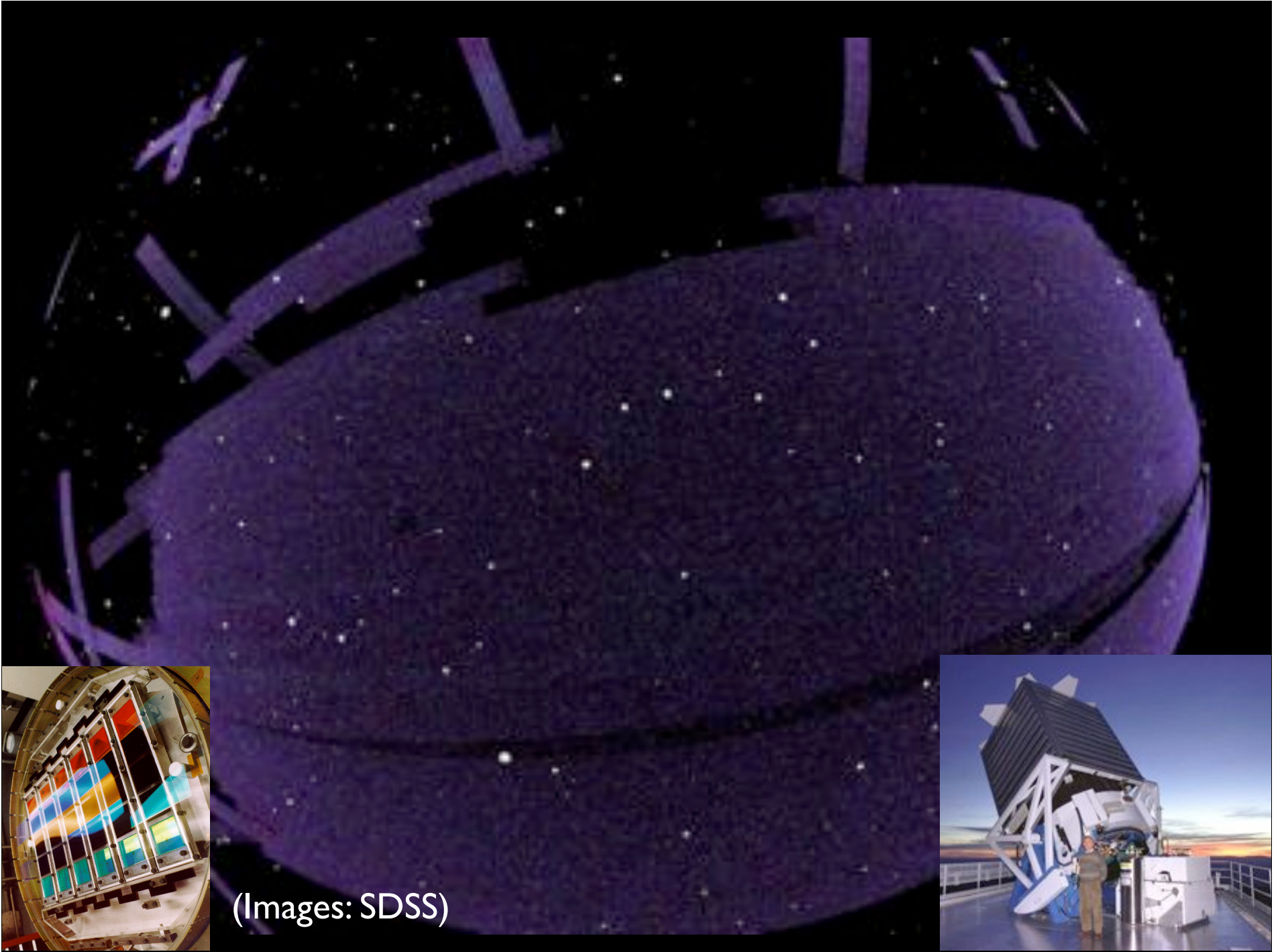
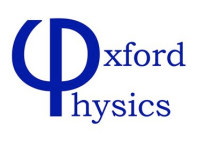


Astronomy for a Flat World
or
How a Dutch Schoolteacher found a Dead Quasar
or
What to do with 150,000 Free Research Assistants





(Images: SDSS)



or, what to do with more than 125,000 research assistants.

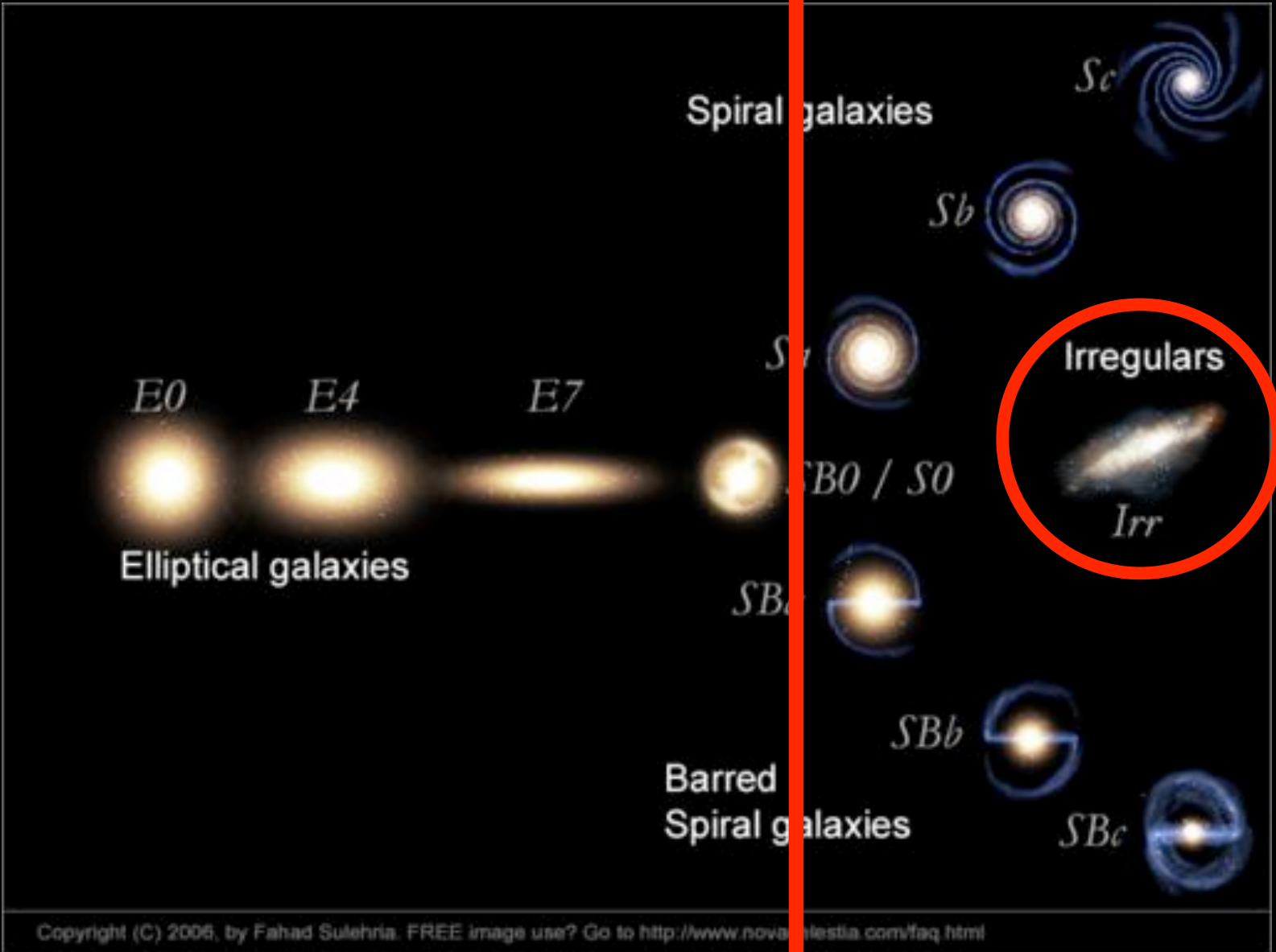


Chris Lintott

Somerville College

Kevin Schawinski, Kate Land,
Anze Slosar, Jordan Raddick,
Steven Bamford, Daniel Thomas,
Bob Nichol,
Alex Szalay, Jan van den Berg,
Phil Murray, Daniel Andreescu





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Galaxy Analysis

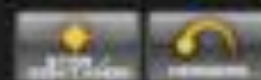
Welcome to Galaxy Zoo's view of the Universe. If you're here you should already have seen the [Tutorial](#), but feel free to go and remind yourself. There's no need to agonise for too long over any one image, just make your best guess in each case.



Show Grid Overlay on the next image

Galaxy Ref:
588010660371851294

Choose the Galaxy Profile
by clicking the buttons
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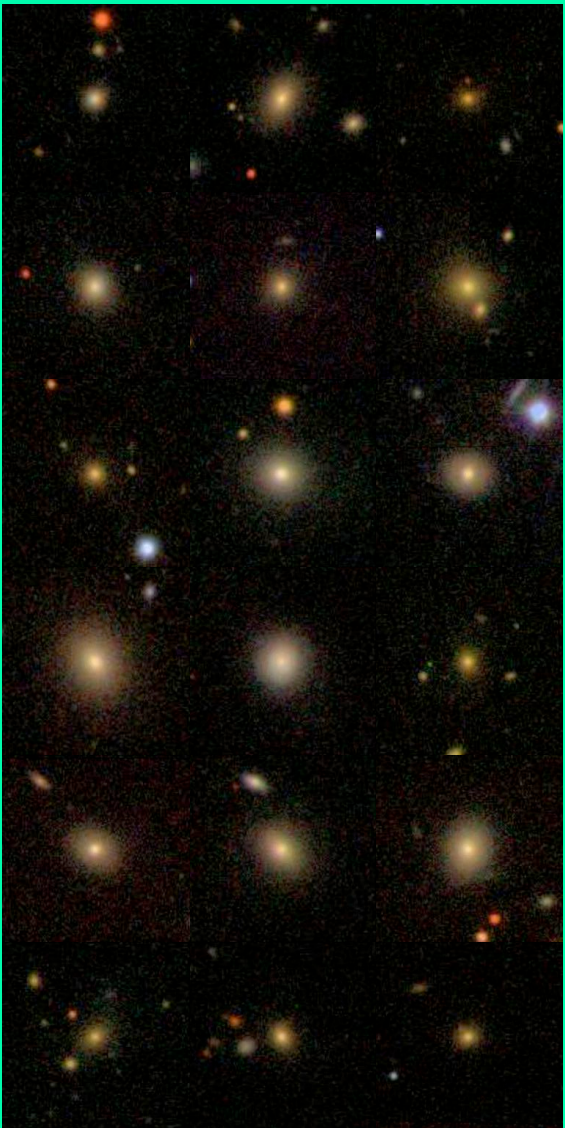
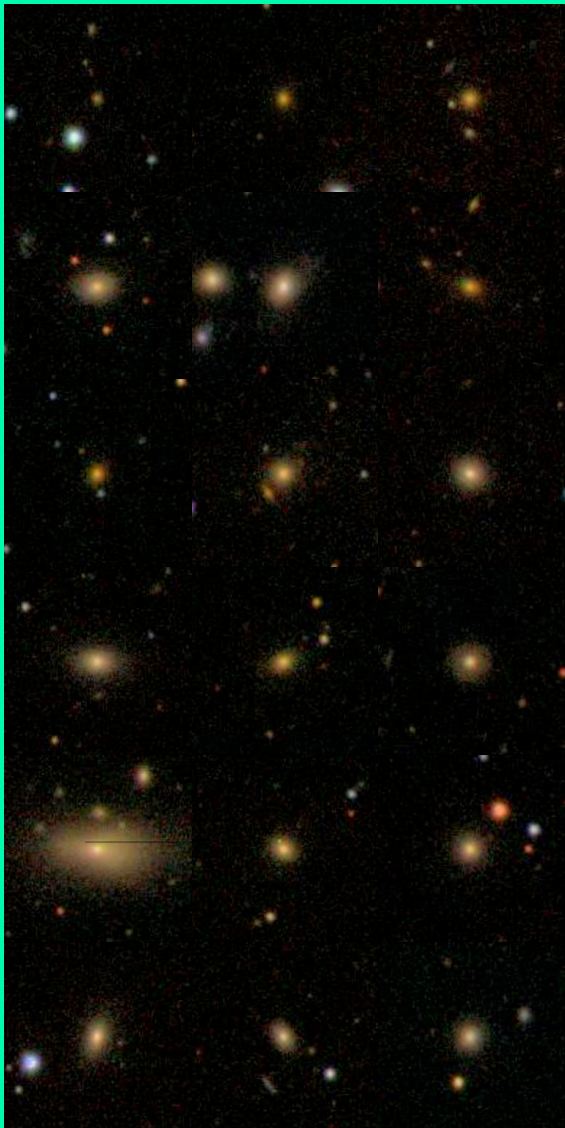




Clean

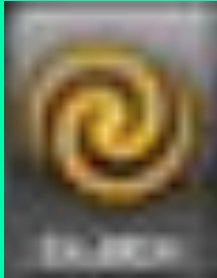


Superclean





Clean

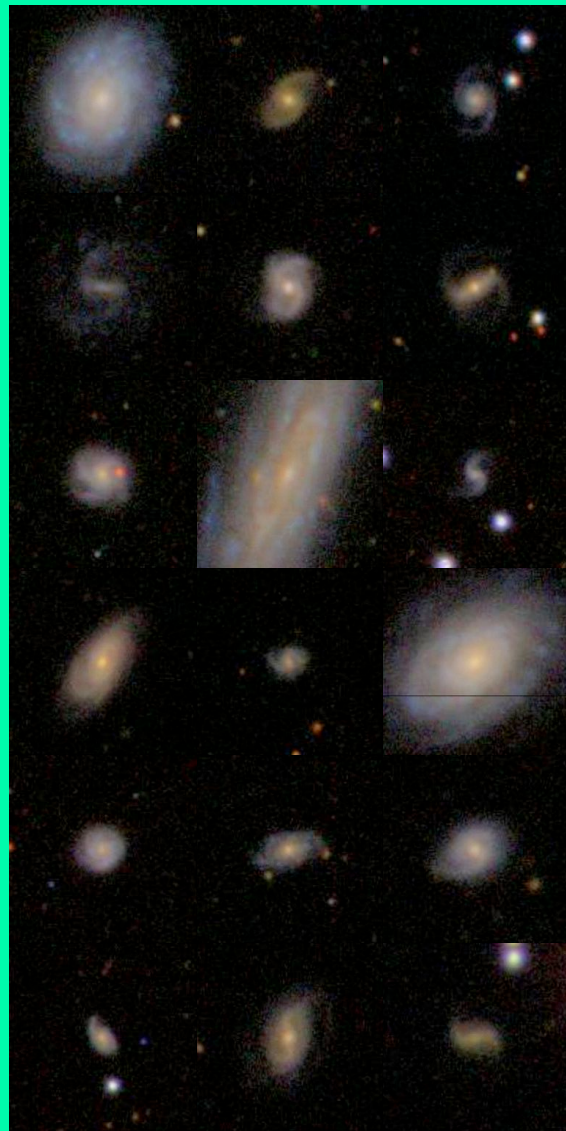


Superclean





Clean



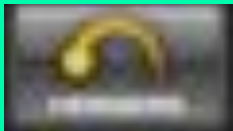
Superclean



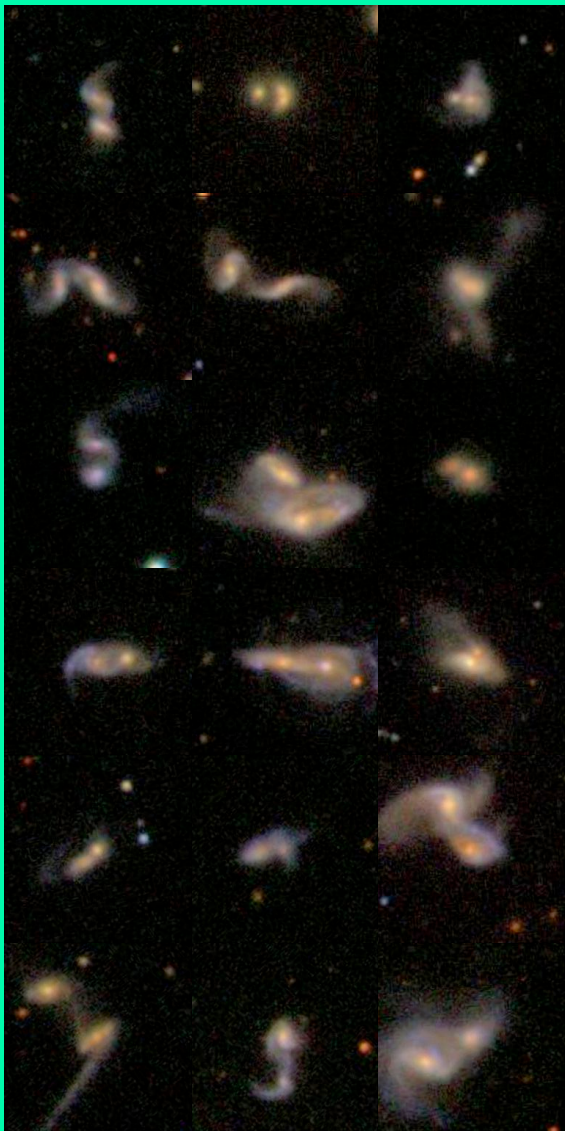
Zooites are ~8% more likely to pick ACW than CW for marginal spirals.
Bias study complicated life but showed no local chirality.



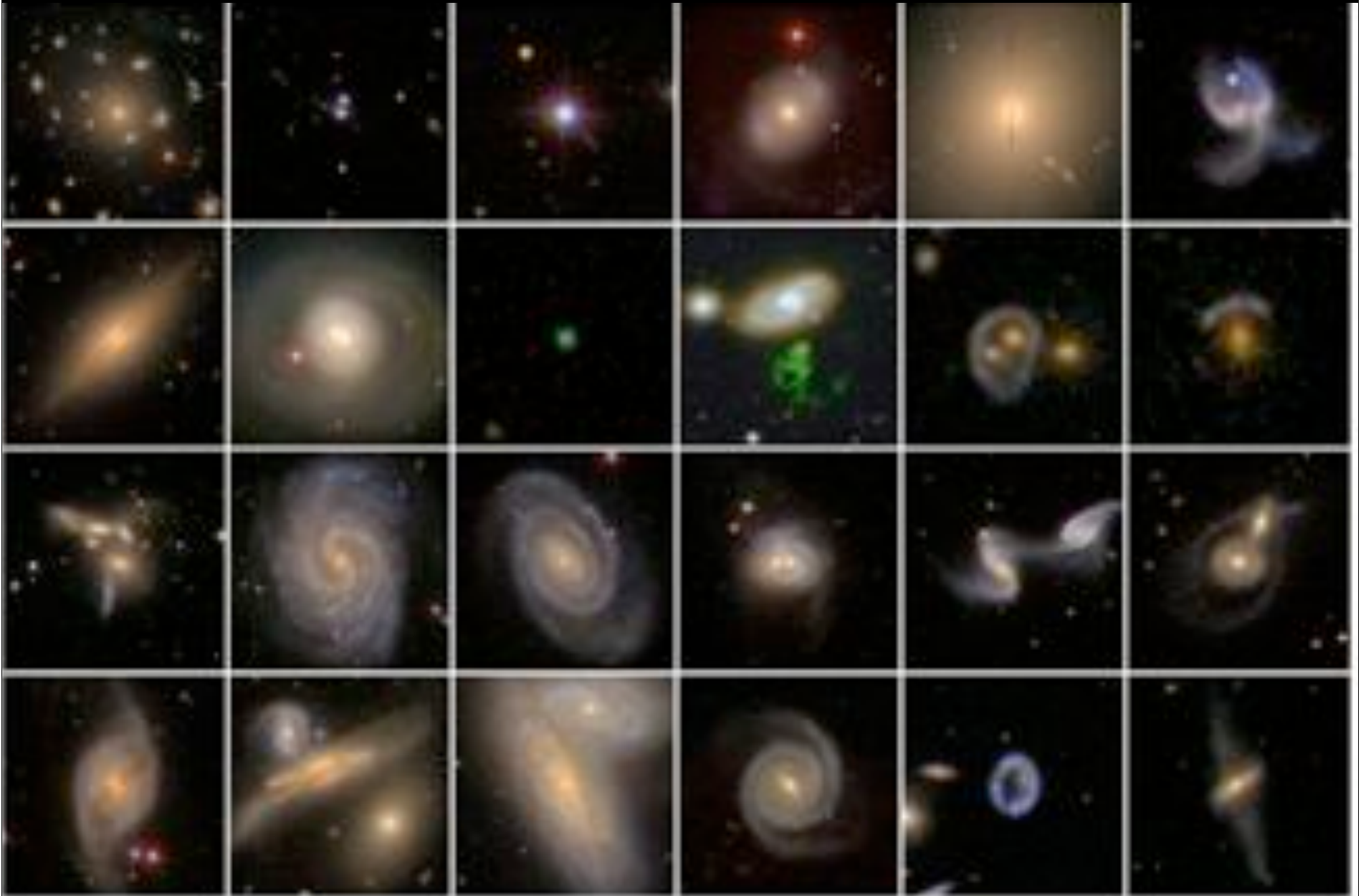
Clean



Superclean



GZ - the Memory Game!



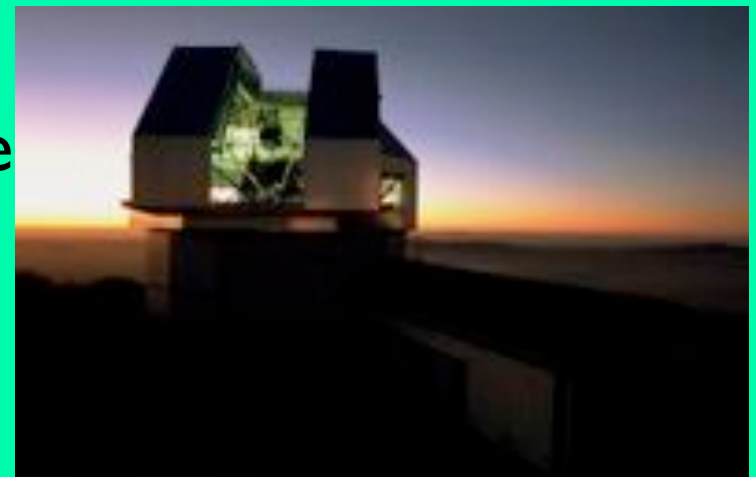


2. Overlapping galaxies (PI : Bill Keel, U. of Alabama)



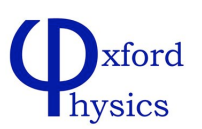
*“I've kept track of the promising ones seen on galaxy zoo forum so far
I knew intellectually that the number of superposed pairs was a strong
function of survey depth, but this is breathtaking.”*

5 nights of follow-up time with the
WIYN 3.5m in April 2008. Three
more scheduled in November.
Finding list now > 1000



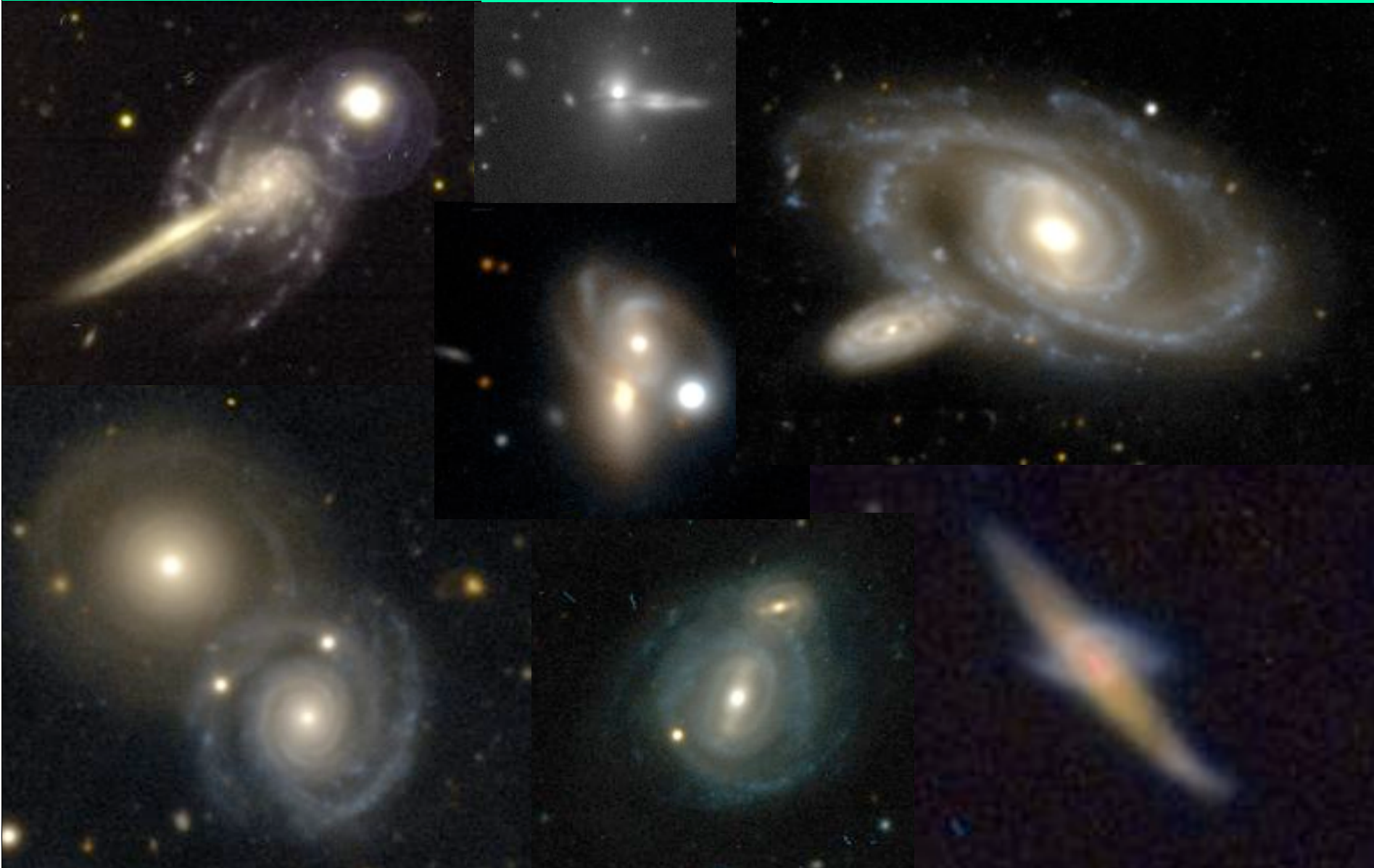


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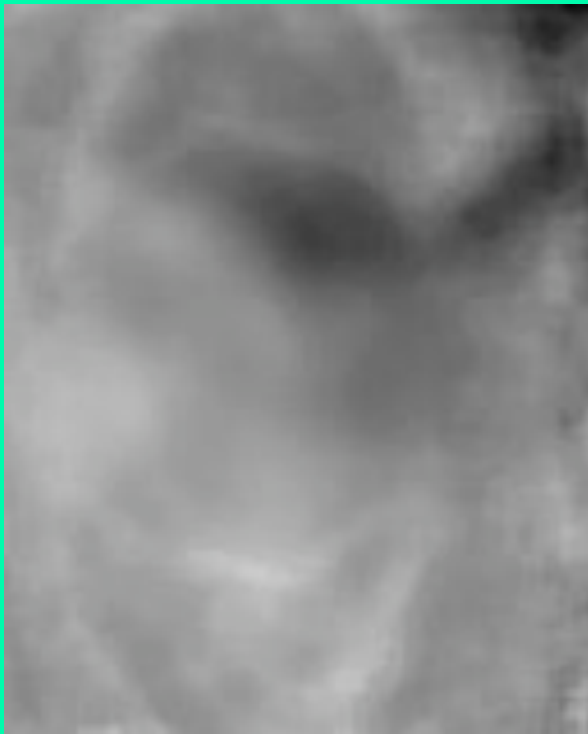


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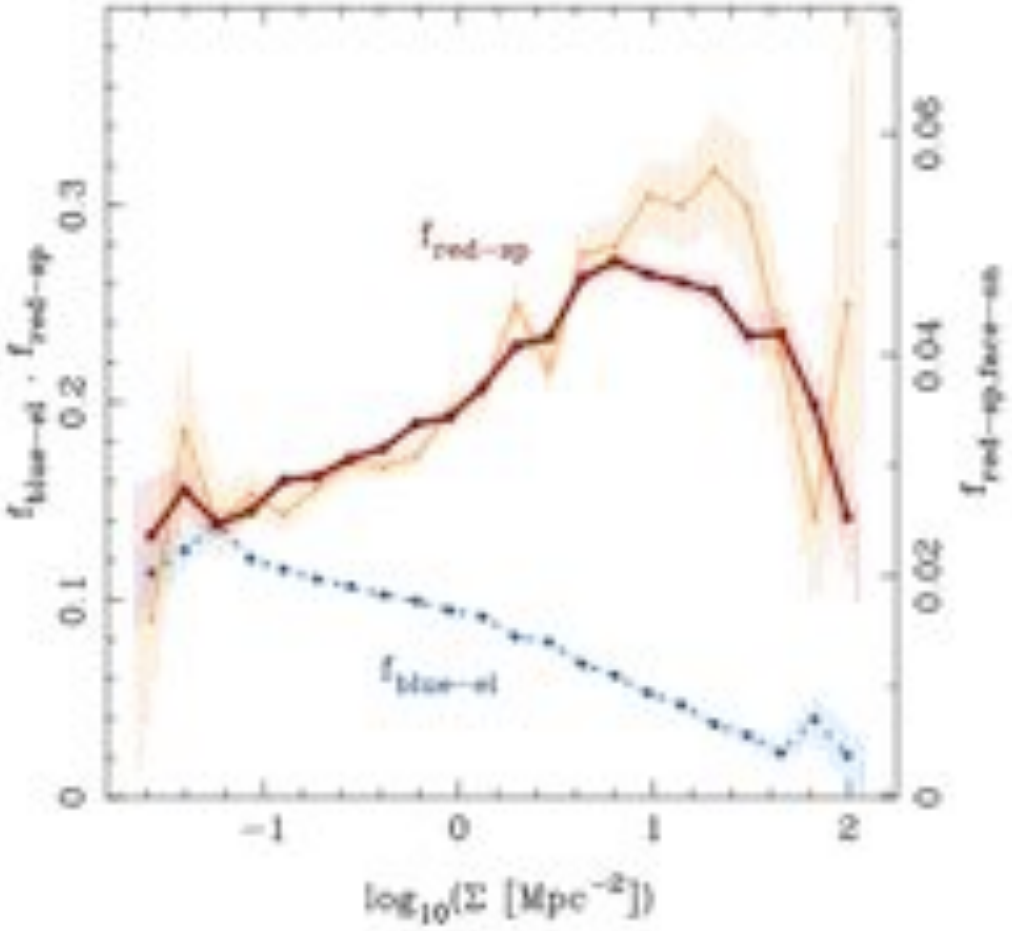
Dust extinction map





4. Galaxy Morphology

18 S. P. Bamford et al. (MNRAS submitted)



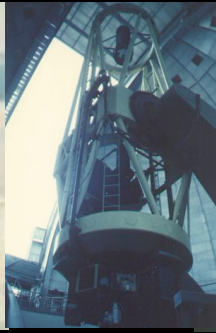
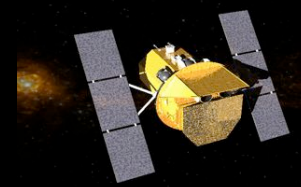
Red does not necessarily mean elliptical

The colour bimodality is not identically the same as the morphology one

Morphology-density function for 100733 galaxies at $0.03 < z < 0.085$

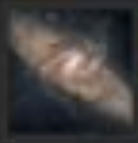


Hanny's Voorwerp: a quasar light echo?



Hello NGC3314

March 26, 2008, 03:38:14 AM



Show unread posts since last visit.
Show new replies to your posts.
Total time logged in: 8 days, 19 hours and 59 minutes.

News: New Galaxy Zoo Forum is launched! (Note: this requires a separate registration)

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Author

Topic: The Hanny's Voorwerp. (Read 6426 times)

Hanny

Hero Member
★★★★★
Posts: 7205



"Voorwerp kid"



The Hanny's Voorwerp.

• emt August 13, 2007, 06:16:40 AM •

Quote

What's the blue stuff below?

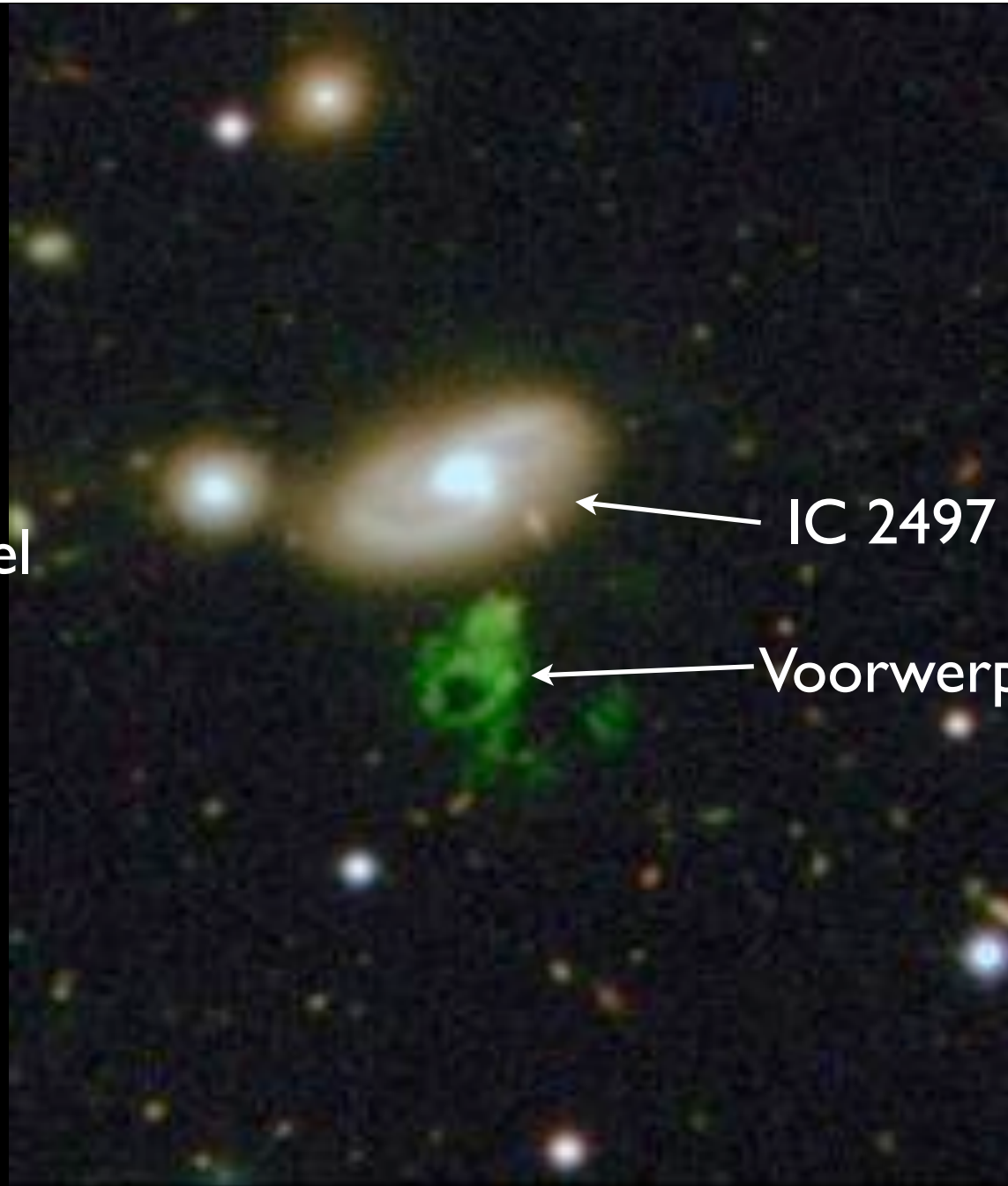
Anyone?

<http://cas.edss.org/astro/en/tools/chart/chart.asp?ra=145.2671505&dec=34.73290502>





Hanny van Arkel

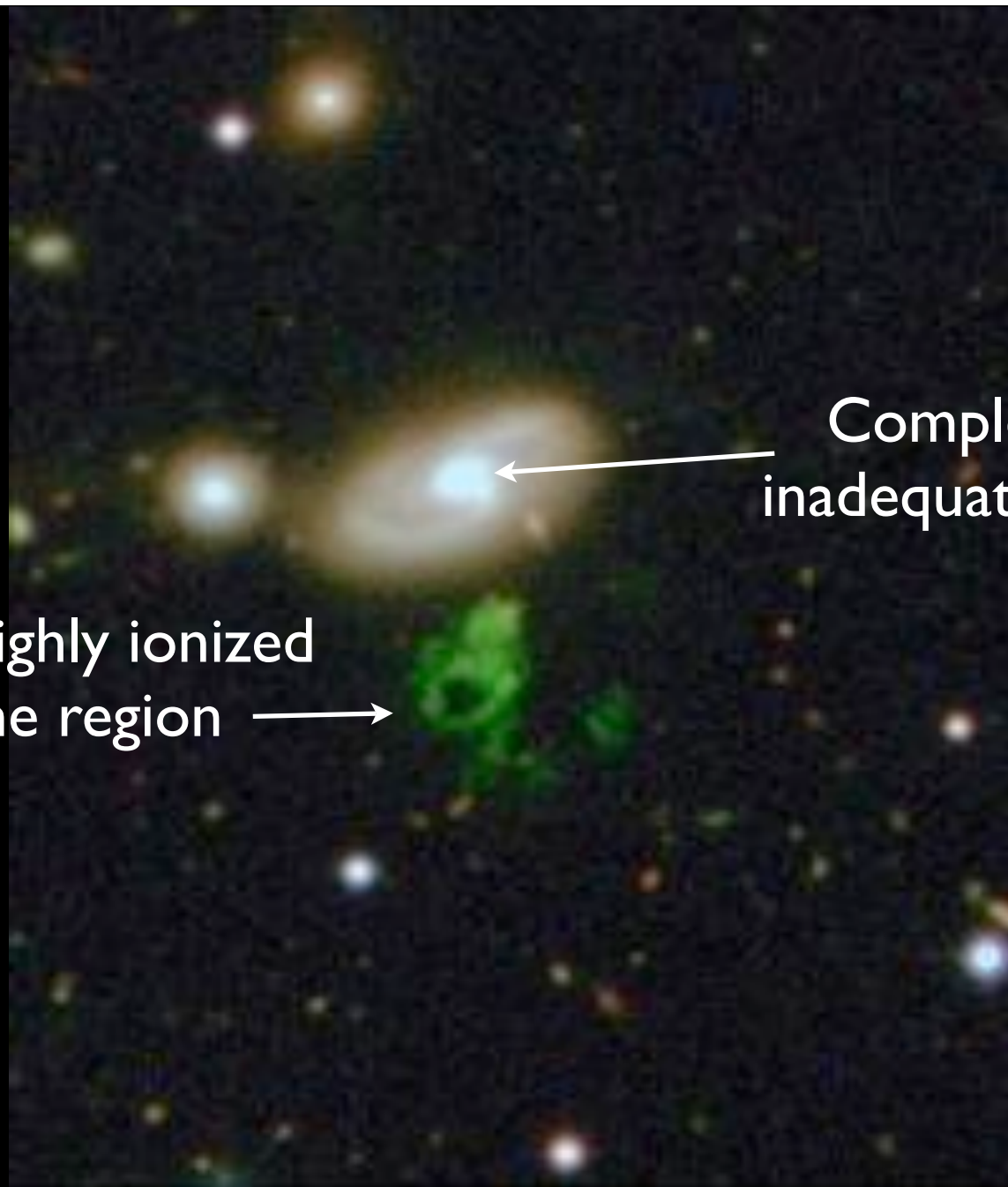


IC 2497

Voorwerp

Large-scale, highly ionized
narrow-line region →

← Completely
inadequate AGN



[O III] 4959,5007

H β

He II 4686

[O III] 4363

H γ

H δ

H ϵ + [Ne III] 3968

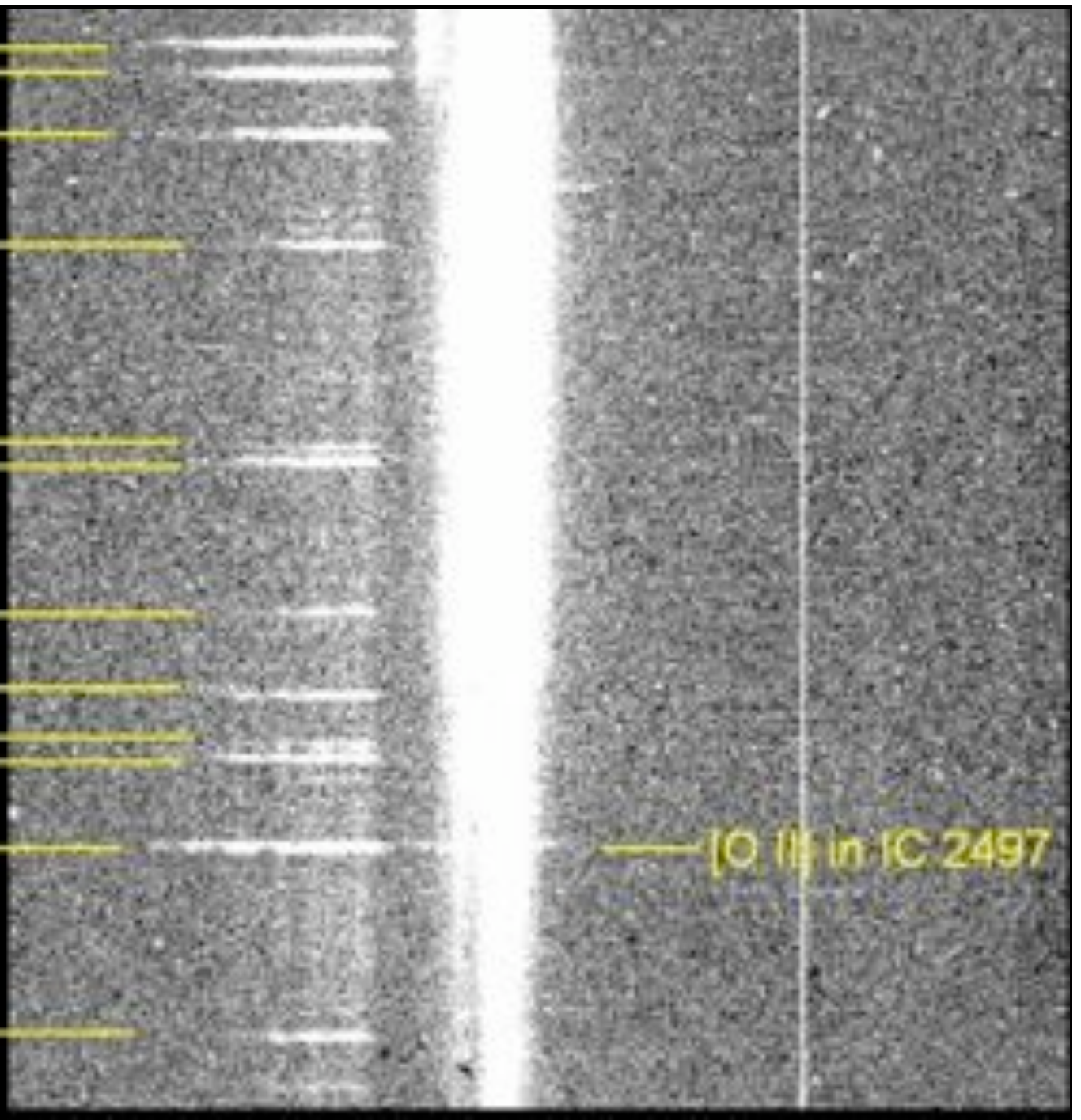
H ζ

[Ne III] 3869

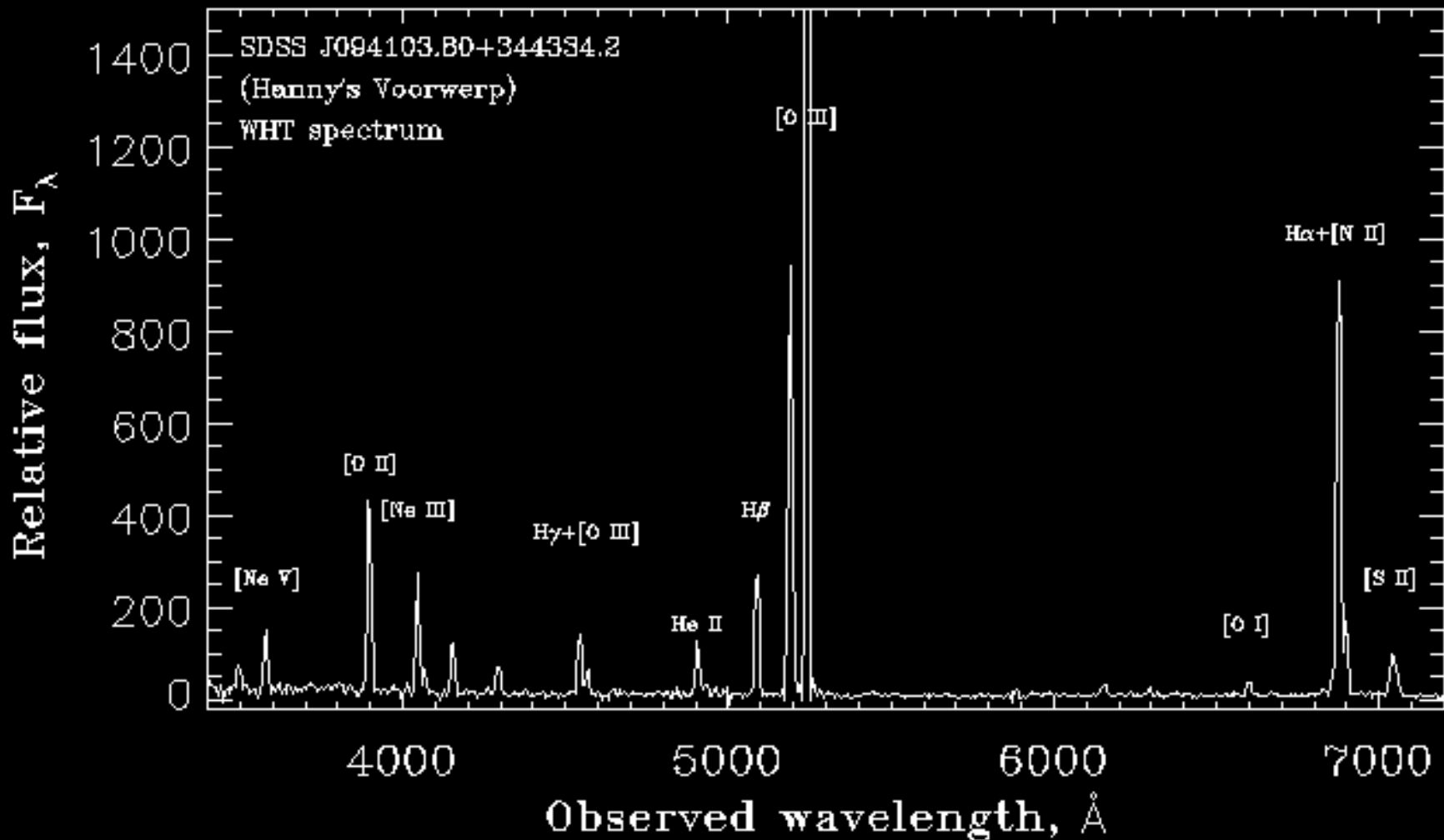
[O II] 3726,3729

[Ne V] 3426

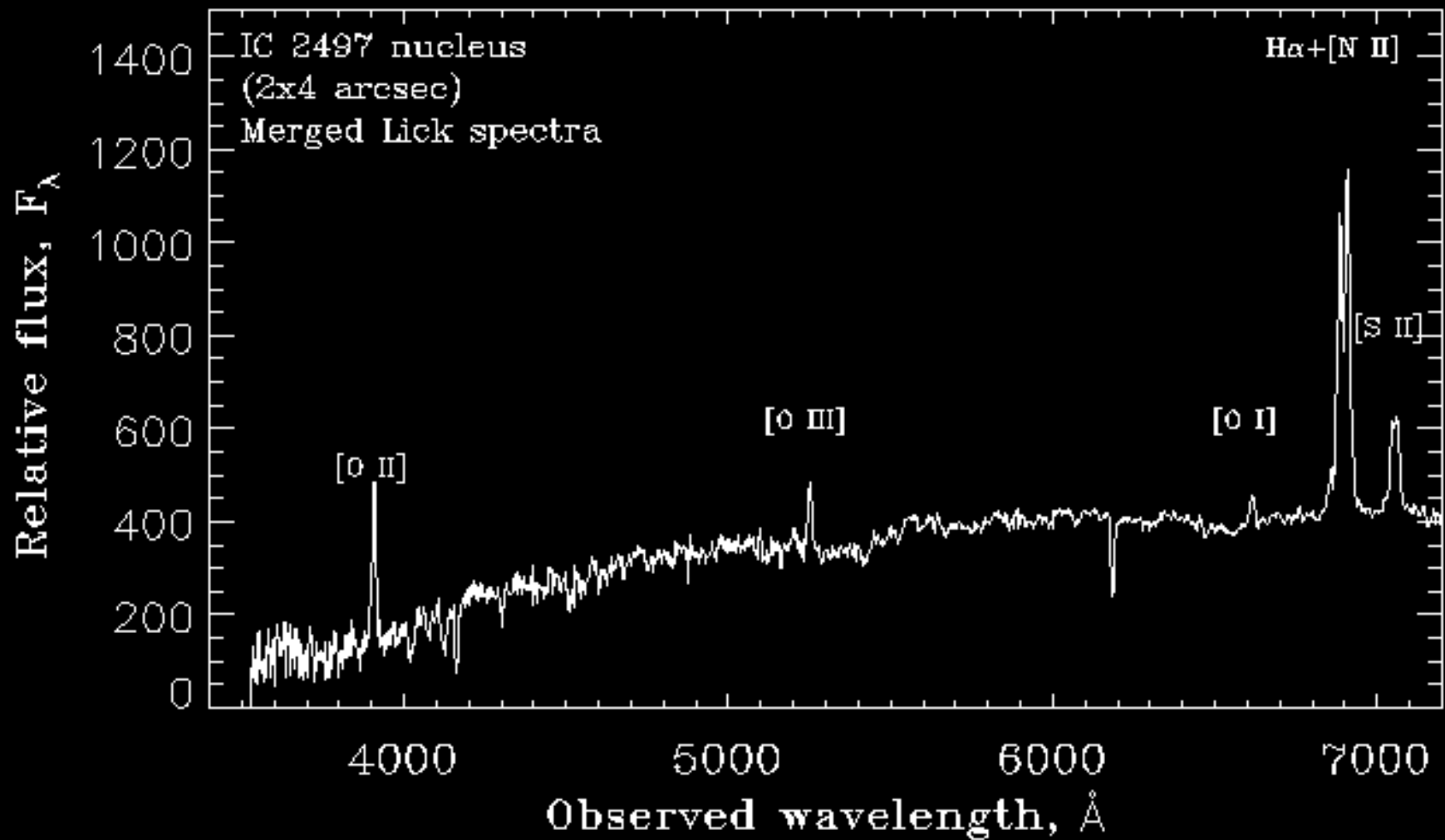
[O II] in IC 2497



The gas here is highly ionized
(O^{++} , He^{++} , Ne^{4+})



The gas here is not.

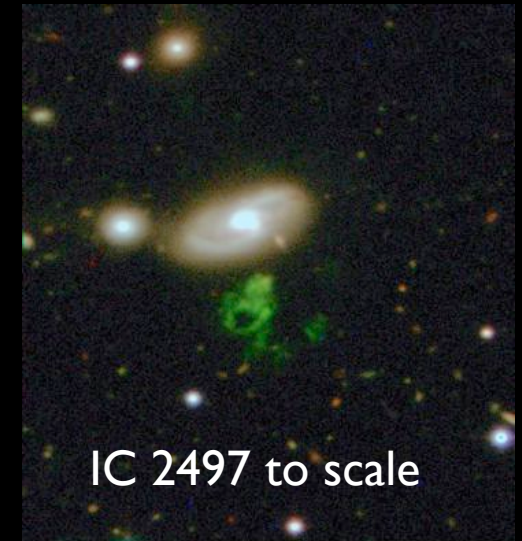
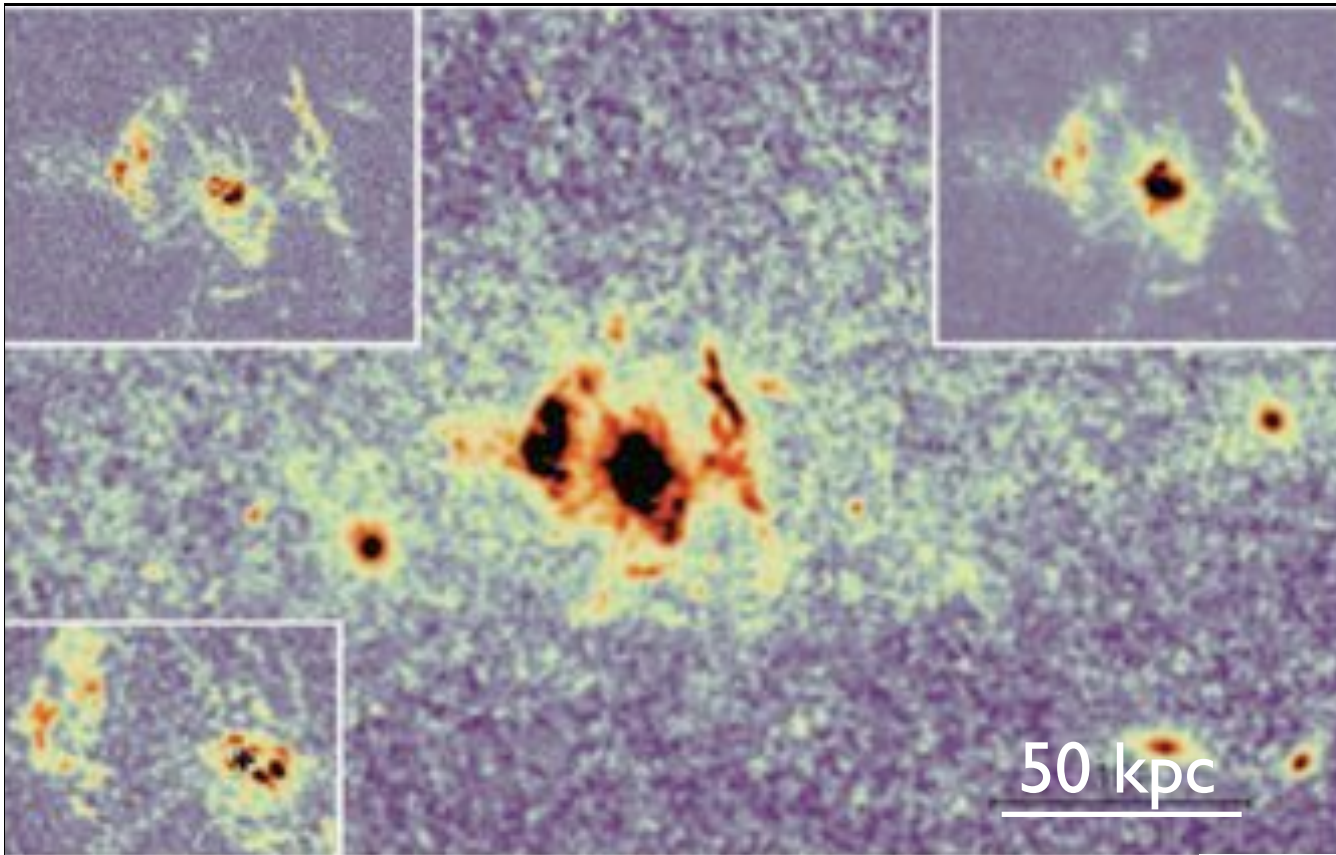


Whence all this highly ionized gas?

- Photoionization from (former) quasar UV/X-ray.
 - Photoionization from an obscured quasar
 - Shocks driven by quasar jets.

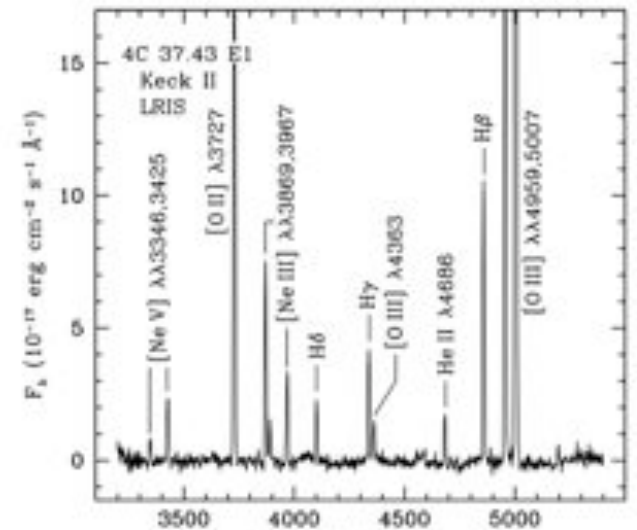
How to distinguish?

- Look for obscured quasar in X-ray, IR, radio
- Look for highly ionized gas near the nucleus (HST)
- Compare to known cases of quasar illumination
 - Try mapping time history of illumination



IC 2497 to scale

Quasar 4C 37.43 ($z=0.37$)
 Alan Stockton et al.
 HST [O III] image
 Keck spectrum





H α on-band



λ_06260 continuum



Emission



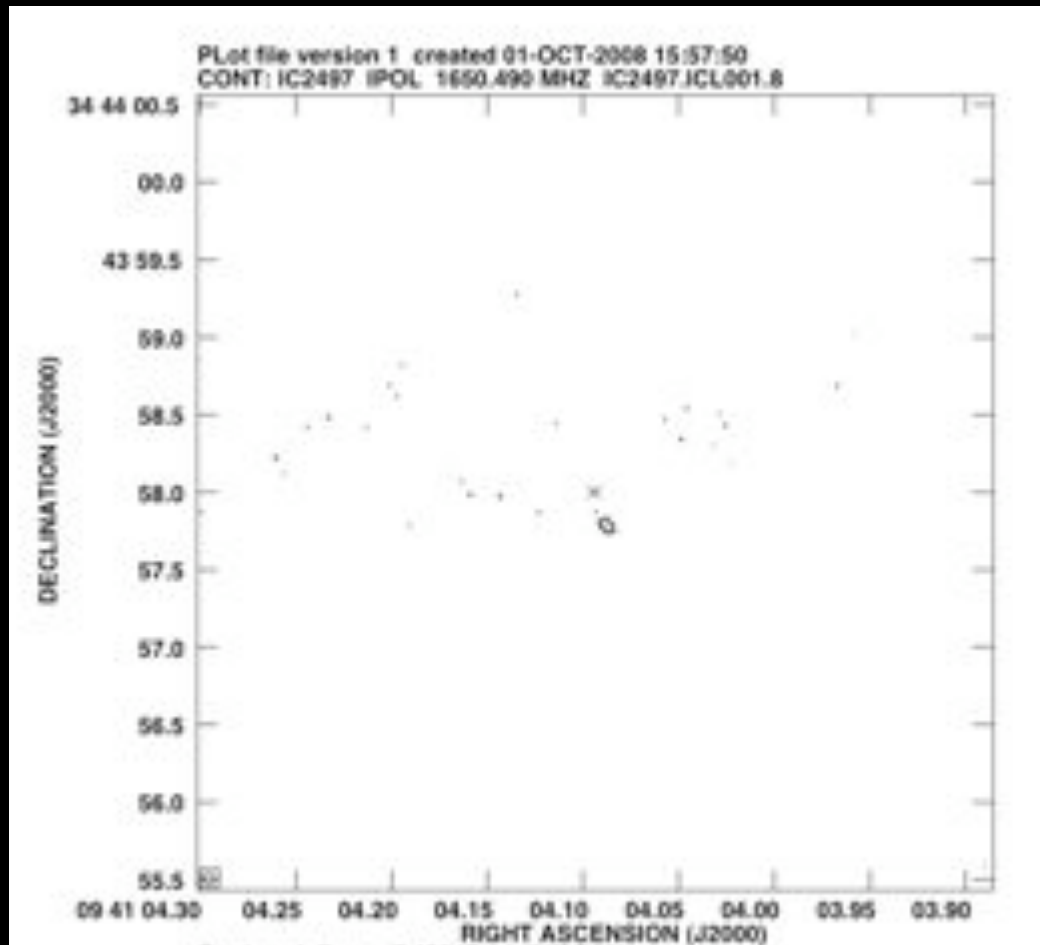
Swift UVW2 2000 A



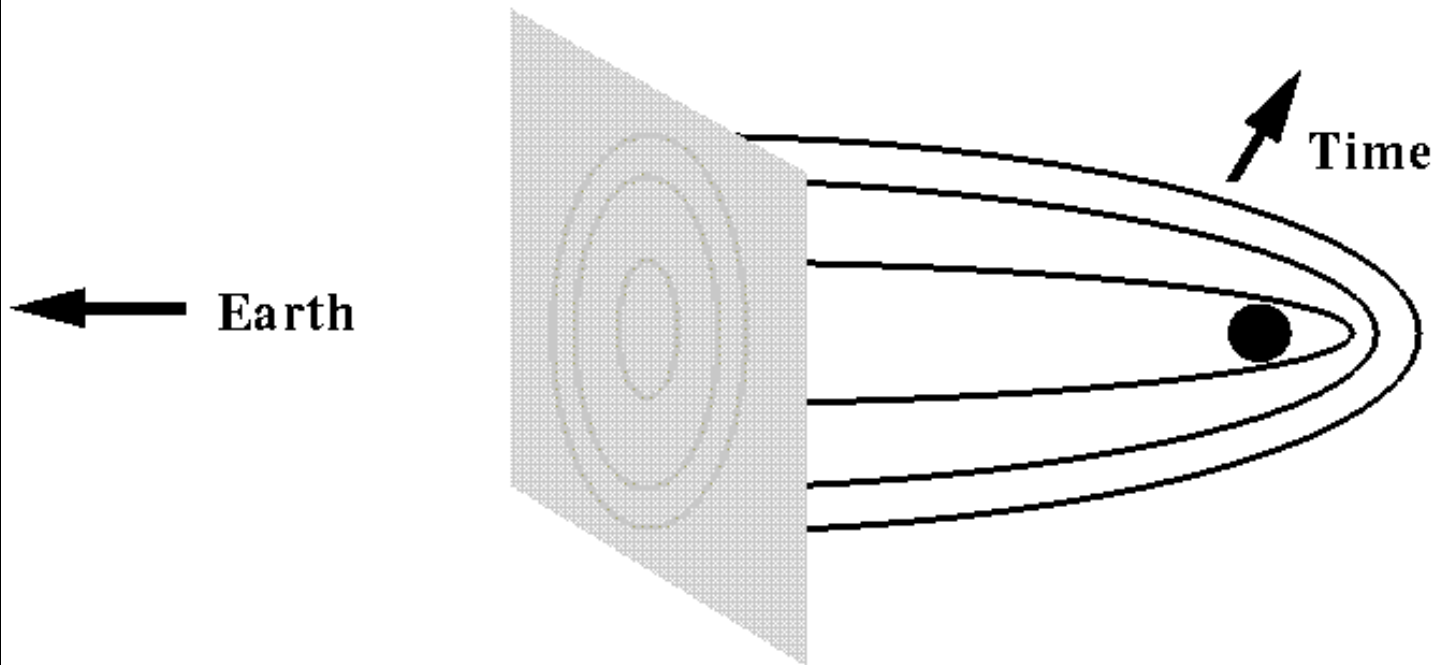
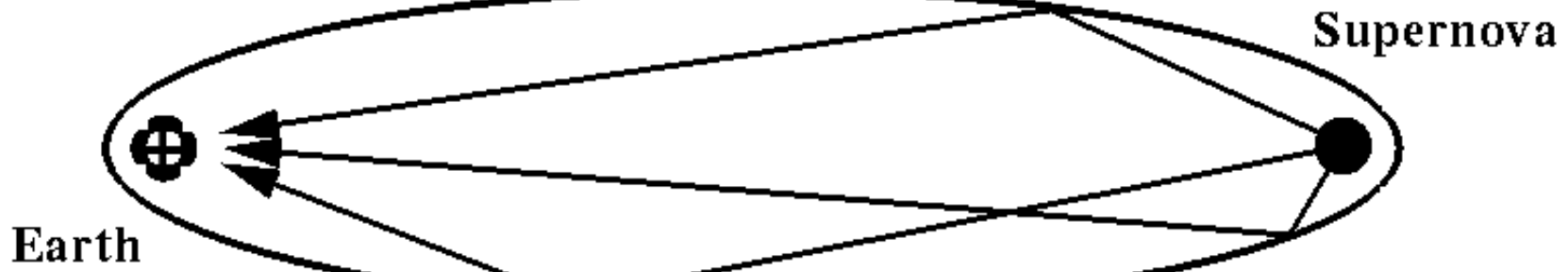
SARA V convolved

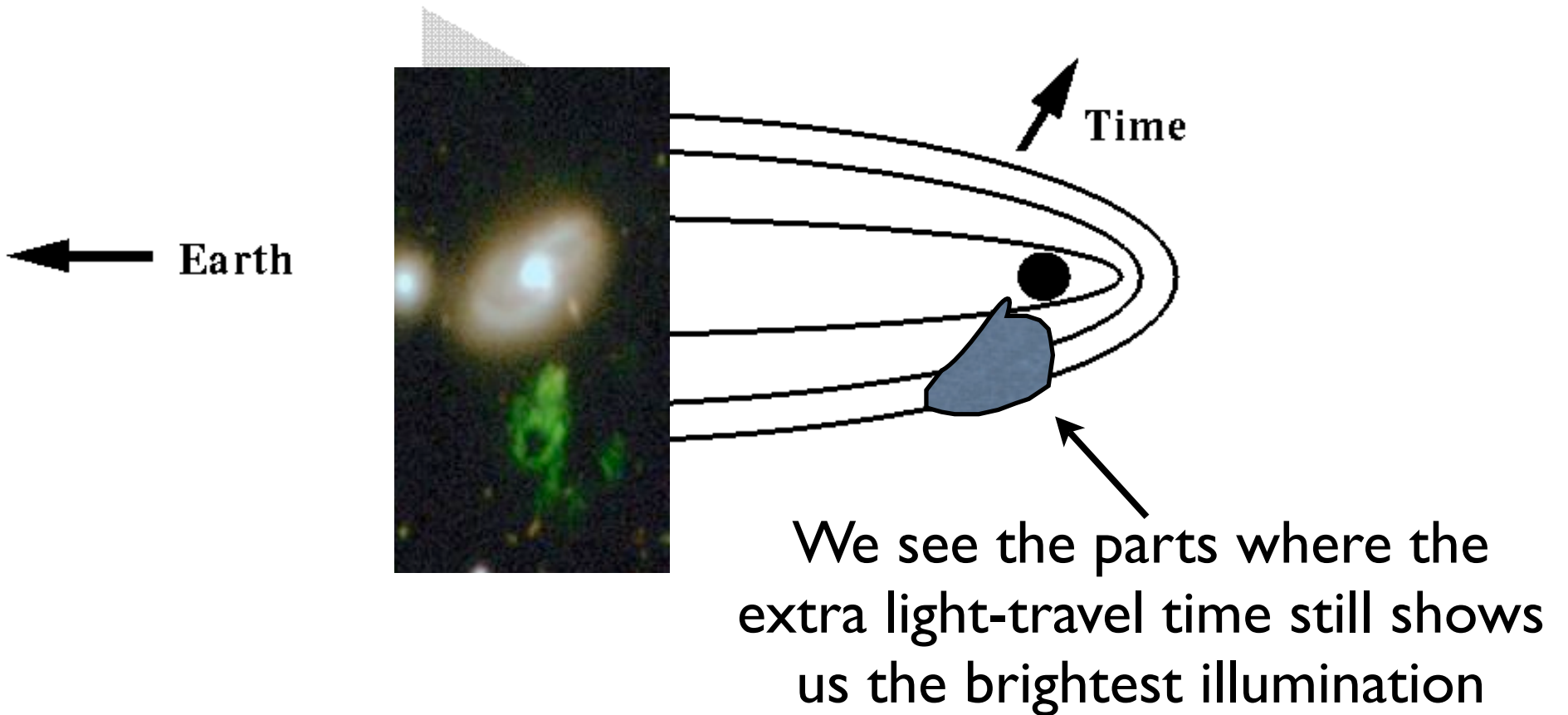
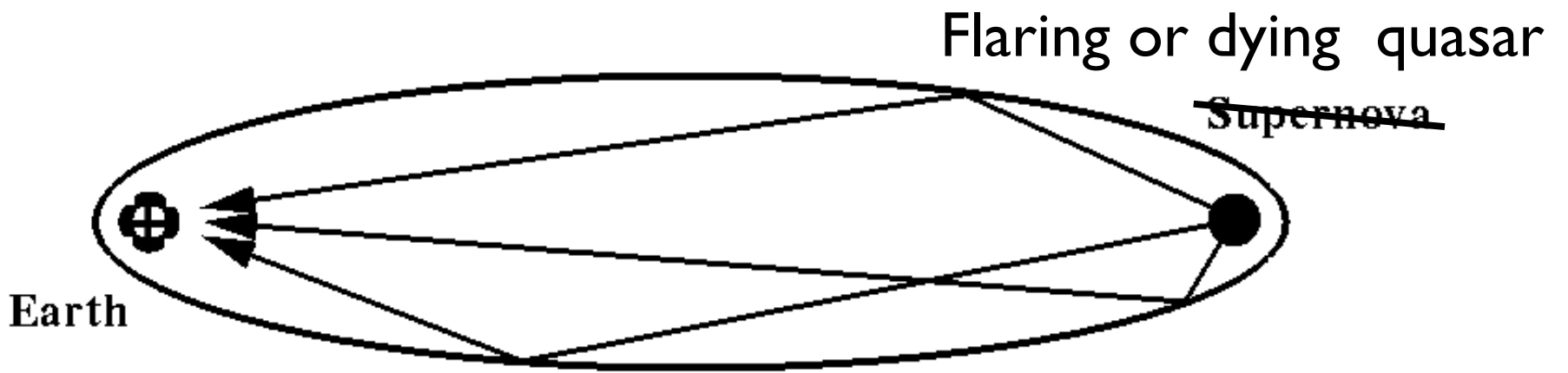
September 2008: European VLBI network

Radio core (AGN), but with $\sim 1/1000$ the total radio output
What does the rest look like?



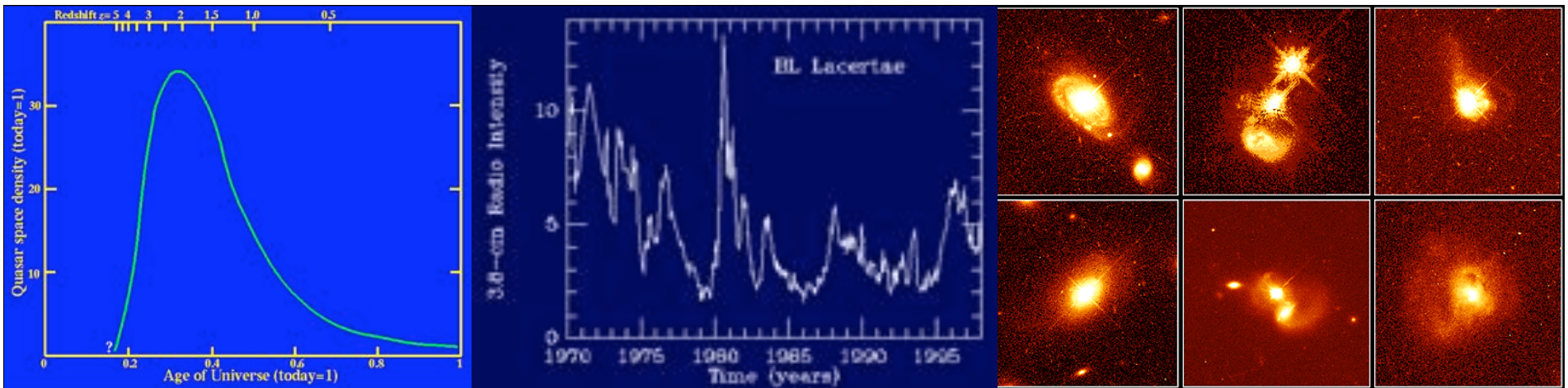
(Hayden Rampadarath, Michael Garrett)





V838 Mon
Light echo
HST series





Coolness: a new historical window

We see quasars change as a population over cosmic time. Interactions in their host galaxies tell about their life cycles from 100 million years upwards. We see them flicker on times of a few years and less. This is our first chance to watch them appear and disappear in less than 100,000 years. How often does this happen? Followup project: the **Dead Quasar Survey**.



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updated 11:18 a.m. EDT, The August 7, 2008

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Armchair astronomer finds 'cosmic ghost'

Hanny van Arkel was going over photos of galaxies on the Internet last August when she stumbled across a strange object: a bright, generous mass with a gaping hole in its middle. Van Arkel is a schoolteacher in the Netherlands, not an astrophysicist. But her find -- what some are calling a "cosmic ghost" -- has captivated astronomers. [Full story](#)

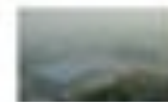
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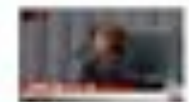
Video >



Beijing pollution 1:04



AC 360: The Shot 1:25



Las Vegas judge faces disciplinary hearing **LIVE**

LIVE: [Today on iReport.com](#)





Pan-STARRS



All asteroids larger than 1km
and most larger than 300m
(Up to 10 million asteroids
catalogued, + 100s of comets)
Binary stars, and extrasolar
planets
3d catalogue of our solar
neighbourhood (100pc)
Supernovae, microquasars,
GRB, AGN...
Ultradeep galaxy survey
& Galaxy Zoo 3



Large Synoptic Survey Telescope (LSST)



8.4m mirror
2-degree field
3.2 Gpix imager
30 Terabytes/night
Cerro Pachon, Chile
Sky/three nights
Depth: mag 26.5
OTF transient IDs

GZ 4?



It's a big sky out there
but all together we can grok more of it.

A vast field of galaxies, including spirals, ellipticals, and irregular shapes, scattered across a dark cosmic background. The galaxies vary in size and color, with some appearing as bright yellow or orange points and others as fainter, more distant objects.

www.galaxyzoo.org

It's a big sky out there
but all together we can grok more of it.

www.galaxyzoo.org

Special thanks to...

Jonas Bonin ■ Harald Horneff ■ Graham Webber

Luke Drury ■ Andrew G. Esquilant

Hassam Dodia ■ Adam K Brookman

Al Jenkins ■ Matt Johnson ■ Allen Mole

Martin Nicholls ■ Gregory Ruderman

Philip Howie

and 150,000 other participants worldwide.

It's a big sky out there
but all together we can grok more of it.