7/1/2019 MaxPhotonCountandPosition

# import packages to use

import numpy as np

import matplotlib.pyplot as plt

from matplotlib.pyplot import \*

from astropy.utils.data import get\_pkg\_data\_filename

from astropy.table import Table

from astropy.io import fits

import glob

import batman

import lmfit

import corner

# directory='/Users/annaburkholder/exp\_det\_scripts/visit23\_defringed/'

# directory='/home/ian/Desktop/WebbData/visit23\_defringed/'

directory='/visit23\_defringed/' #Change directory to proper location

number\_of\_rows=64

number\_of\_columns=1024

number\_of\_images=43

#Load images into a list

list=glob.glob(directory+"\*.fits")

#print, first image in list

print(list[0])

##Example load first fits image

hdul=fits.open(list[1])

#Get MJD mid time of exposure from Header, which has start and end MJD times

mjd\_start=hdul[0].header['EXPSTART']

mjd\_end=hdul[0].header['EXPEND']

mjd=(mjd\_end+mjd\_start)/2.

print(mjd)

#load fits file image into an array called 'data'

data = hdul[0].data

data.shape #size of image

data.dtype.name #type of image

print(np.sum(data)) #total counts in image

#close fits after loading in data needed

hdul.close()

index\_of\_images=np.arange(number\_of\_images)

index\_of\_rows=np.arange(number\_of\_rows)

index\_of\_columns=np.arange(number\_of\_columns)

total\_counts=np.zeros((number\_of\_images))

row\_sum=np.zeros(number\_of\_rows) #sums pixel count for each row of image

maxRow=np.zeros(number\_of\_columns) #position of row of the max photon count for each column

col\_vals=np.zeros(number\_of\_columns)

row\_vals=np.zeros(number\_of\_columns)

for i in index\_of\_images:

img=list[i]

#print(img)

hdul=fits.open(img)

data = hdul[0].data

#print(np.sum(data)) #total counts in image

for j in index\_of\_columns:

total\_counts[i]=np.sum(data[0:64,j]) #total counts in column j of image

row\_vals[j]=np.argmax(data[0:64,j])

print(row\_vals) #prints array for each image w/ max photon count per column