Latest results from RAPTOR
(RAPid Telescopes for Optical Response)

Eearly Optical Afterglow of GRB 050319

Przemek Wozniak
ISR-1

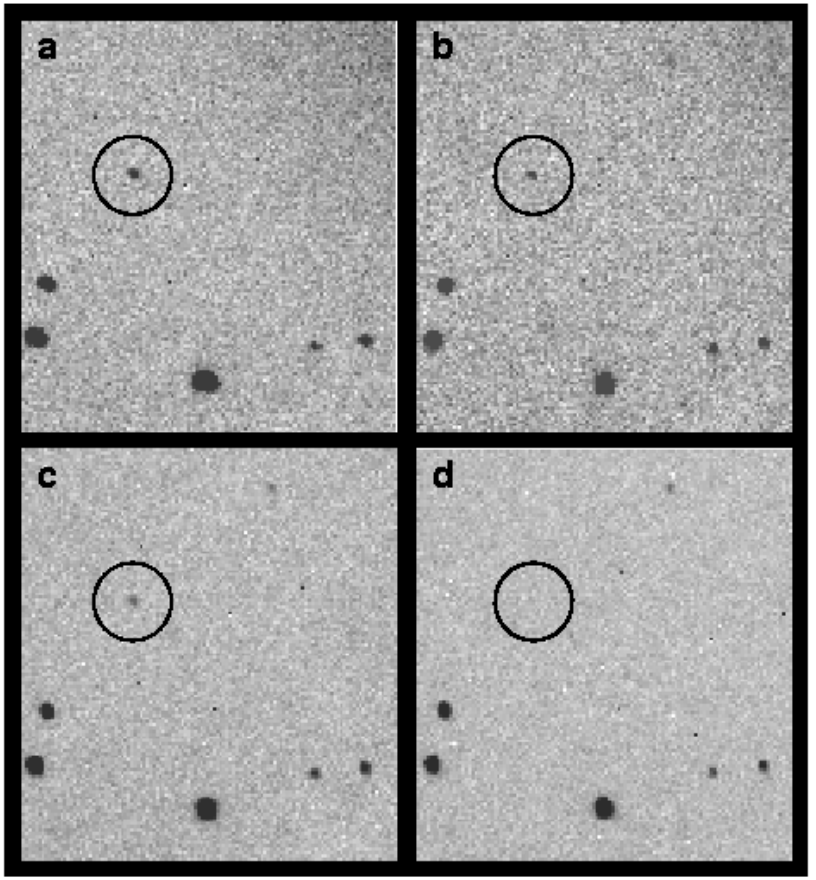
GRB related Optical Transients detected within the first few minutes:

- 990123
- 021004
- 021211
- 030418
- 041219
- 050319
- 050401

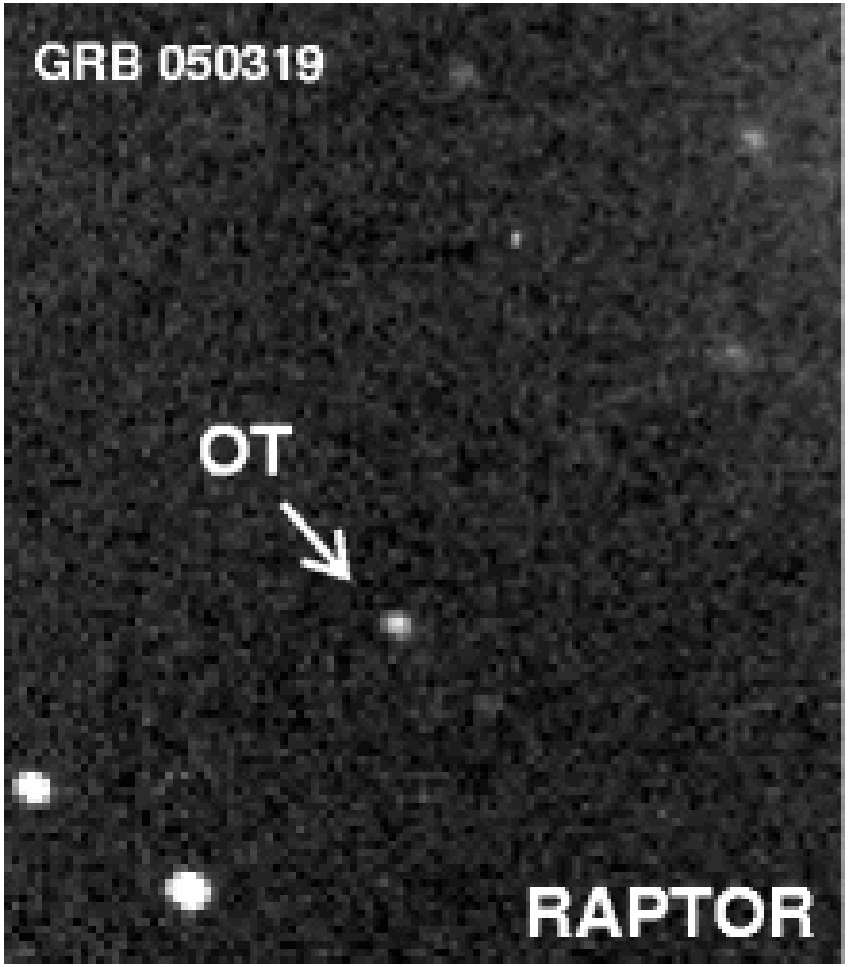
GRB 050319

- BAT/Swift trigger at 09:31:18.4 UT
- 10-s duration, average fluence
- real-time position posted on GCN in 17.6s
- OT announced within 30 min. (ROTSE team)
- RAPTOR-S responded in 35.3 s: high S/N detection
- RAPTOR-AB was there in 25.4 s (decent limit)
- High redshift (z=3.24)

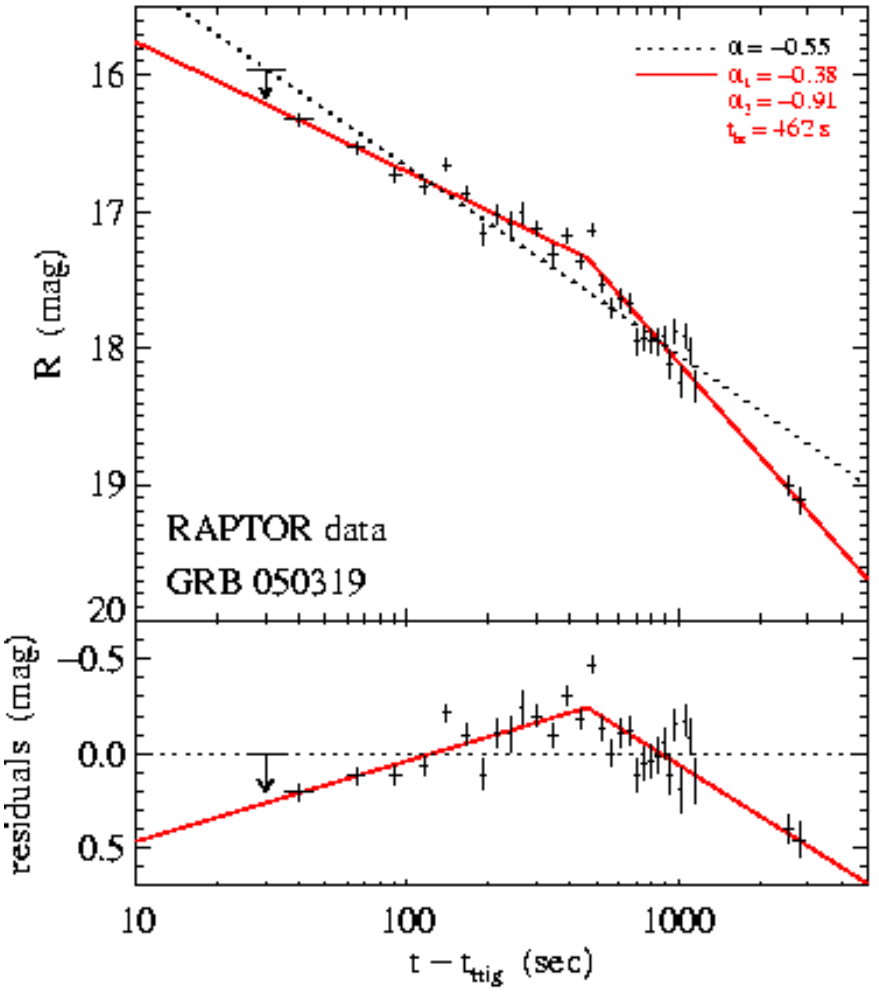
RAPTOR-S images of GRB 050319



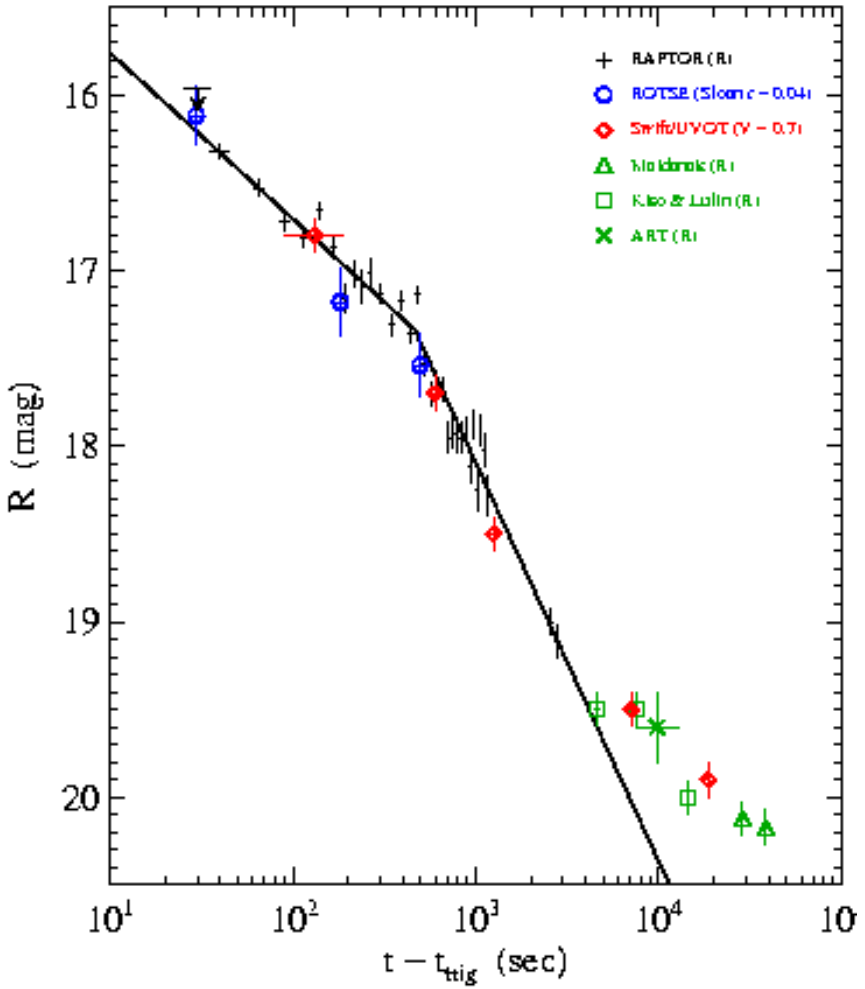
Hollywood edition



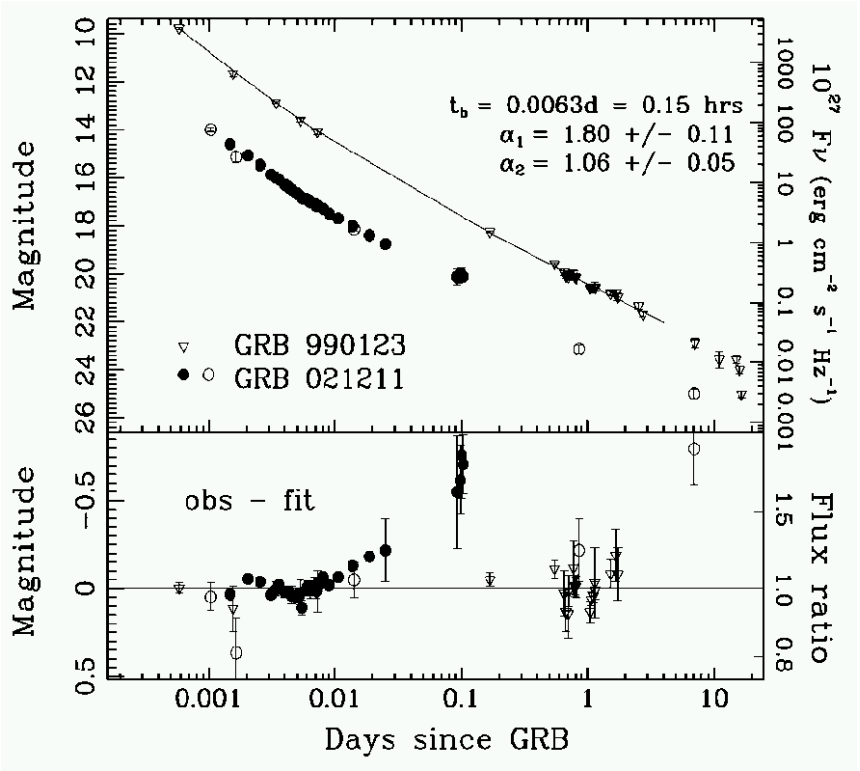
Light curve

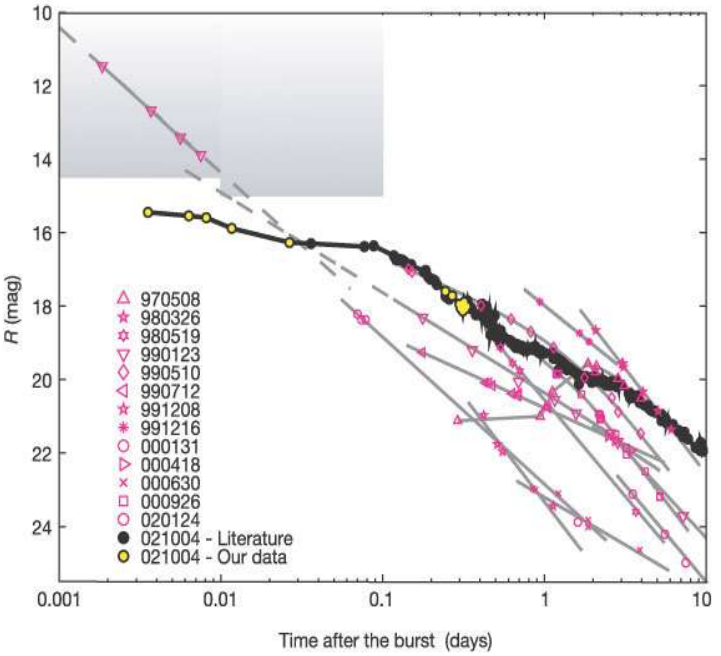

α = –0.55
α1 = –0.38
α2 = –0.91
tb = 462 s
RAPTOR data
GRB 050319
R (mag)
residuals (mag)
t – ttrig (sec)
16
17
18
19
20
–0.5
0.0
0.5
10
100
1000

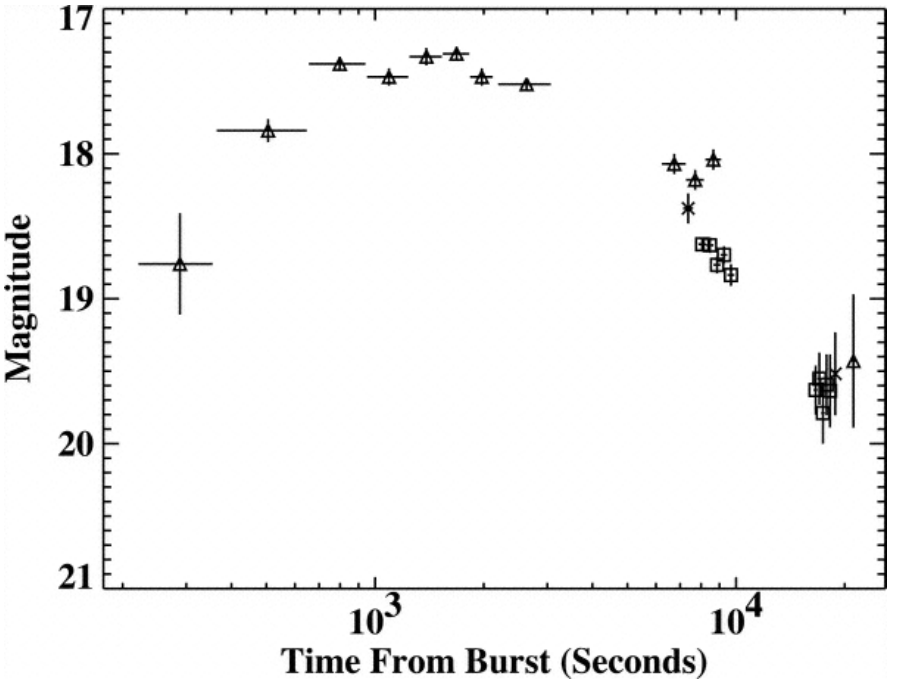
Comparison with data from other instruments



First comparisons







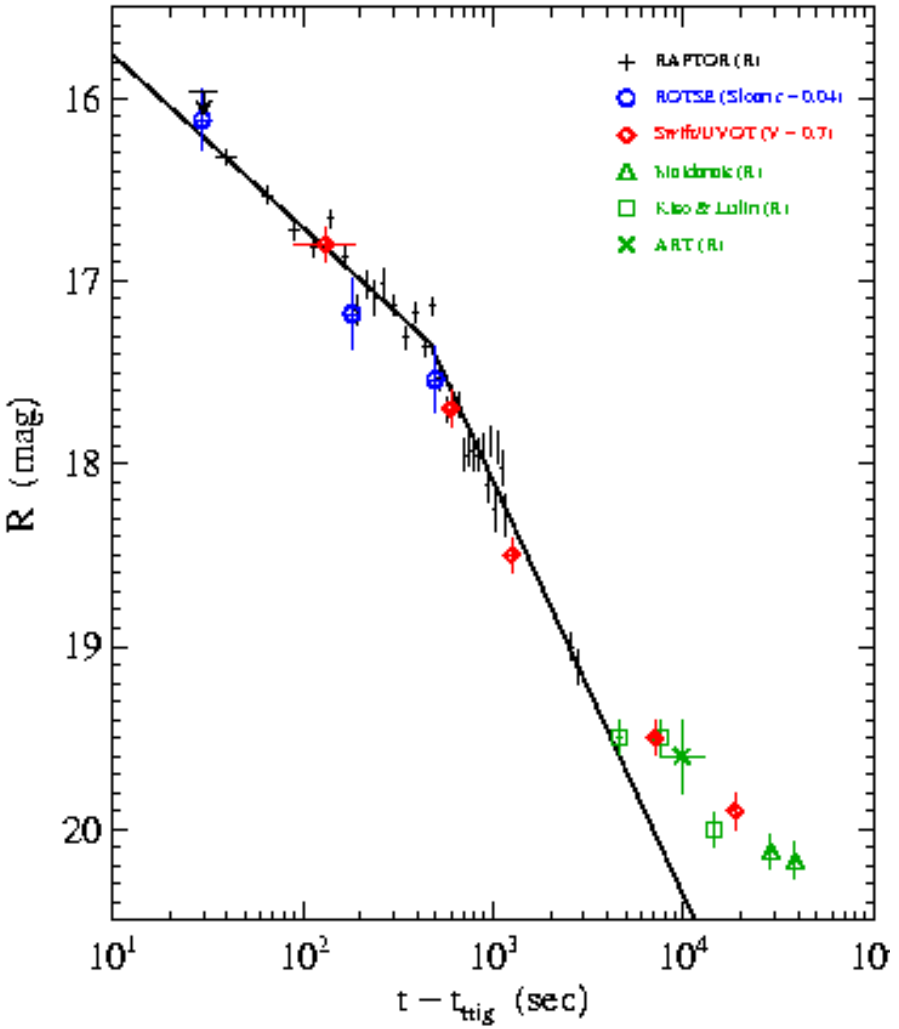
Two types ?

- Fast initial decline and breaking to a shallower PL
- Reverse shock followed by emerging external shock ?

- Slow in the beginning (even rising), then accelerating
- Delayed reverse shock or continuous evergy input ?

Where does 050319 fit ?

- It is slow, but may show the emergence of the reverse shock after ~1-2 hours.



Future

Colors, colors, colors.