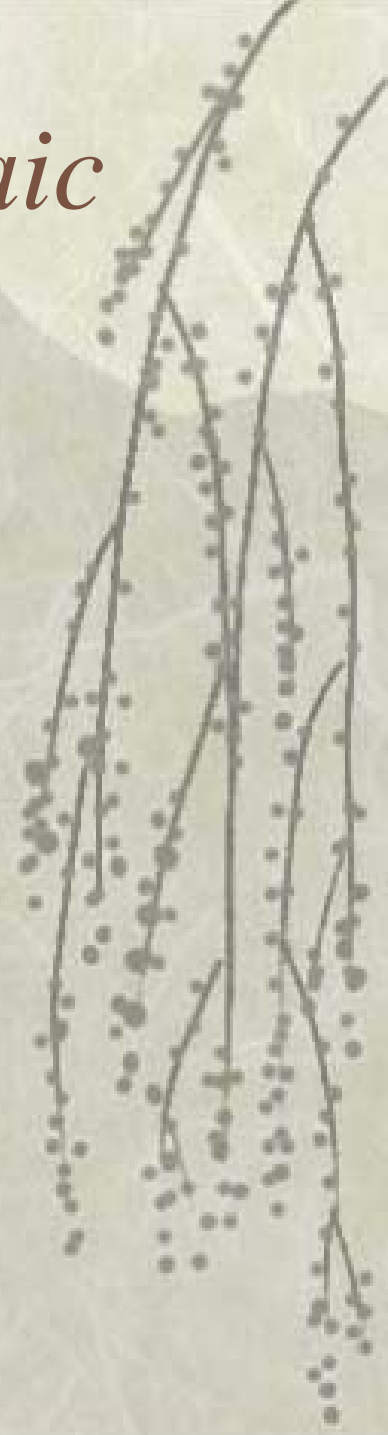
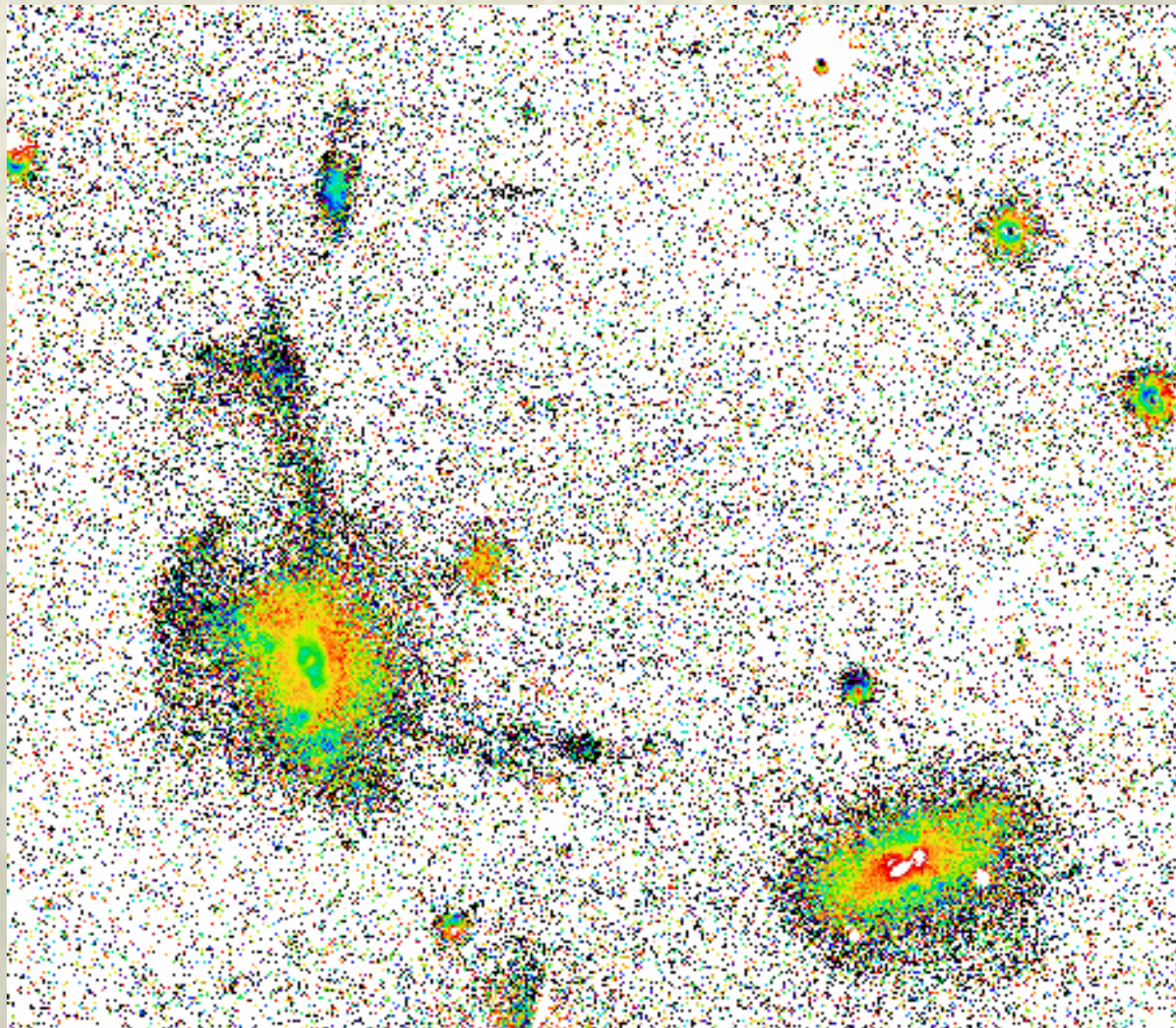


$W_{H\alpha}$

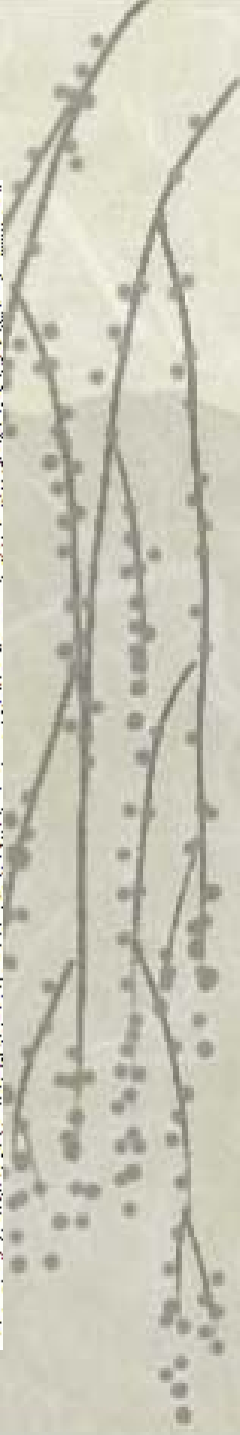
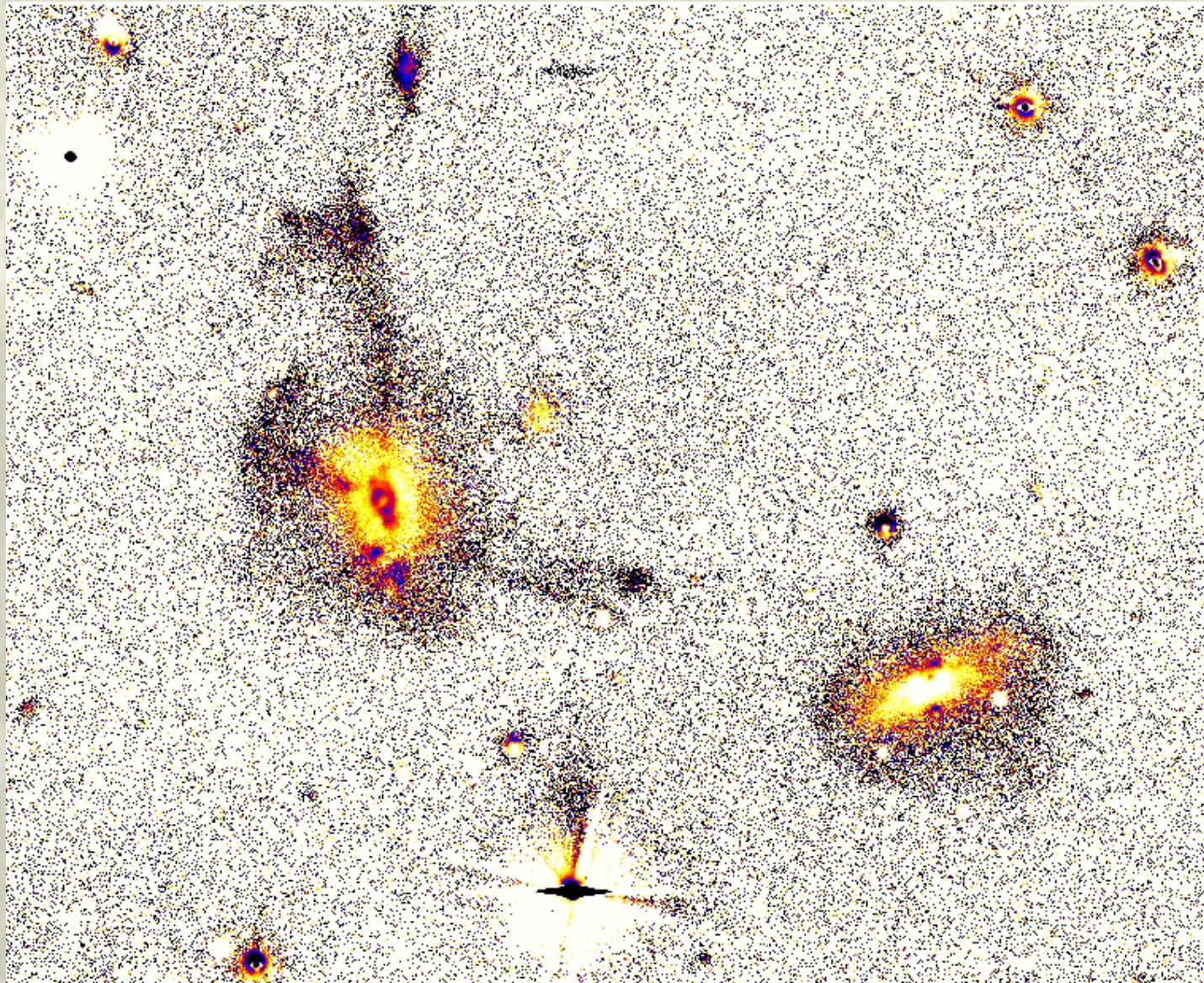
Region	B	R	$B - R$	μ_B	μ_R	$EW(H\alpha)$	$\langle EW(H\alpha) \rangle$ <i>perpix</i>
A	21.84	20.60	1.24	25.67	24.44	0	0
B	21.40	20.36	1.04	25.33	24.29	9.88	0.04
C	20.60	19.52	1.07	24.02	22.95	36.7	0.22
D	20.07	18.96	1.12	23.31	22.20	9.34	0.07
E	19.47	18.46	1.02	21.83	20.81	7.38	0.12
F	17.28	16.11	1.17	20.94	19.77	18.2	0.09
G	19.95	18.64	1.31	23.68	22.37	26.6	0.12
H	21.24	20.08	1.16	25.89	24.73	13.1	0.02
I	19.52	18.17	1.35	25.14	23.78	62.2	0.05
J	20.85	19.98	0.86	26.46	25.60	154	0.12
K	18.89	17.90	0.99	25.87	24.88	536	0.12
L	21.78	20.08	1.70	26.28	24.58	3.36	0.01
M	20.39	19.01	1.38	26.00	24.62	15.5	0.01
N	23.09	21.18	1.90	27.25	25.34	0	0
O	23.31	21.25	2.06	26.76	24.69	0	0
P	22.35	19.92	2.43	25.66	23.23	0	0
Q	21.49	20.37	1.12	24.41	23.29	0.185	0.00
R	20.02	18.22	1.80	22.26	20.46	8.93	0.16
S	19.99	18.45	1.53	22.25	20.72	5.00	0.09
T	21.08	19.81	1.26	23.61	22.35	0.758	0.01
U	22.04	19.56	2.48	25.66	23.18	0	0
V	20.65	19.40	1.25	25.76	24.51	0	0



B-R WIYN 3.5m MiniMosaic



B-R



B-R

