MONDAY
CCD again
Intro to data reduction

- Characterizing CCD
    - Don't change much
    - Bigger pixel, hold more charge, ‘BIN THEM’ MEANS COMBINING THEM
- Full well
    - Use the photon transfer curve(PTC)
- System gain constant
    - PTC too
- CTE (Charge transfer efficiency)
    - how efficient we can move charge pixel to pixel
    - Using a Fe55 x-ray source
- Read noise
    - Calculate the sigma/ SD of the bias
- Dark current
    - reduce by cooling
    - By using dark frames
- QE(quantum efficiency)
    - how efficient the CCD detects light
    - Flats with well calibrated and controlled illumination

PTC

- Slope(Noise VS Signal):
- = 1 ,fixed pattern noise
- = 0.5, shot noise (arrival time of photons)
    - Bright object
    - S/N ~sqrt(S)
- = 0 ,read noise
    - Not ideal
    - S/N ~ S* /(readnoise # of pixels)

ADU Saturation

- Converting analogue to digital
    -

CCD equations

NOISE

BIAS SUBTRACTION

- bias distribution
    - If we go down to zero, we will have a negative and postive number
    - We have to use an excess bit, just to replace the negative value

        - Subtract the bias
        - As a function of a readout
        -
    -

WEDS

- Walkthrough data reduction
- Data reduction and analysis
    - The analysis would be done on Friday
- FSTP as well(practising it as well)
- Look at overscan and delete it
    - Playing with arcsat data

PASWORD shebDejO

Objects
Bias
Flat
Dark current

Terms:
Doughnut

- Dust

Creating “master”

- Bias
- Flats
- Dar current

- Combine the images and take the median of the pixel
- exp: Combine several bias images and take the median of it and use it as your “master” bias file. So you can do the same thing to flat and dark current.

Reference in combining them:
https://docs.astropy.org/en/stable/io/fits/

PHOTOMETRY

- Next week on analysis but we will

FRIDAY MAY 10 2019
CCD

- Discussing over homework
- NGC 2998
    - Dual imaging spectrograph
        - Single slit spectrograph

    - Centre vs disk kinda speaks up.
    - The diagonal line of the images, instrumental effect
    - No illumination except for scattered light

- ANNOUNCEMENT FOR DUE DATES