Search for pulsed γ-ray emission from globular cluster M28

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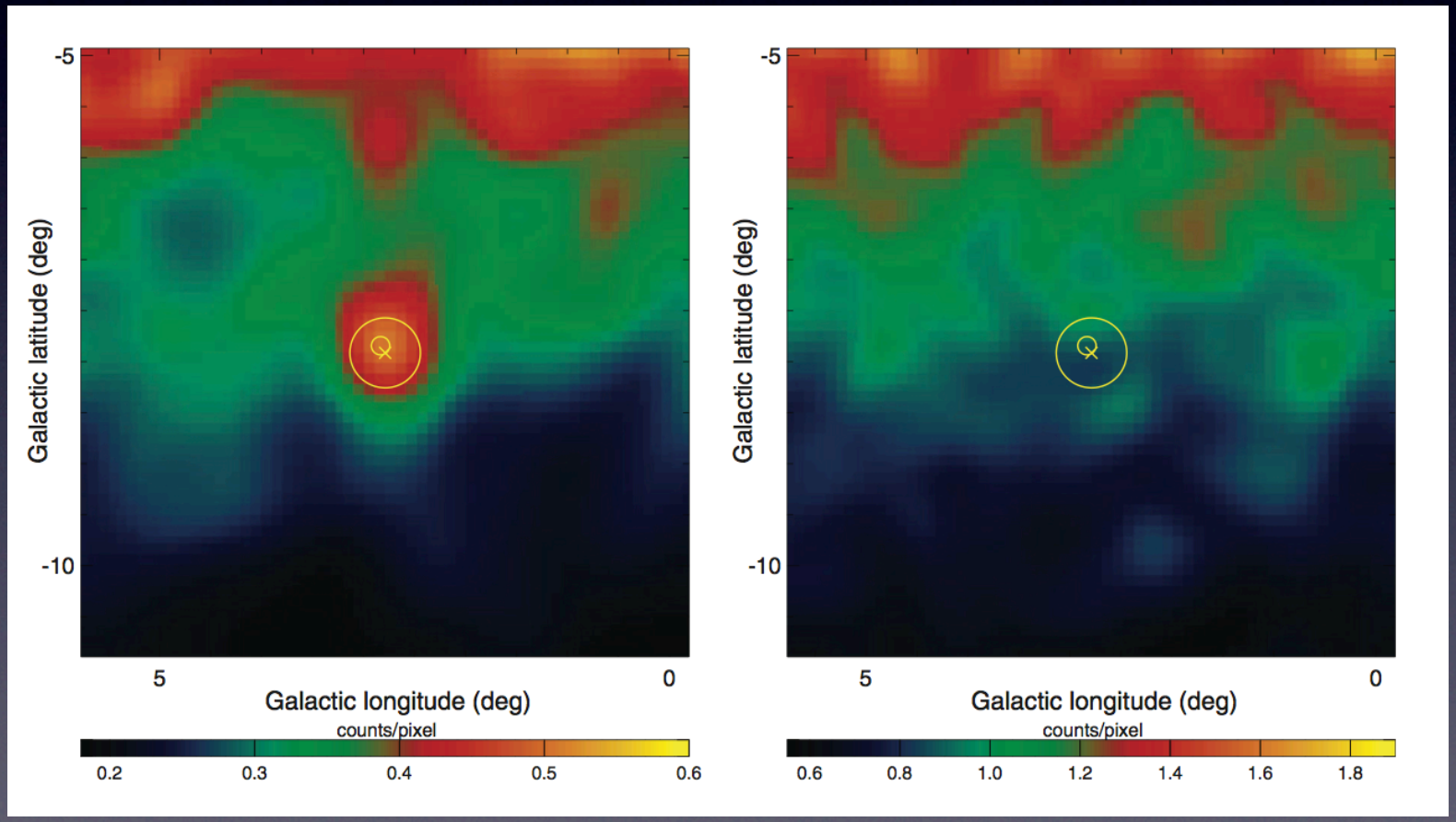
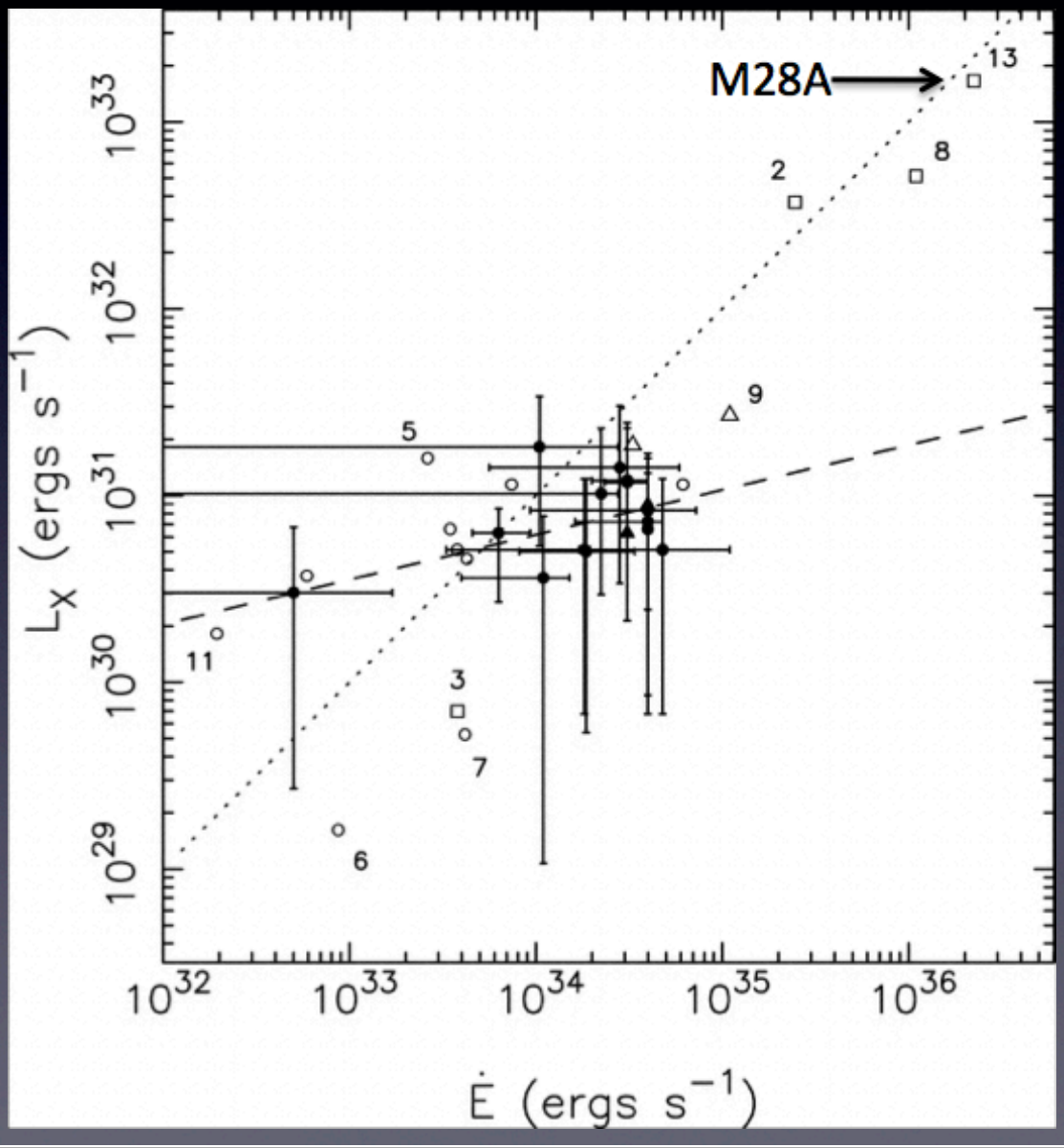
Pulsed γ-ray from Globular Clusters

PSR J1823-3021A @ NGC6624



Freire et al. (2011)

M28A is so energetic



dE/dt =2.2x10^36 erg/s

Strongest MSP in GC

Bogdanov et al. (2011)

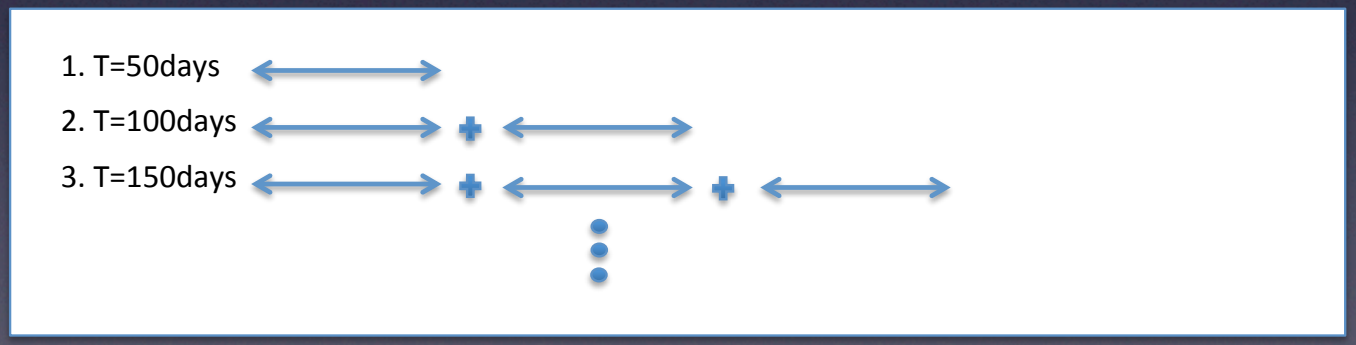
Starting point

```
PSR J1824-2452
RAJ 18:24:32.00790550 0 0.00001054
DECJ -24:52:10.8076448 0 0.0020416
F0 327.4056060517495439 0 0.0000000000233327
F1 -1.735361869603E-13 0 1.123466933817E-18
PEPOCH 53800.000000
DM 0.000356
EPHEM DE405
TZRMJD 53859.26176012789721
TZRSITE 1
JUMP_1 -0.00015523 1 0.00000010
JUMP_2 0.00136886 1 0.00000012
JUMP_3 0.00129312 1 0.00000061
```

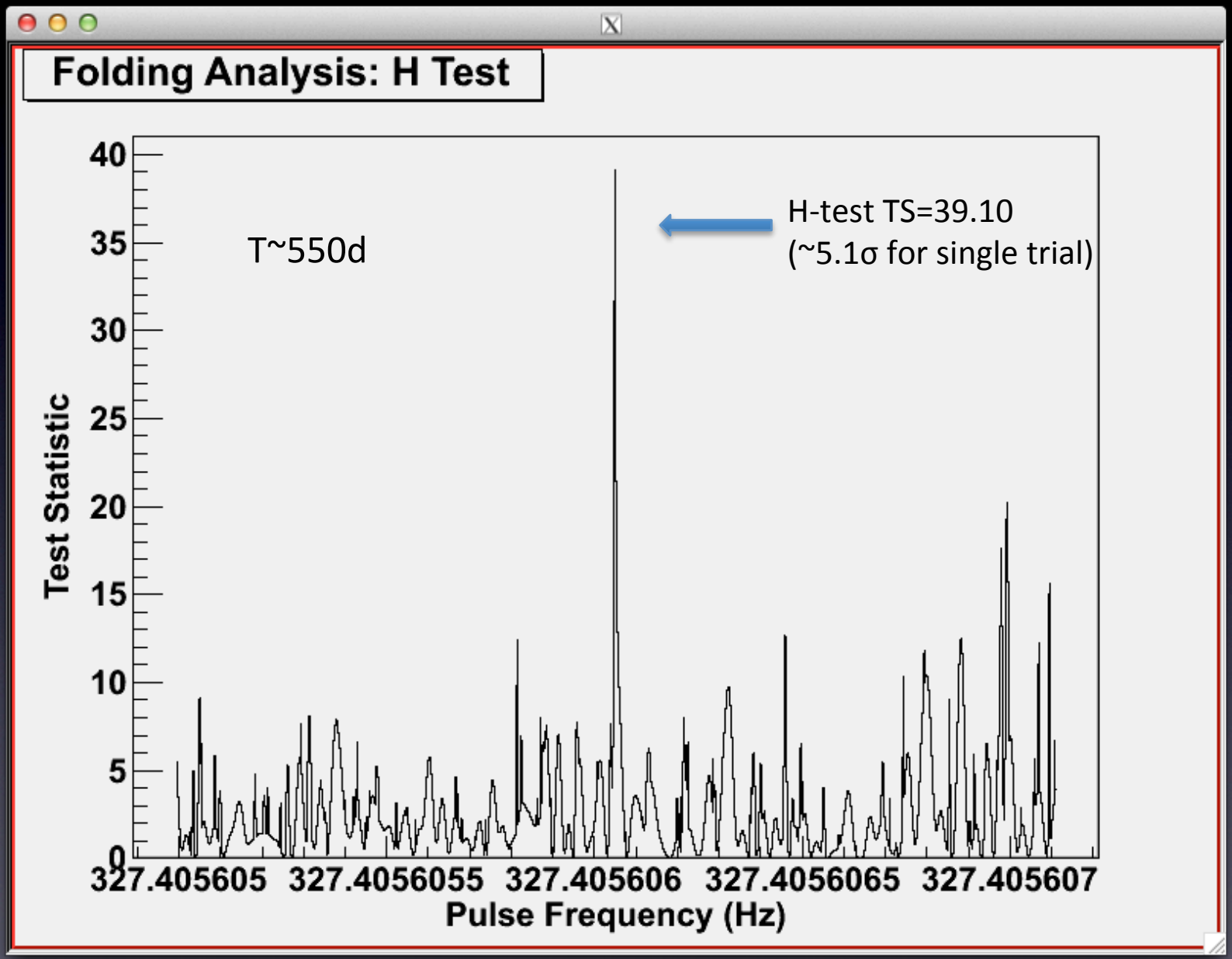
Ray et al. 2008

Pulsation search

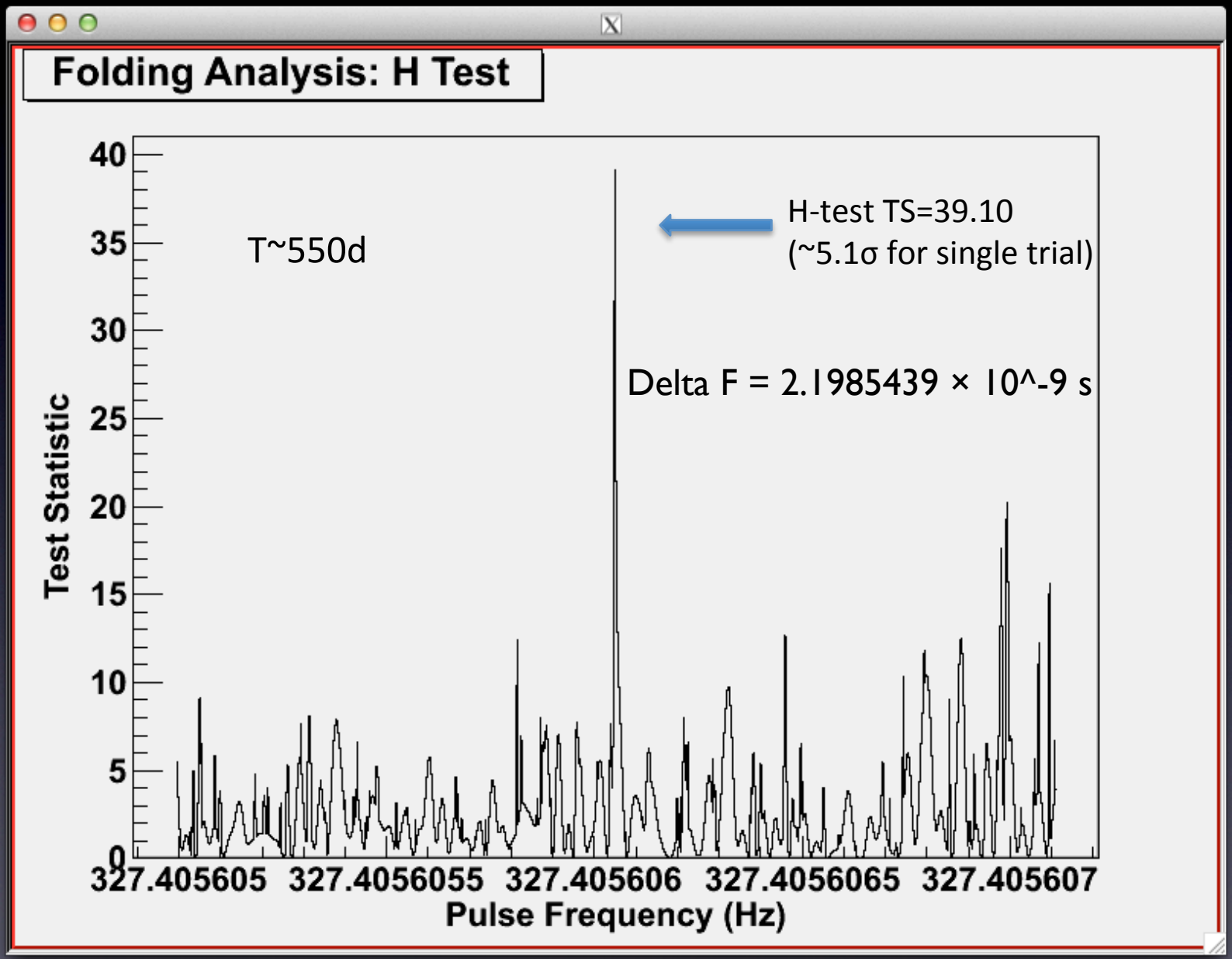
- By fixing the first period derivative (f1) at it's best-fit value, we search for coherent signal by stacking up photons with 50 days interval



Pulsation search



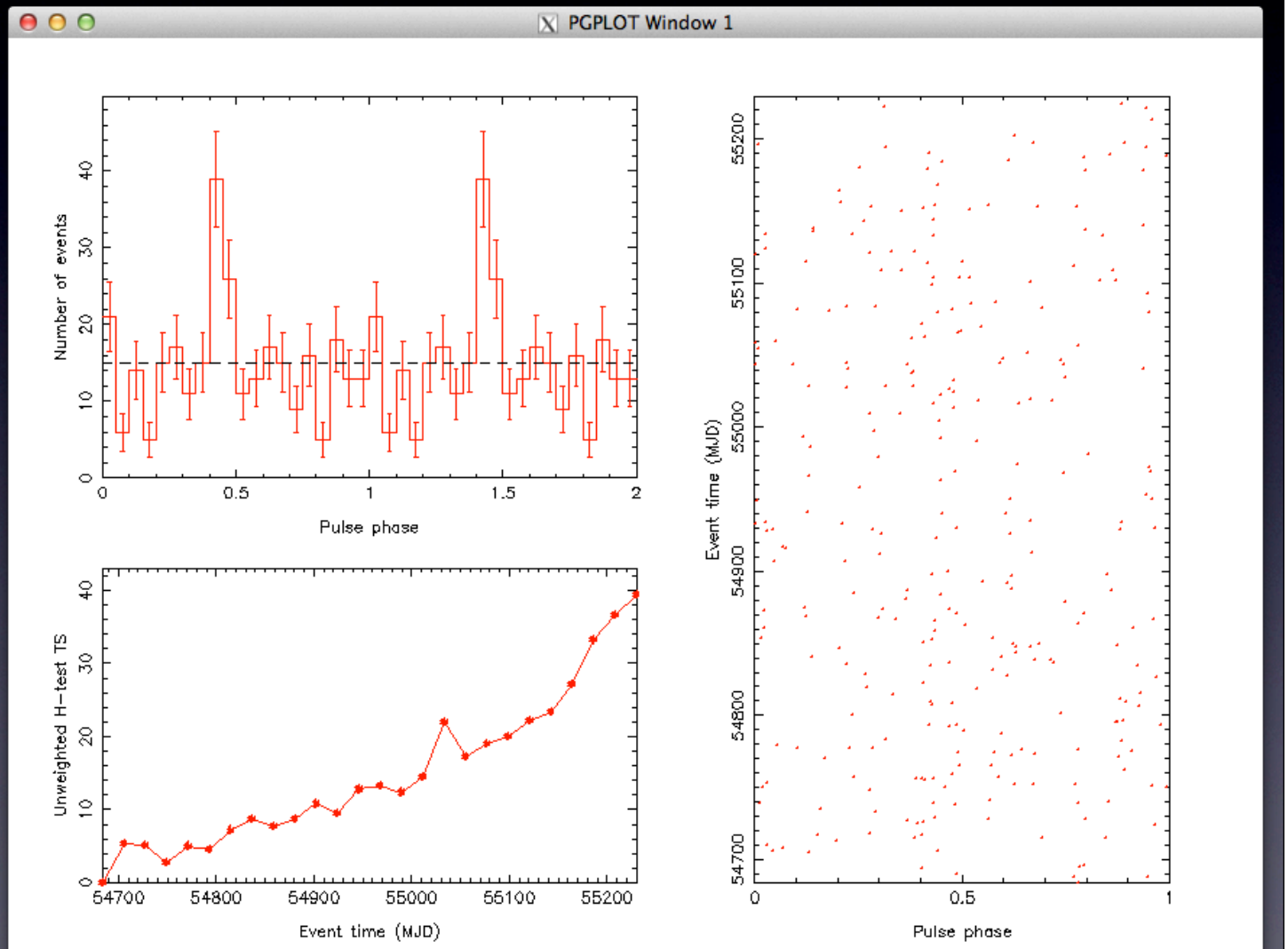
Pulsation search



Folded lightcurve

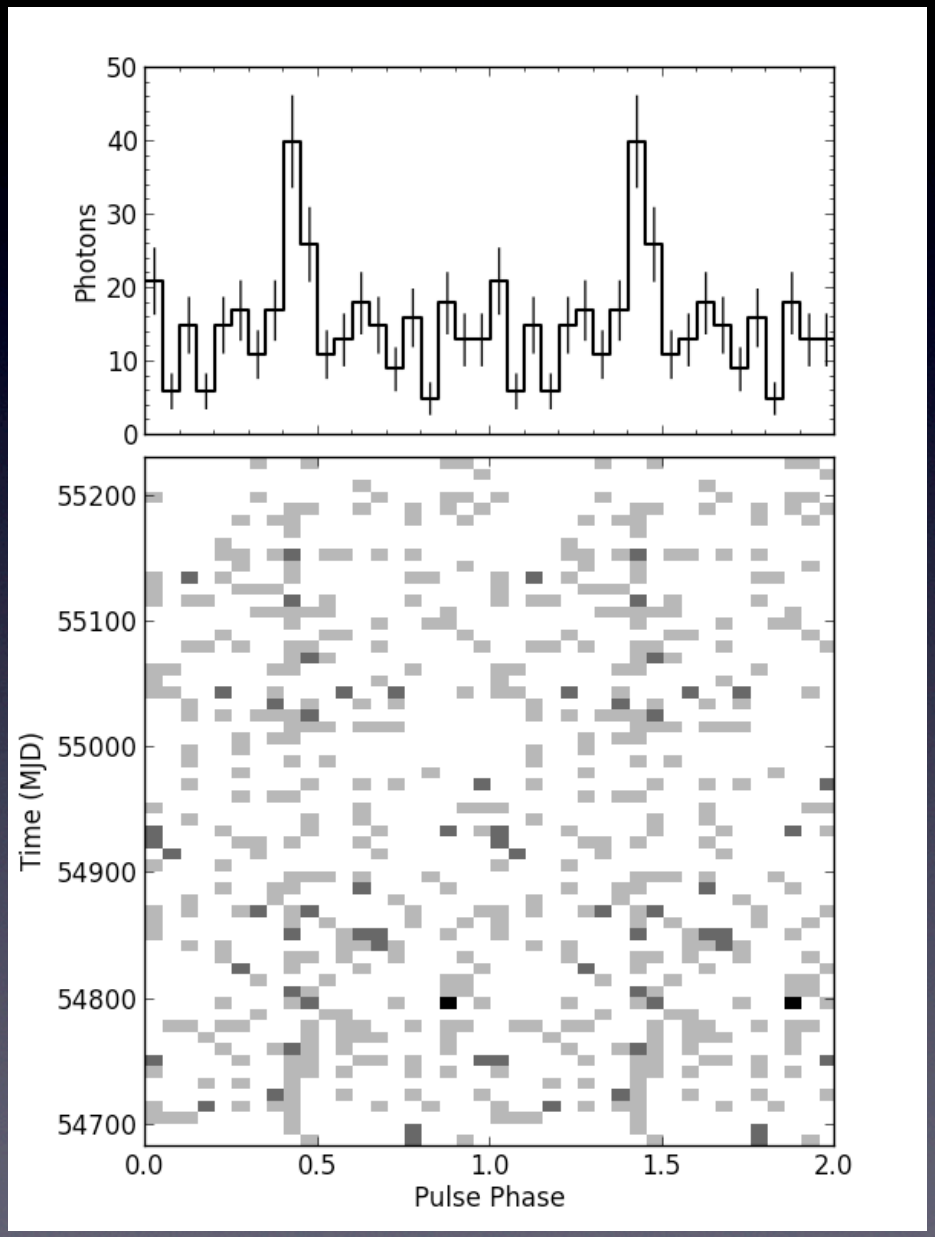
ROI = 0.5deg

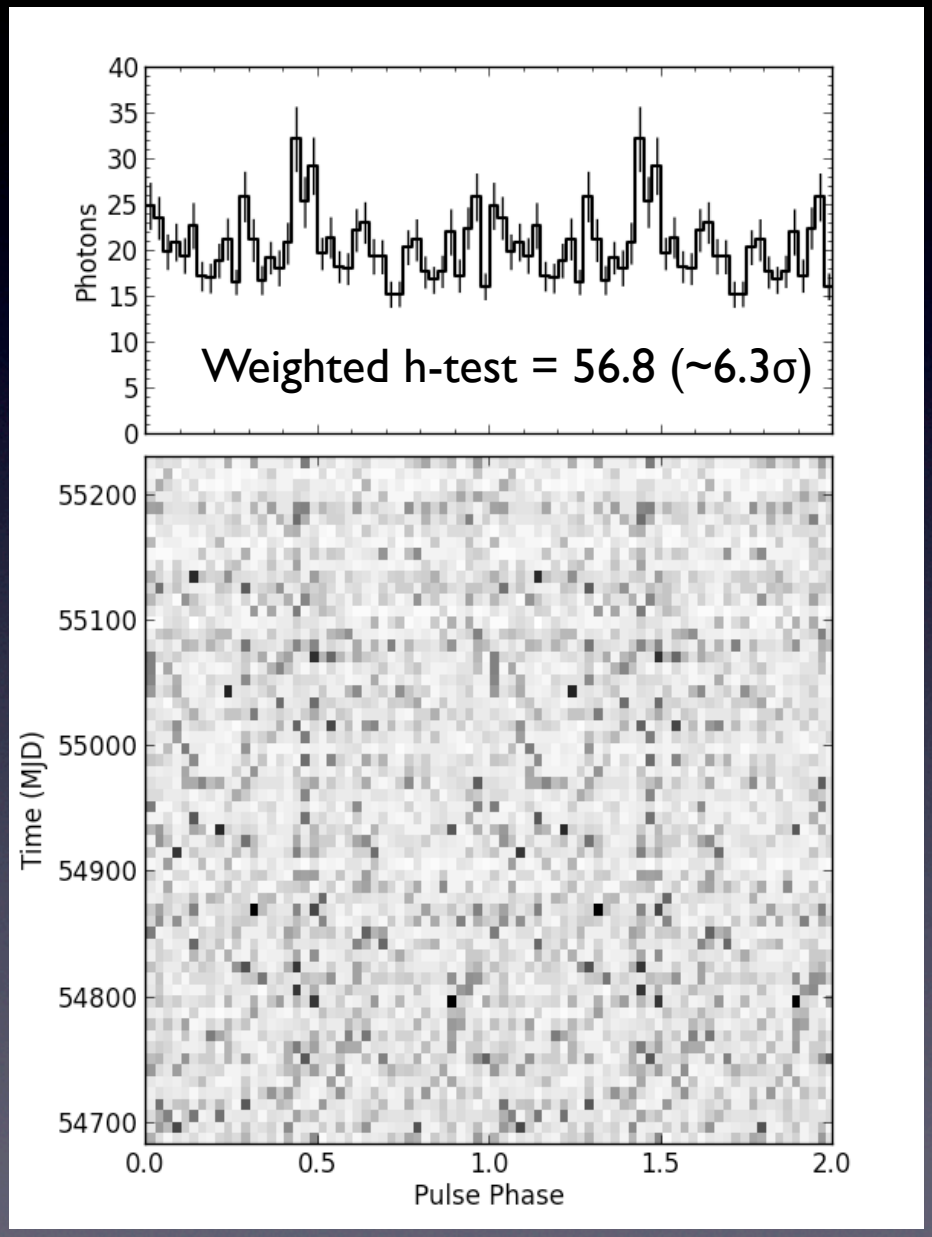
E_min = 720 MeV



TEMPO2 plugin output

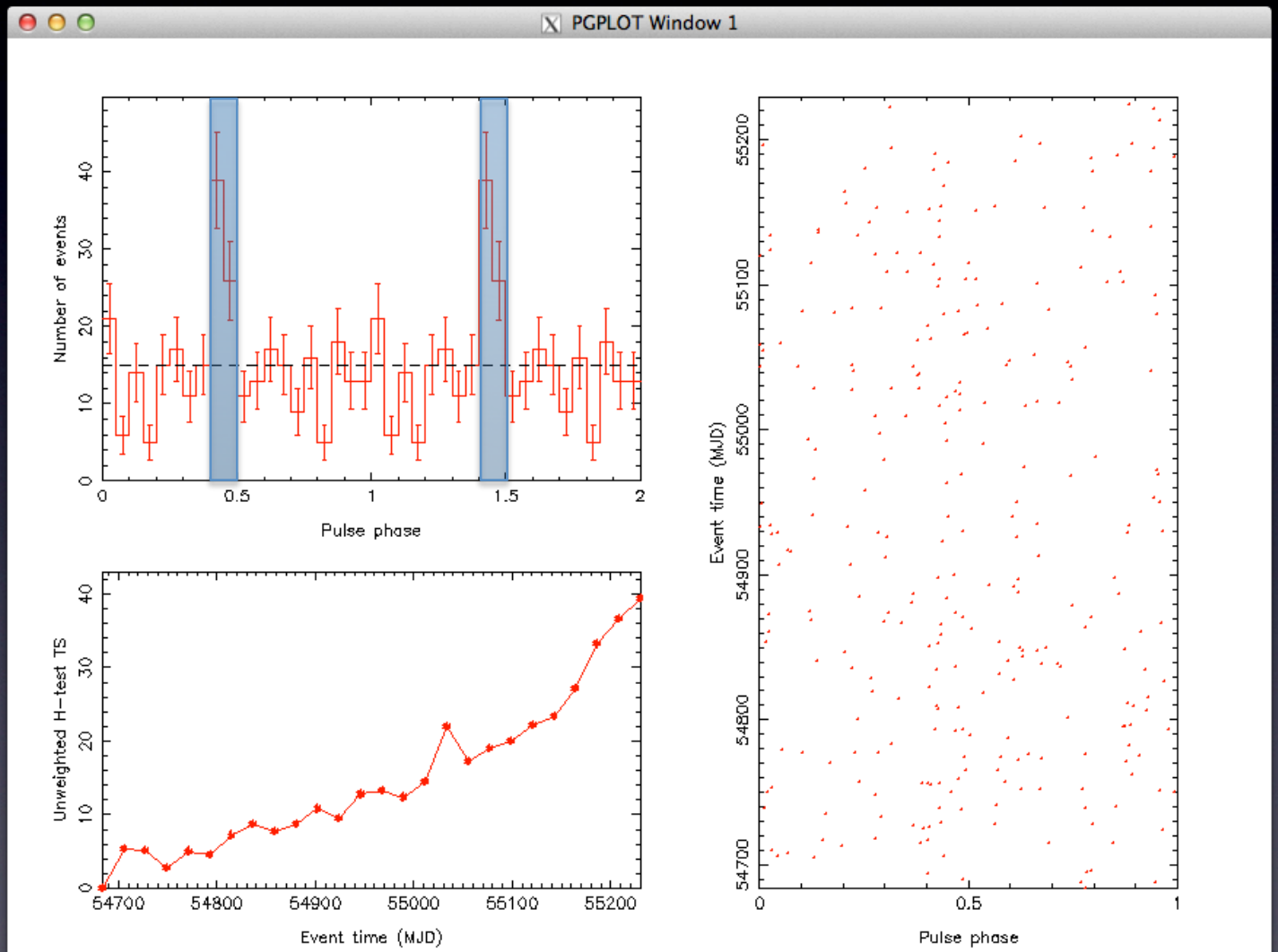
Weighted photon





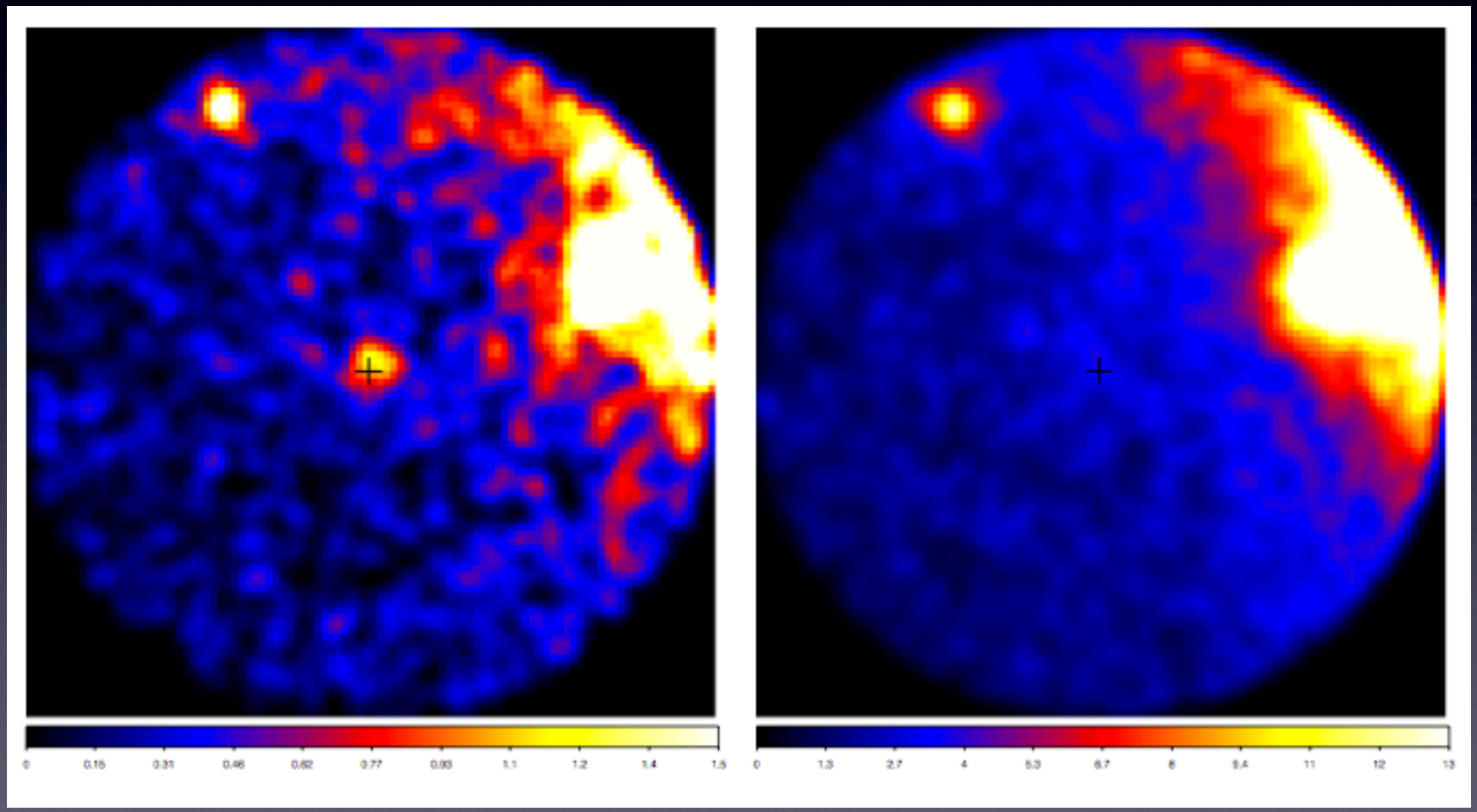
Phase resolved analysis

We defined phases between 0.4-0.5 as onpulse interval



TEMPO2 plugin output

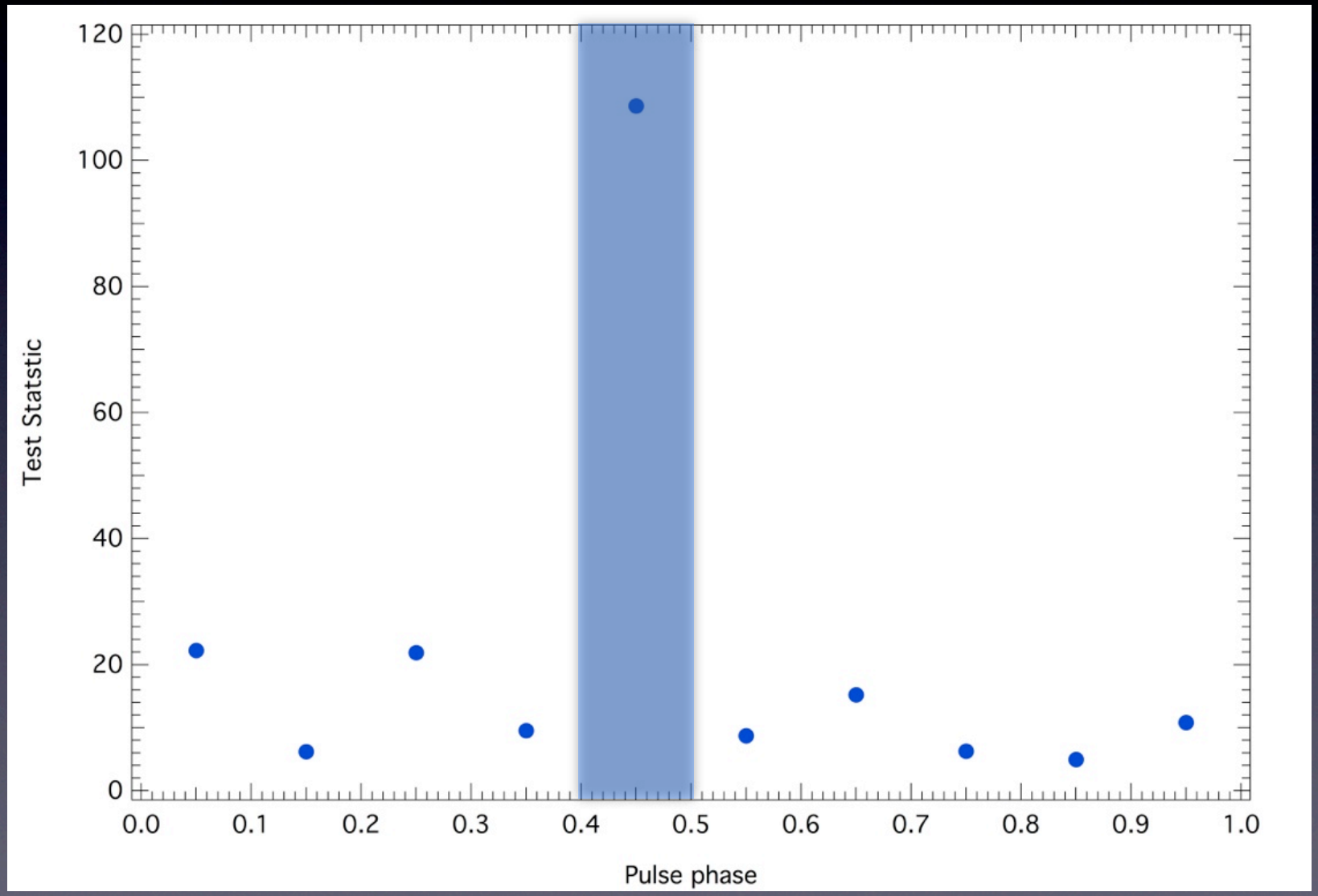
Phase resolved analysis



Pulse on (Φ=0.4-0.5)

Pulse off (Φ=0.5-1.4)

Phase resolved analysis



END