Missing lines, calibration errors or what ?

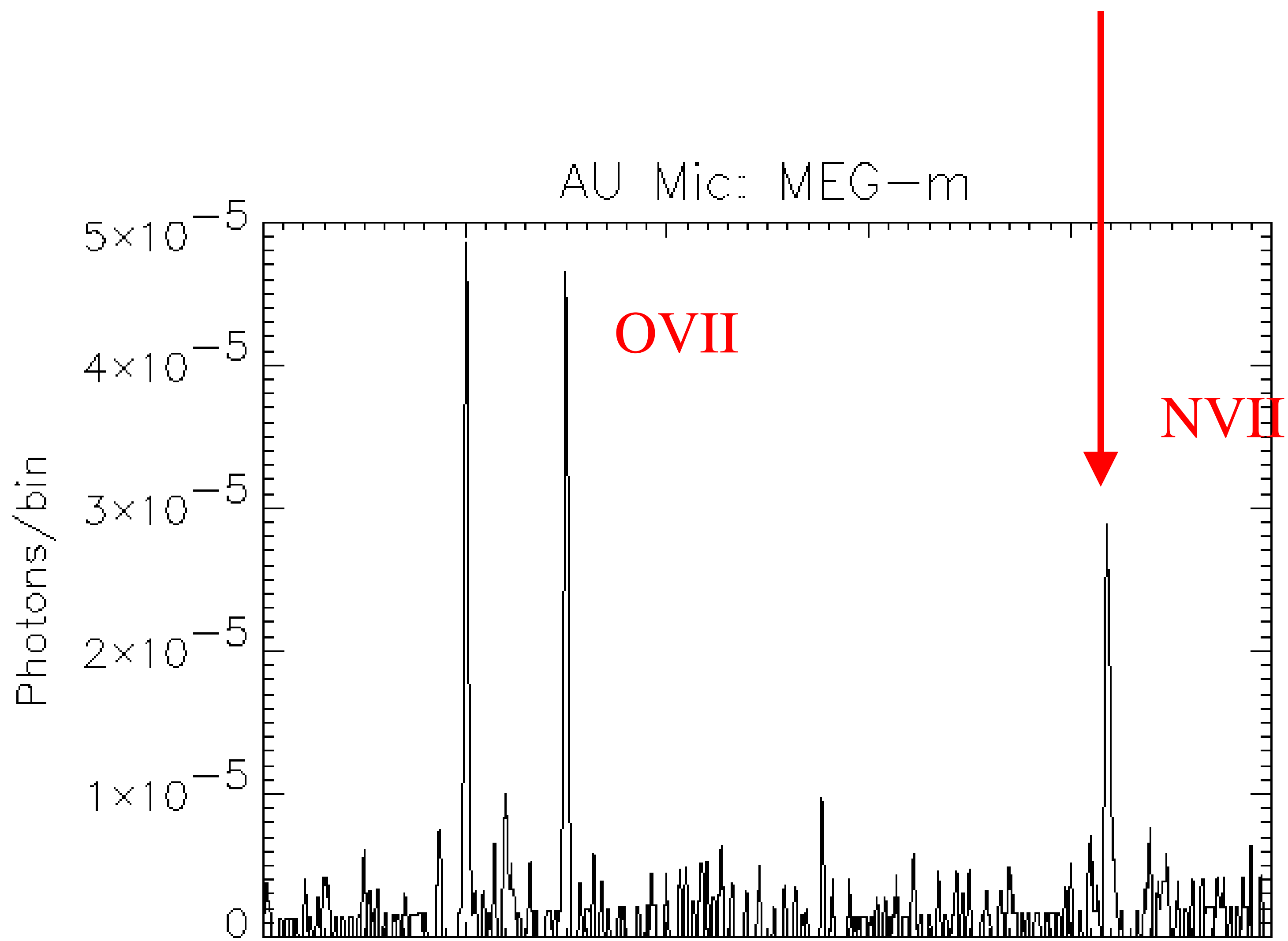
J. Schmitt

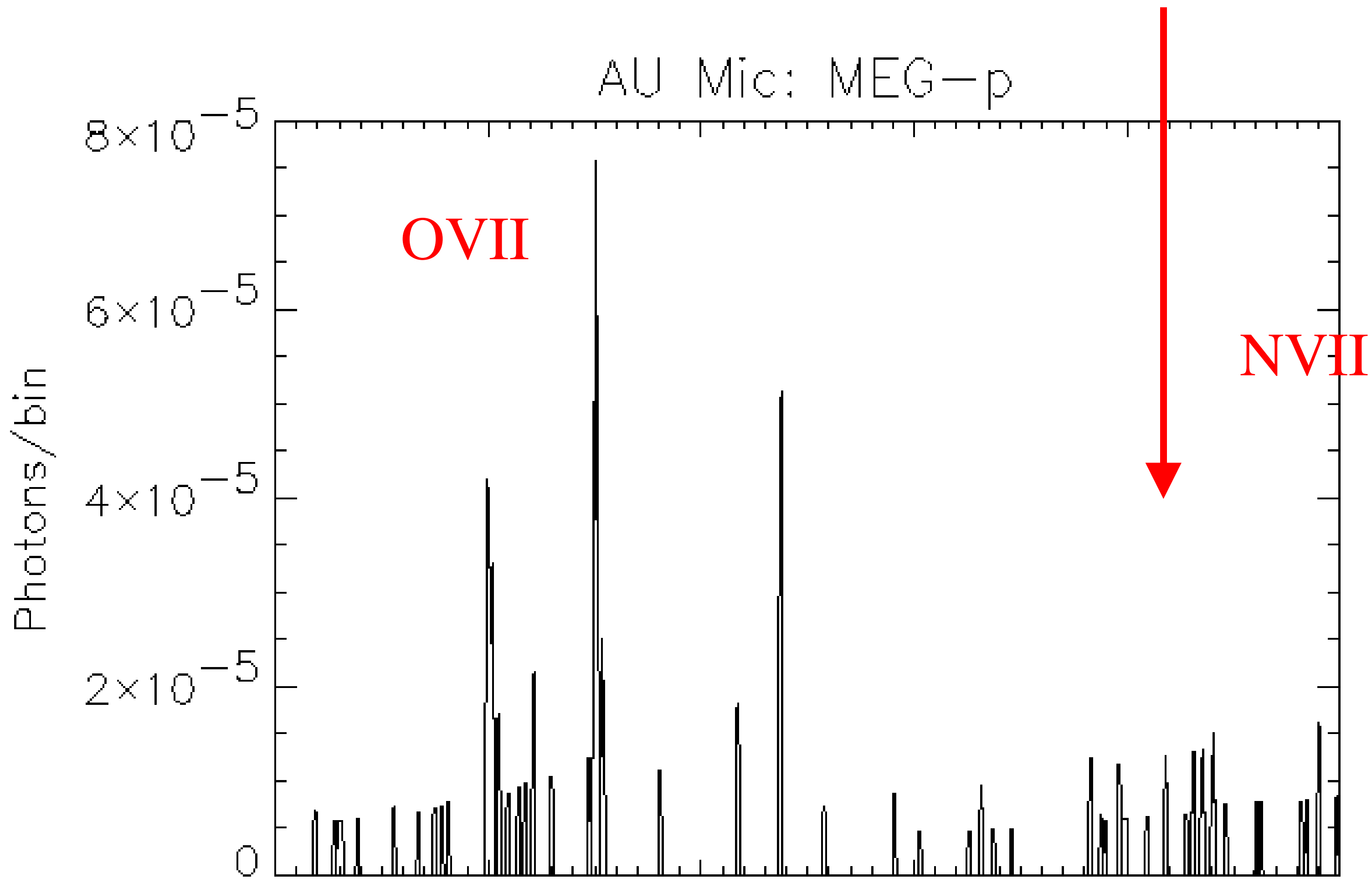
Hamburger Sternwarte

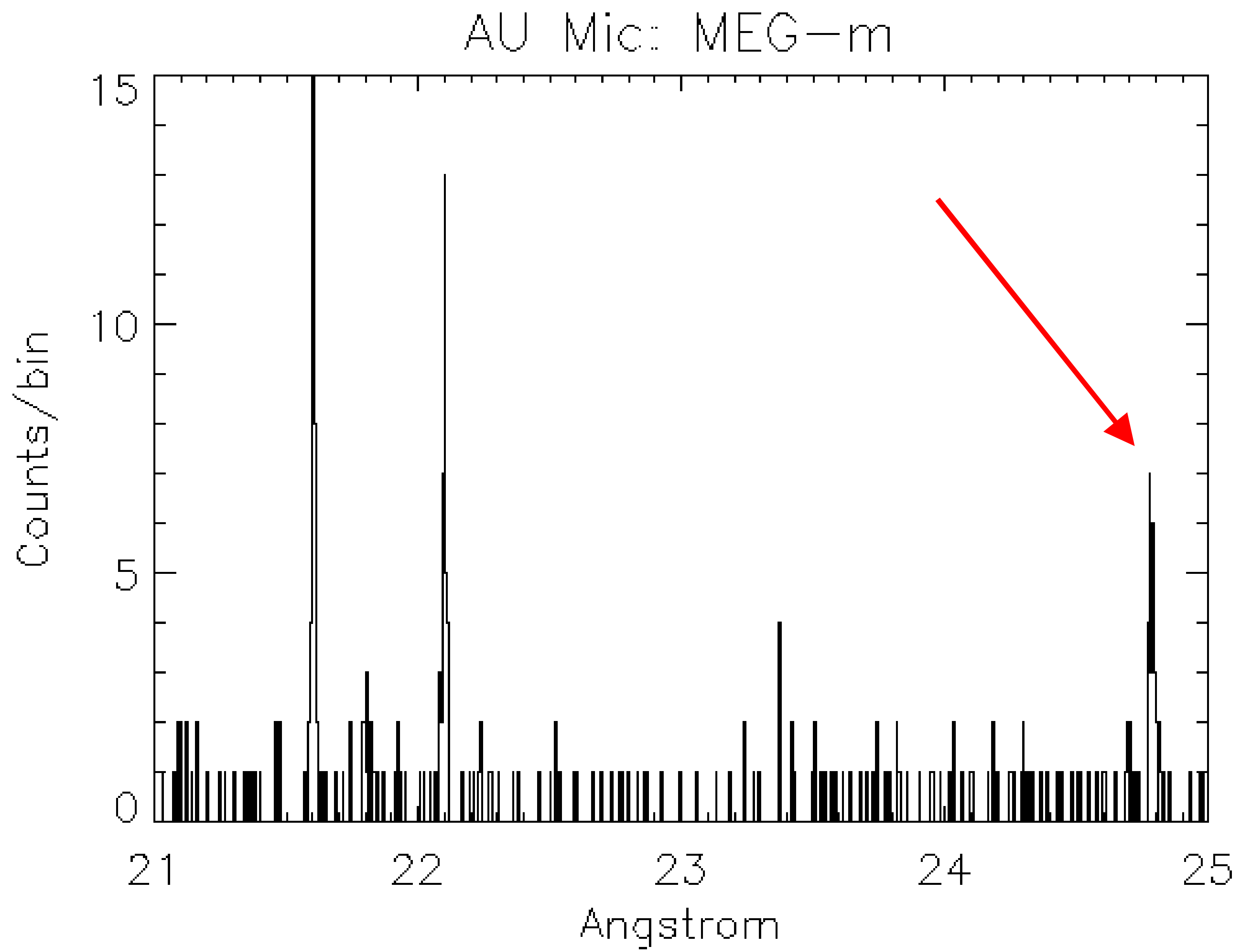
Email: jschmitt@hs.uni-hamburg.de

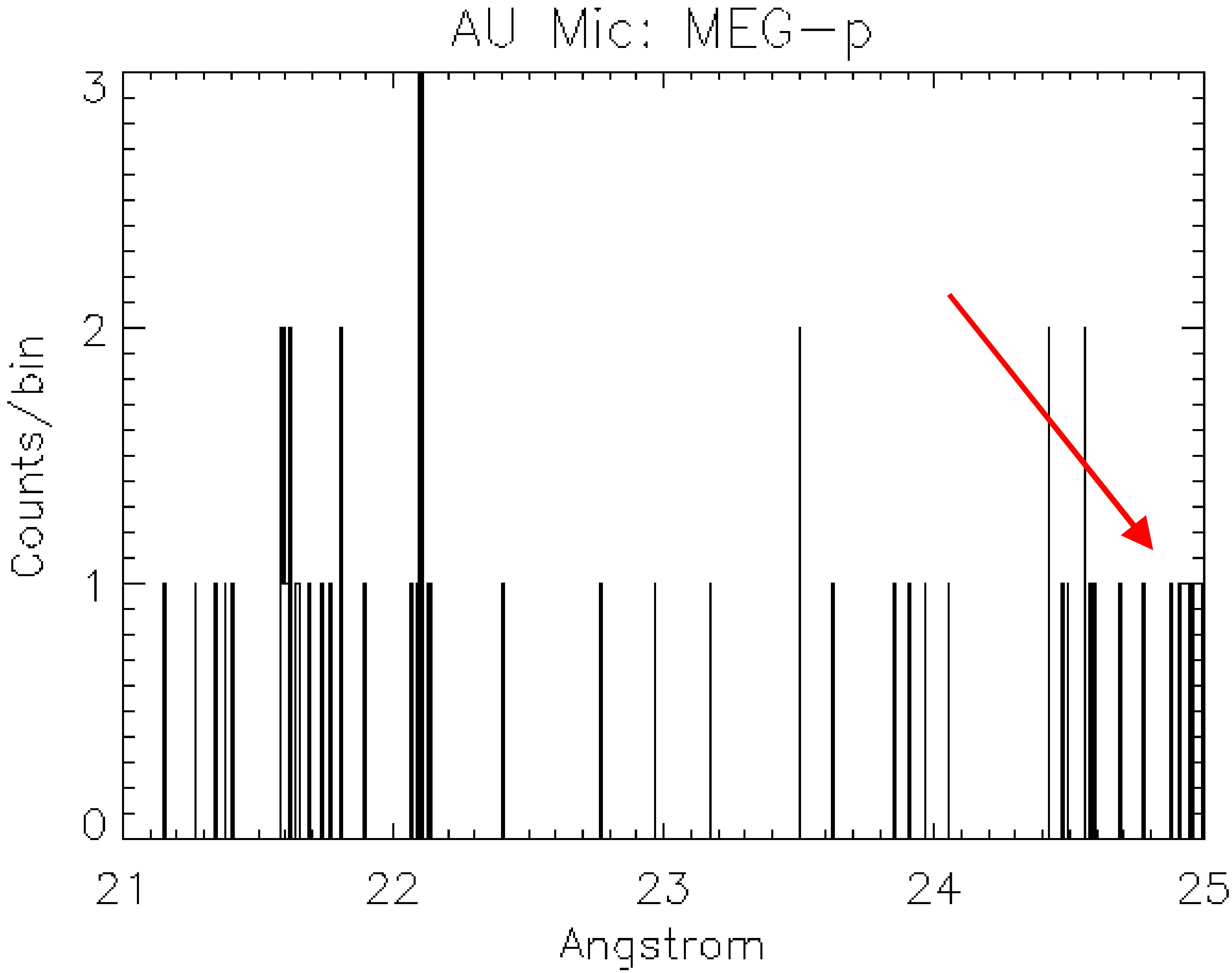
Internet: http://www.hs.uni-hamburg.de

6 years of Chandra Science
Cambridge November 2005


AU Mic: MEG-m
Photons/bin
5×10−5
4×10−5
3×10−5
2×10−5
1×10−5
0
OVII
NVII


AU Mic: MEG-p
Photons/bin
8×10−5
6×10−5
4×10−5
2×10−5
0
OVII
NVII


AU Mic: MEG-m
Counts/bin
15
10
5
0
21
22
23
24
25
Angstrom


AU Mic: MEG-p
Counts/bin
0
1
2
3
21
22
23
24
25
Angstrom

Measurements:

Order	counts	Effective area (cm^2)
m	31	3.15
p	2	0.90
t=p+m	33	4.05

Binomial distribution with

$N_{tot} = 33$, $N_p = 2$, $f_m = 0.778$
$f_p = 0.222$

$$P(N_m, N_p) = \binom{N_{tot}}{N_p} f_m^{N_m} f_p^{N_p}$$

$f_m = 0.795$ $f_p = 0.205$

Combination	Probability	Mod. Probability
(33,0)	0.000253	0.000515
(32,1)	0.00238	0.00439
(31,2)	0.011	0.018
(30,3)	0.0320	0.0482
(29,4)	0.069	0.093
(28,5)	0.113	0.139

Conclusion:

1 line of 91 lines considered should show anomalies in p/m orders of the same severity as NVII in Au Mic simply on statistical grounds.

Do you believe in statistics ?