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## **NITARP Workshop**

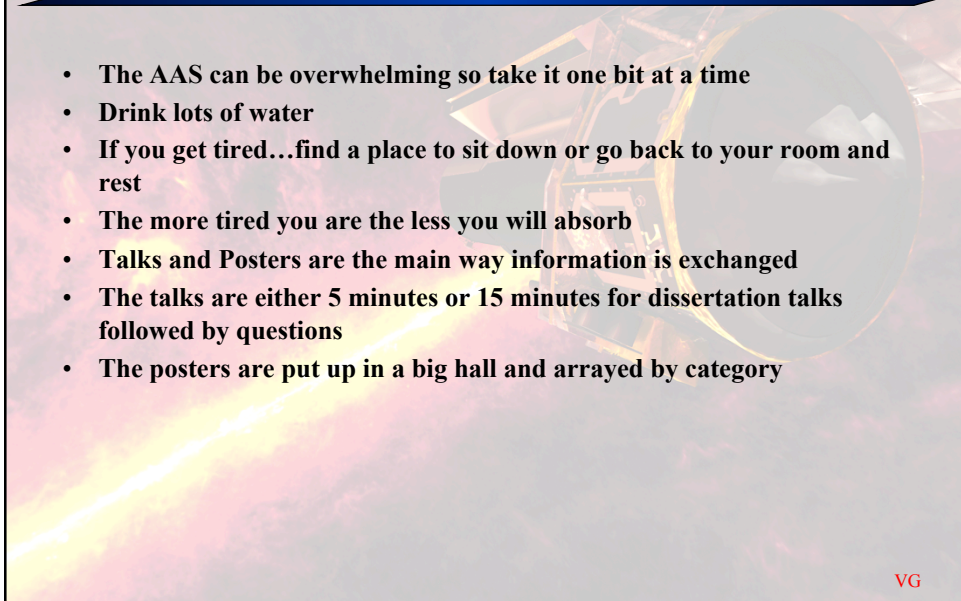
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## **Intro to the AAS**



- **The AAS can be overwhelming so take it one bit at a time**
- **Drink lots of water**
- **If you get tired...find a place to sit down or go back to your room and rest**
- **The more tired you are the less you will absorb**
- **Talks and Posters are the main way information is exchanged**
- **The talks are either 5 minutes or 15 minutes for dissertation talks followed by questions**
- **The posters are put up in a big hall and arrayed by category**

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## How to read a science poster

### Don't

If one of the poster authors is standing nearby  
Ask them for their quick explanation

## How to read a science poster in the absence of one of the authors

Read the title

Based on the level of jargon decide if you want to proceed







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## An aside on Images in talks and posters



- Many posters and talks will have astronomical images
- Some will be in color and some will be in black and white
- This is what you should know about those images:

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## What is an image?



- There is nothing unique about an astronomical image
- All images on film or on an electronic detector are a recording of different brightnesses of light
- There is/has never been a color photograph. All present color images, whether taken by your digital camera or from Hubble, are a combination of several black and white images.
- So what is a black and white image?

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# What is a Black and White Image?

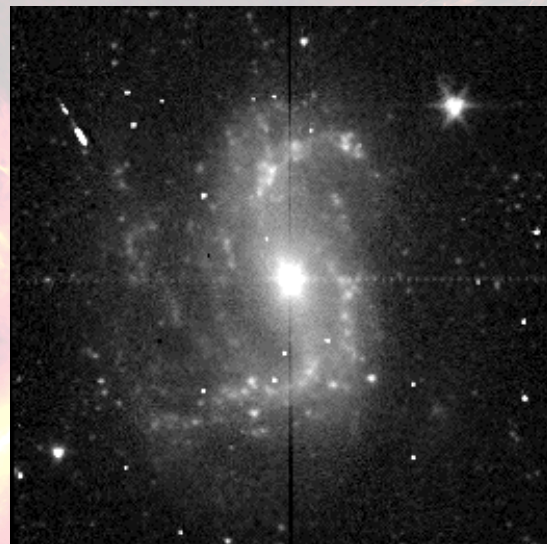


1.0	1.3	1.2	1.2	0.9
0.8	4.3	4.0	3.8	0.7
1.1	3.7	6	4.1	1.5
0.9	4.2	4.3	3.9	1.0
1.2	1.4	1.1	0.8	1.3

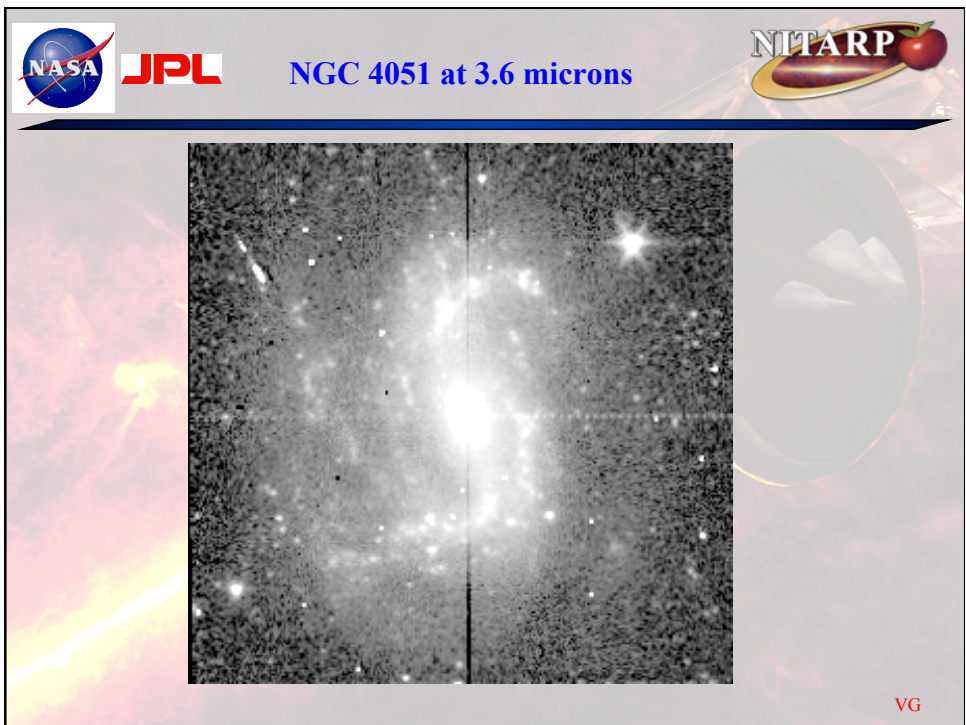
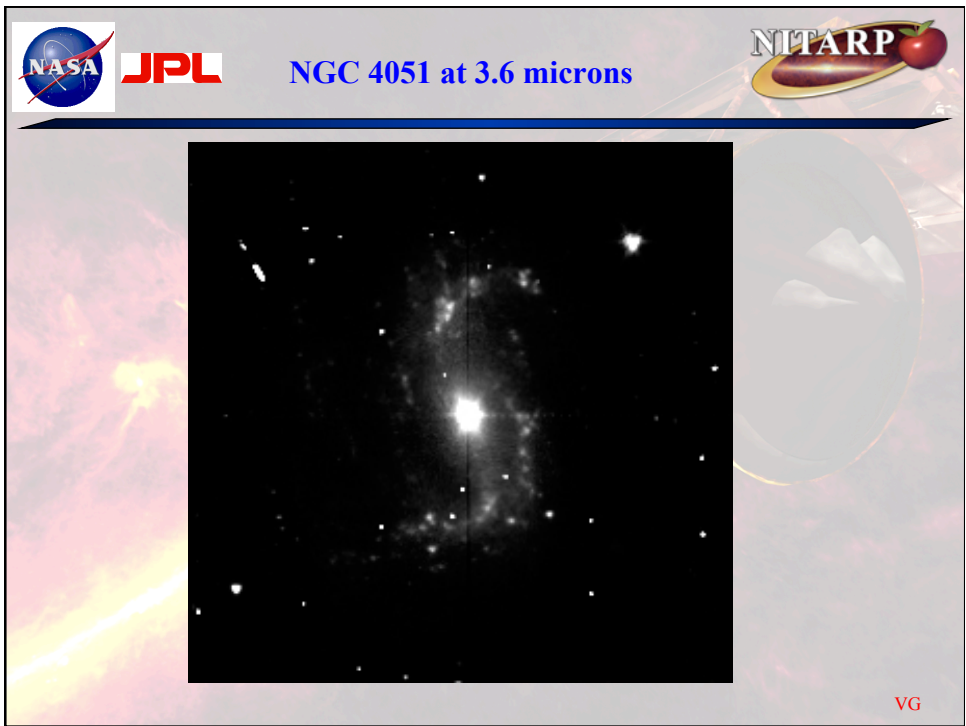
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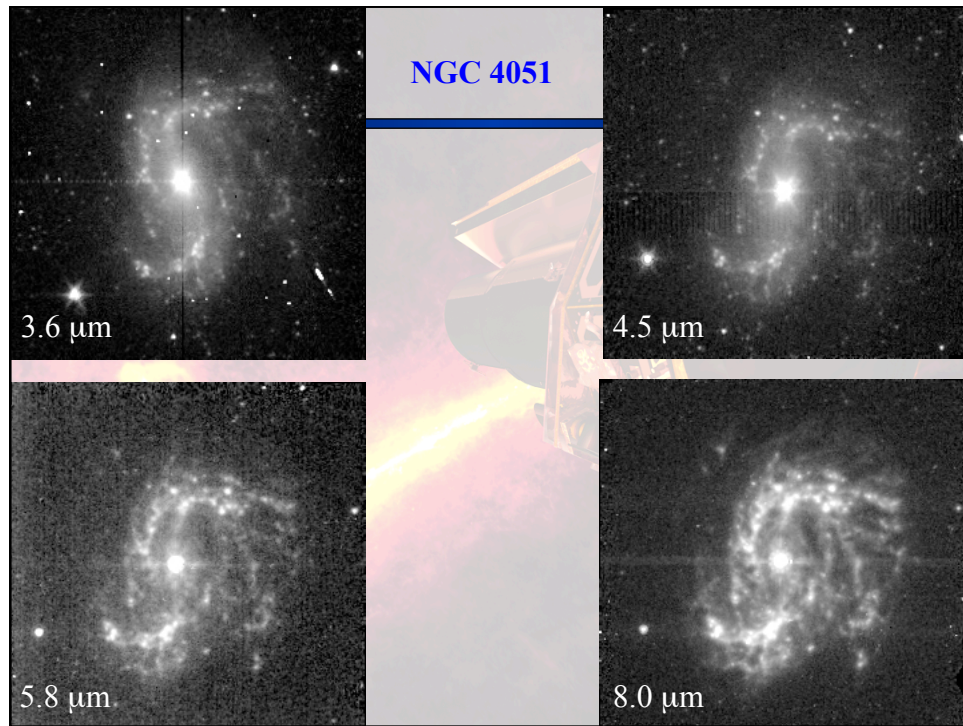
# NGC 4051 at 3.6 microns



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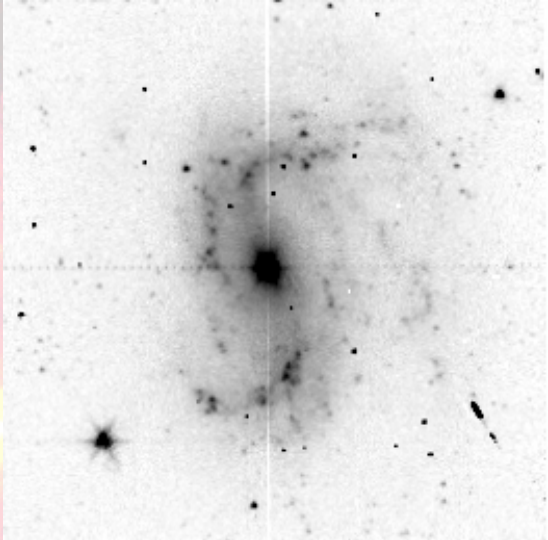

**NGC 4051 in Combined IR Colors**

This is often called a “false color” image. But there is nothing false about it. It is simply an image that is representing the IR colors with optical ones. So it is a representative color image.




**Blue=3.6 $\mu\text{m}$**   
**Green=4.5 $\mu\text{m}$**   
**Red=8.0 $\mu\text{m}$**

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  **NGC 4051 at 3.6 microns** 



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  **Photometry** 

- So how do we get information from these images?
- Since the electronic detectors ultimately record the amount of light as numbers, the process to measure that amount of light is just a matter of adding numbers.

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### Photometry



1.0	1.3	1.2	1.2	0.9
0.8	4.3	4.0	3.8	0.7
1.1	3.7	6	4.1	1.5
0.9	4.2	4.3	3.9	1.0
1.2	1.4	1.1	0.8	1.3

**So what is the brightness of the central pixel in this image?**

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### Photometry



1.0	1.3	1.2	1.2	0.9
0.8	4.3	4.0	3.8	0.7
1.1	3.7	6	4.1	1.5
0.9	4.2	4.3	3.9	1.0
1.2	1.4	1.1	0.8	1.3

**Well the amount of light recorded made for 6 units. But is that an actual physical measurement?**

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### Photometry



1.0	1.3	1.2	1.2	0.9
0.8	4.3	4.0	3.8	0.7
1.1	3.7	6	4.1	1.5
0.9	4.2	4.3	3.9	1.0
1.2	1.4	1.1	0.8	1.3

Well the amount of light recorded made for 6 units. But is that an actual physical measurement? NO!

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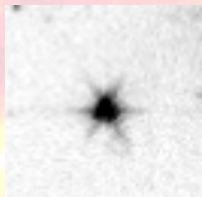


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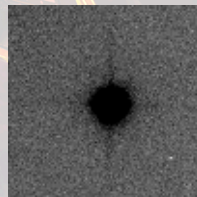
### Point Spread Functions



- Any optical system has a finite limit to how small an image it can generate. That is how the optics and the atmosphere spread out the light from a point hence the name Point Spread Function or PSF.



Spitzer PSF



Typical Ground Based PSF

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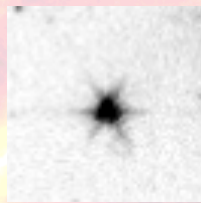


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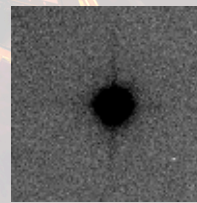
## Noise and Background



- Also any image is the sum of the light from what you are imaging combined with noise from your detectors as well as light which is not from your object: sky, telescope, etc.



Spitzer PSF



Typical Ground Based PSF

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## An aside on Images in talks and posters



- Many posters and talks will have astronomical images
- Some will be in color and some will be in black and white
  
- Now you have a sense of what astronomical images are in posters and in talks that you will see during the conference
  
- ...back to the advice on attending the AAS

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## Intro to the AAS



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- If you get tired...find a place to sit down or go back to your room and rest
- The more tired you are the less you will absorb
- Talks and Posters are the main way information is exchanged
- The talks are either 5 minutes or 15 minutes for dissertation talks followed by questions
- The posters are put up in a big hall and arrayed by category
- There is an abstract list available online that gives the abstracts for all the talks and posters
- Whatever you find interesting write down the poster/talk number since you will be able to check on it later.

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End



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