Flat field measurement on ASI detector using flatfield_dec17 data

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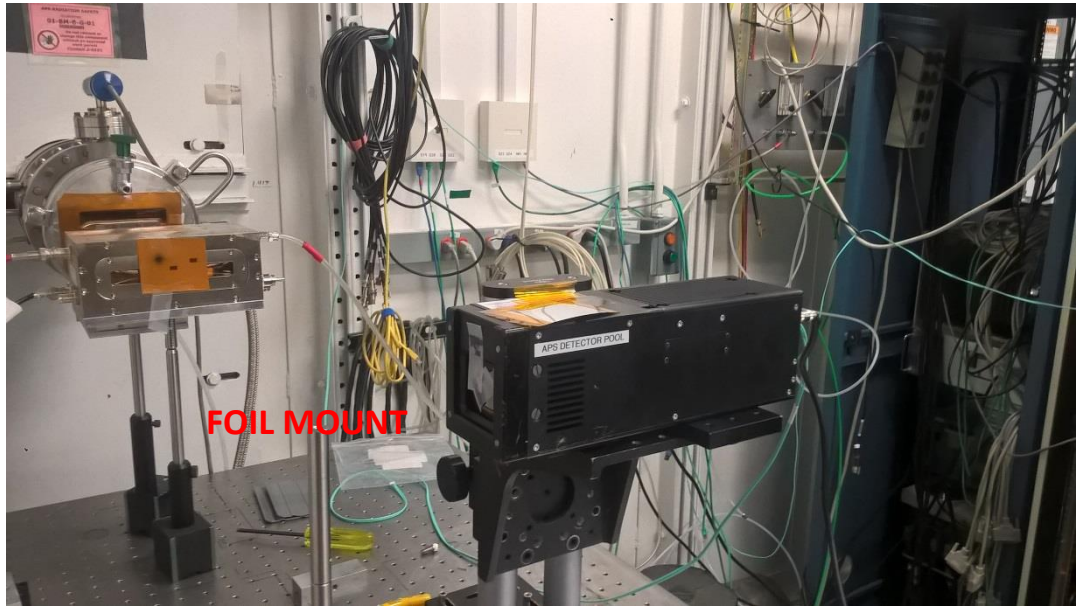
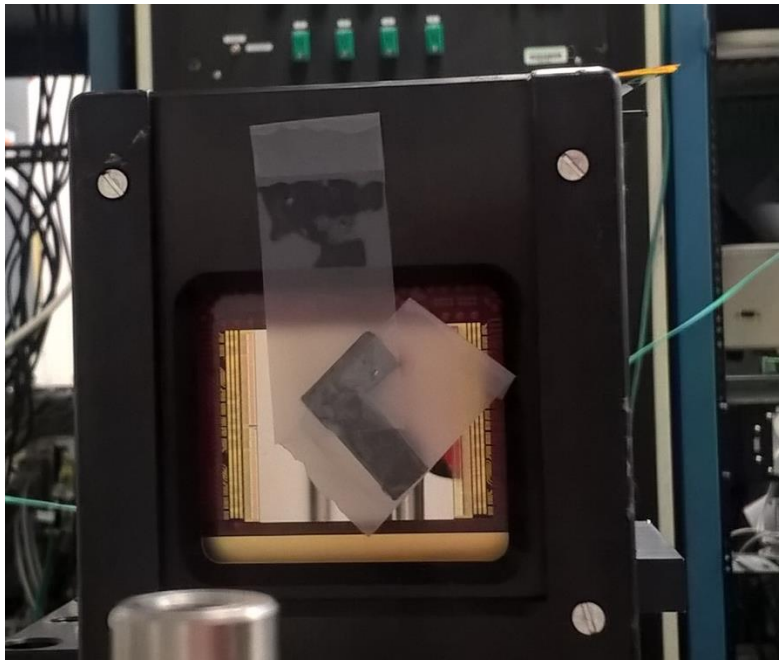
Sensitivity map

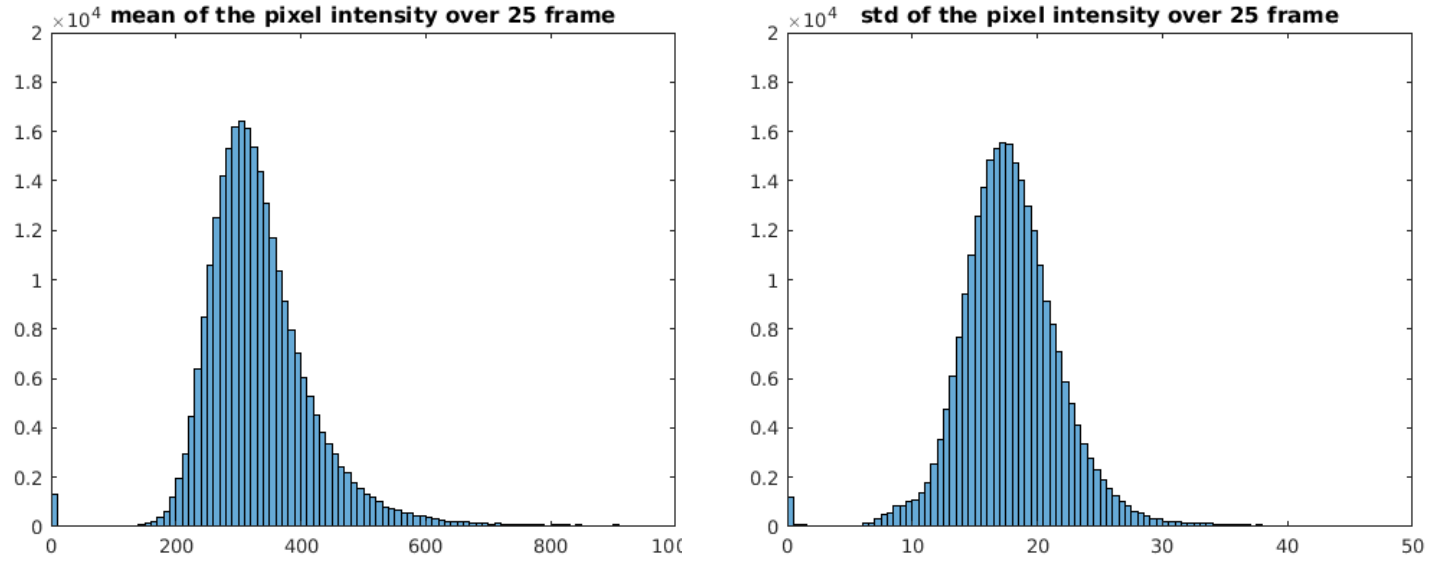
- Same method as Pixirad2 map generation
- Data from flatfield_dec17 taken at 1BMB endstation using white beam with foil ➔ needs more images for statistics
  - Detector at 90 deg location from the direct beam hitting the foil
- Use Holmium data but seems like map not particularly sensitive to energy ➔ needs more data
- Procedure described in next slide
- Note detector orientation ➔ In this configuration, left bottom part is the least active / sensitive part (more in the later slide)



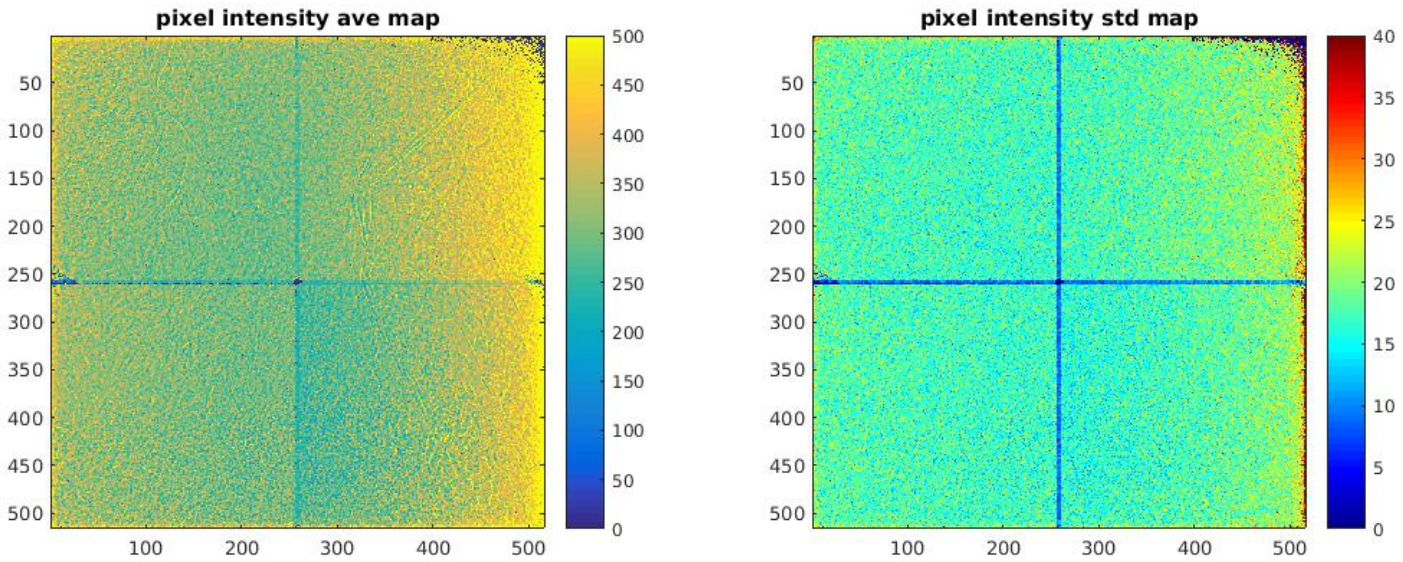


Procedure for bad pixel table

- Take a series of images with descent intensity
- Calculate average and standard deviation from the stack per each pixel
- Determine bad pixel base on standard deviation and average cutoffs
  - Pixels with mean < 200; mean > 600 std > 20
- Note on the maps that
  - Bottom left is quite low in counts
  - Left edge is hyper active (large mea
  - Left edge is not reliable (larger std)
  - Stay away from the edges



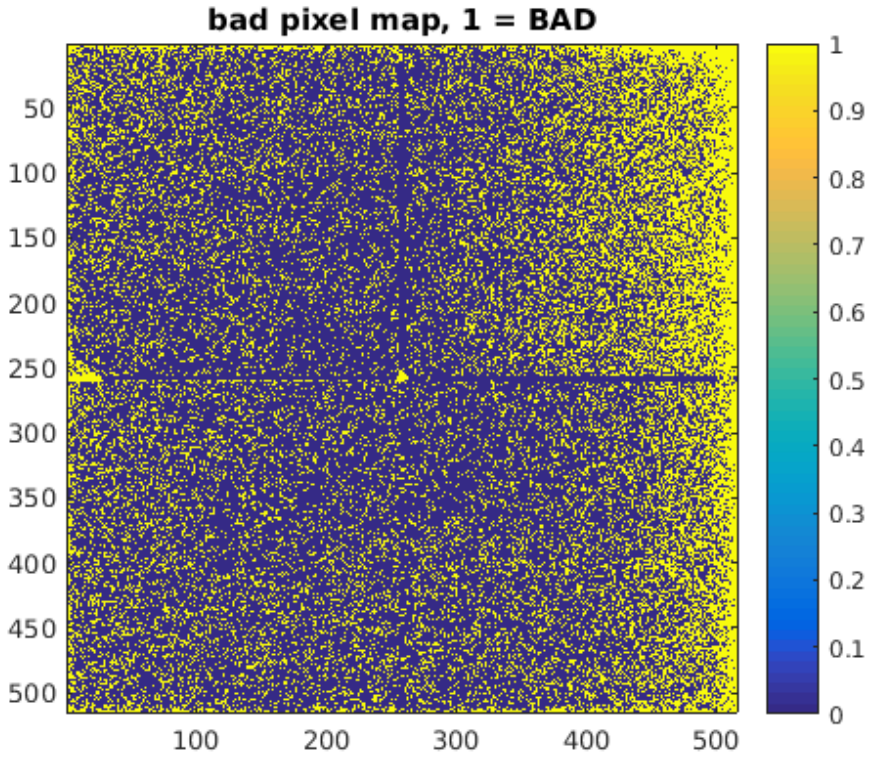
Histograms of the pixel intensity mean and std



Maps of the pixel intensity mean and std

Procedure for sensitivity map

- Obtain bad pixel table (BPT) from last slide
- Ignoring the bad pixels, compute for each region the average intensity of the pixels
- Take the average of the four regions ➔ expected intensity if all regions had identical senstitivity
- Sensitivity of a pixel = (expected intensity) / (average intensity of a pixel over the image stack)
- Correction example



Correction example

- Good
  - Nice uniform image
- Bad
  - A lot of bad pixels
  - Maybe need to relax the constrain some
  - Need to take data away from the really bad areas if doing VFF type of measurement or anything quantitative
- Future work
  - Need more statistics from larger number of frames
  - Energy dependence?
  - Exposure time dependence?
- Bad pixel map and sensitivity maps are available in my github repo