1 Power Ratios

normalize image of cluster with exposure map
- exposure maps weighted by raymond-smith $N_H = 3 \times 10^{20} cm^{-2}$, kT= 5 keV, and $Z/Z_\odot = 0.3$.

pt src holes filled using dmfilth

exclude or include central sbr pt src, doesn't make significant change to ratios.

compare soft band flux vs. RASS R4-R5 band flux for soft excess

make two instrument only (no mirror or QE) exposure maps for each bgd
- one with bgd bad pixels
- one with obs bad pixels
- divide bgd image by bgd bad pixel exposure map
- then multiply bgd image by obs bad pixel exp map
- correct bgd image by full obs exposure map

calculate centroid (location where P1 vanishes) in largest aperture

calculate image moment, img_i

calculate bgd image moment, bgd_i

subtract bgd power from image power for net moment, $m_i = (img_i - bgd_i)$

calculate power from net moment, p_i

2 Error Estimate via bootstrap Monte Carlo

adaptively bin (a.b.) exposure corrected image to minimal S/N (like 2) to remove almost all zeroes from image

multiply a.b. image by exposure map to reintroduce instrumental effects

add Poission noise to each pixel by making pixel value the mean of a Poission distribution and then randomly selecting a new pixel value from that distr.

exposure correct the image

repeat 100 times for each image

** for clusters with bgd moments similar to image moment, also perform the BsMC for bgd image

calculate power ratio for each of 100 BsMC images

define 90% conf. as the fifth highest and fifth lowest ratios

** pt srcs not included as they introduce a max of 13% total flux

compare 0.7-7.0 flux in obs to 0.7-7.0 flux in bgd

determine possible change in flux, ie: 0.9-1.2

run error calculation on bgd images with normalization of 0.9 and 1.2; ie use 0.9*bgd in BsMC routine and 1.2*bgd in BsMC

define sys err as difference between avg of 100 power ratios calculated with orig bgd and avg of 100 power ratios calculated with renormalized bgd.