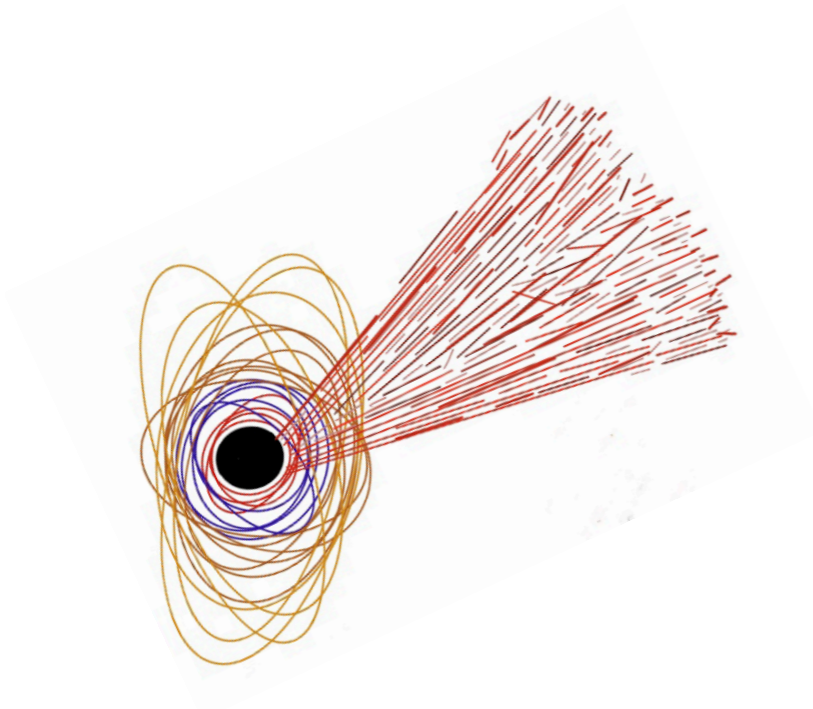
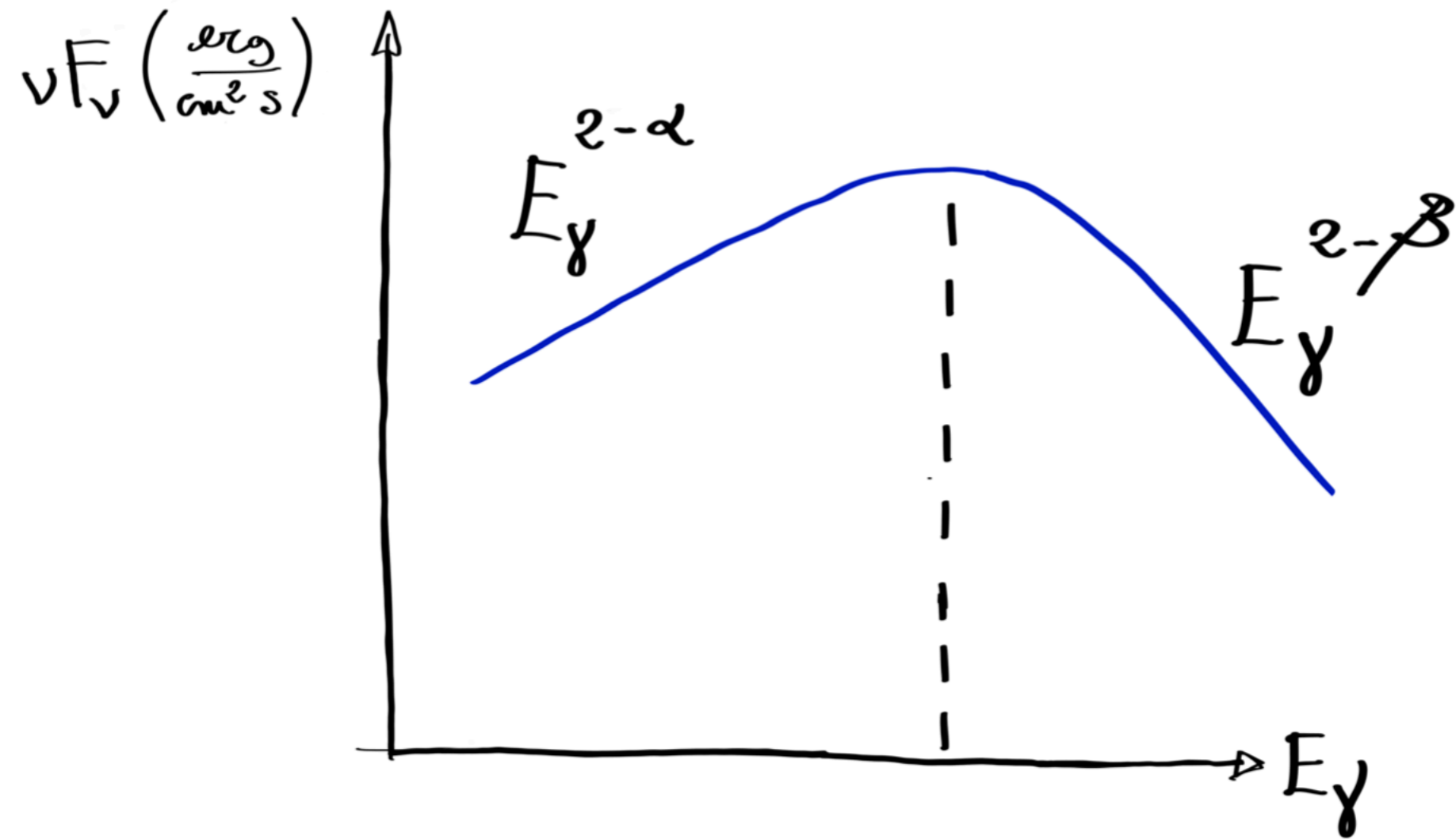


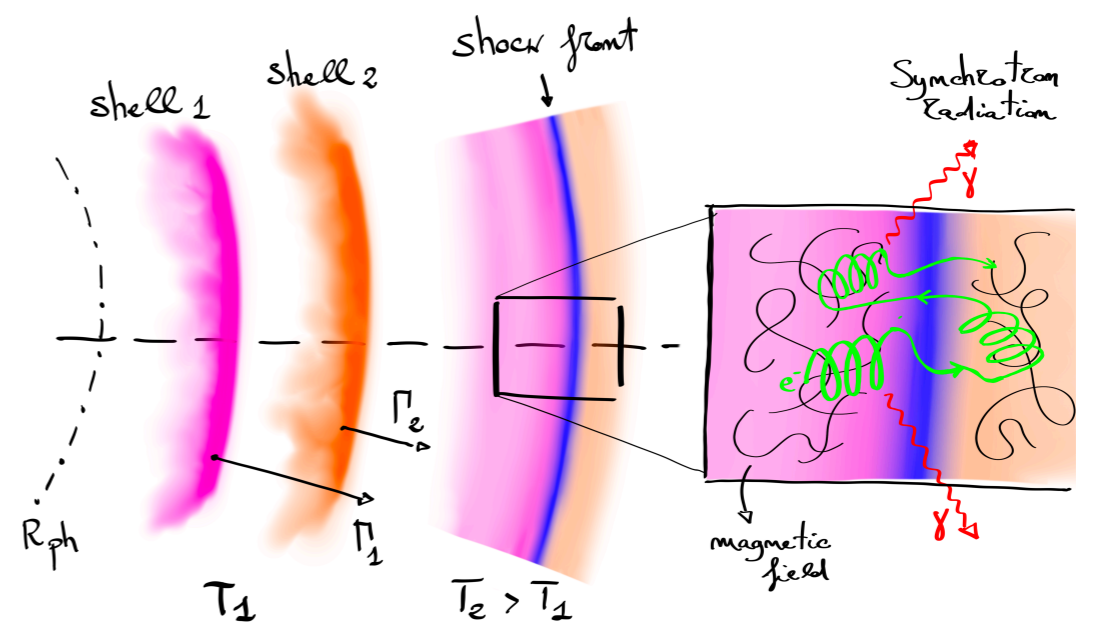
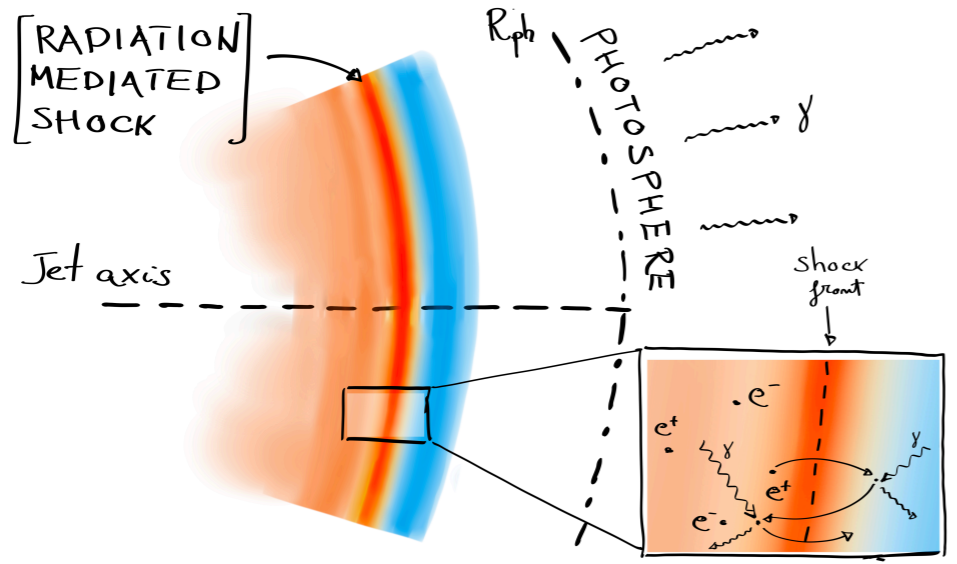
GRBs from optical to the TeV regime

Gor Oganesyanyan

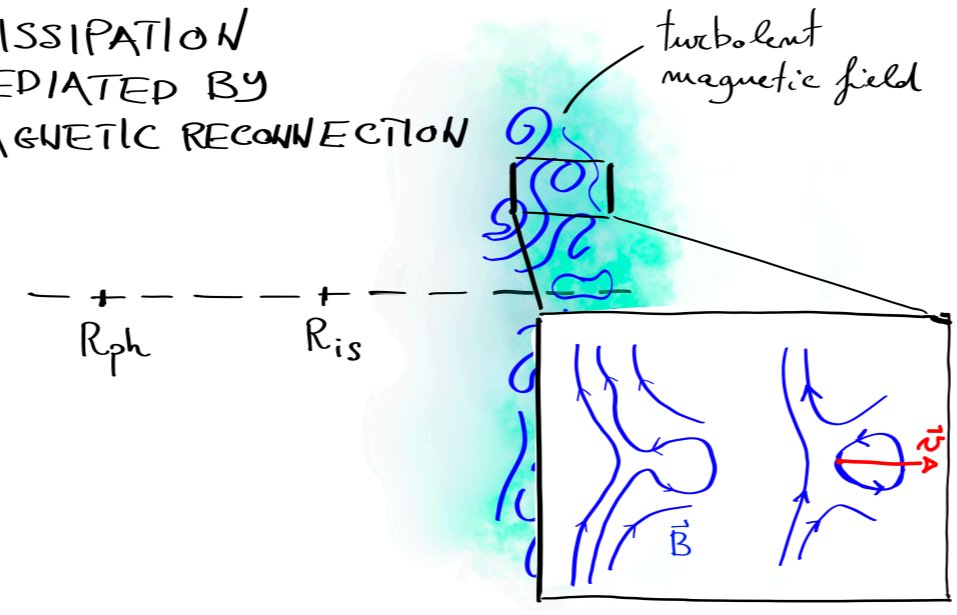


GRBs beyond the standard 10 keV - 1 MeV



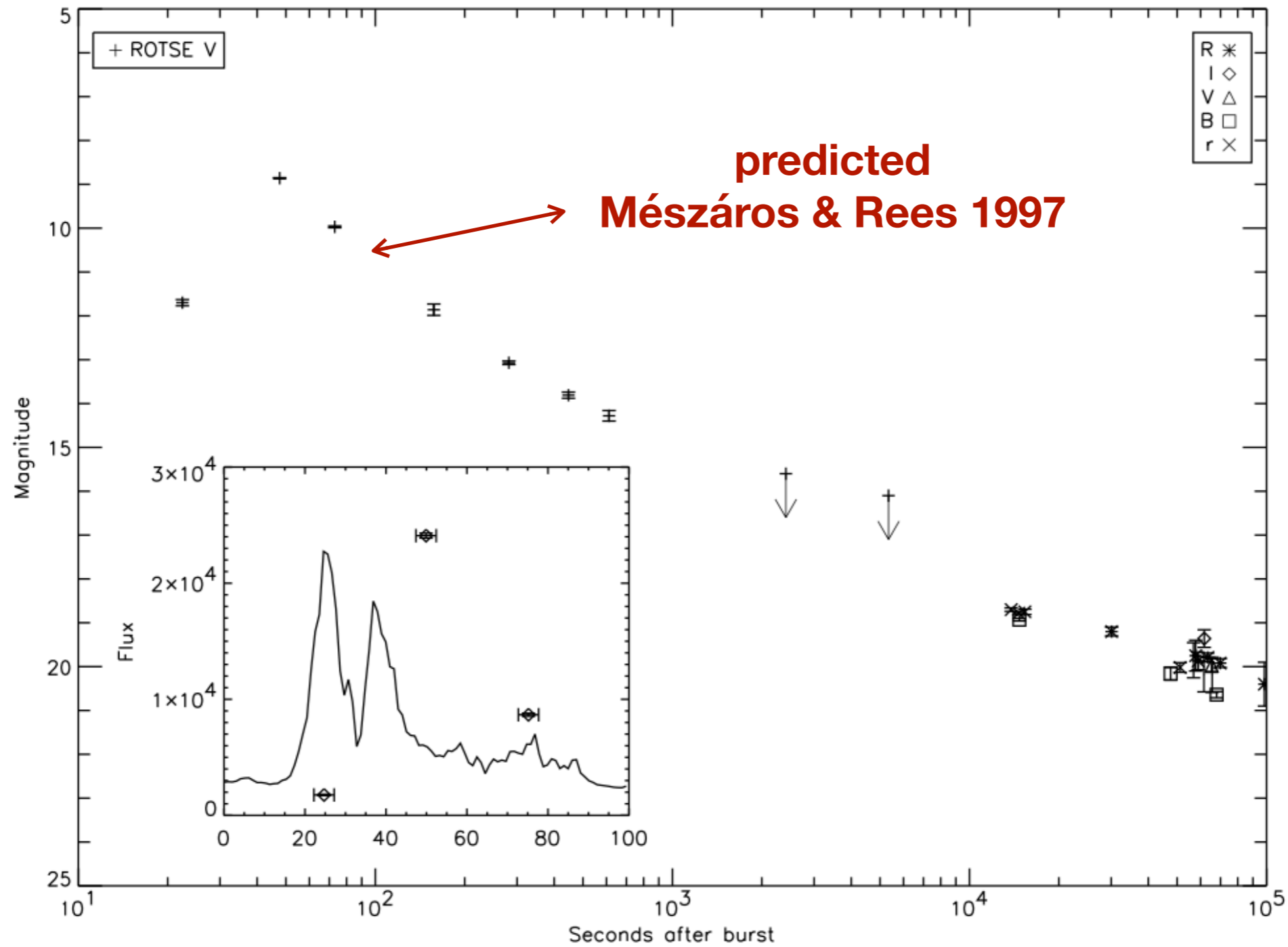


DISSIPATION MEDIATED BY MAGNETIC RECONNECTION



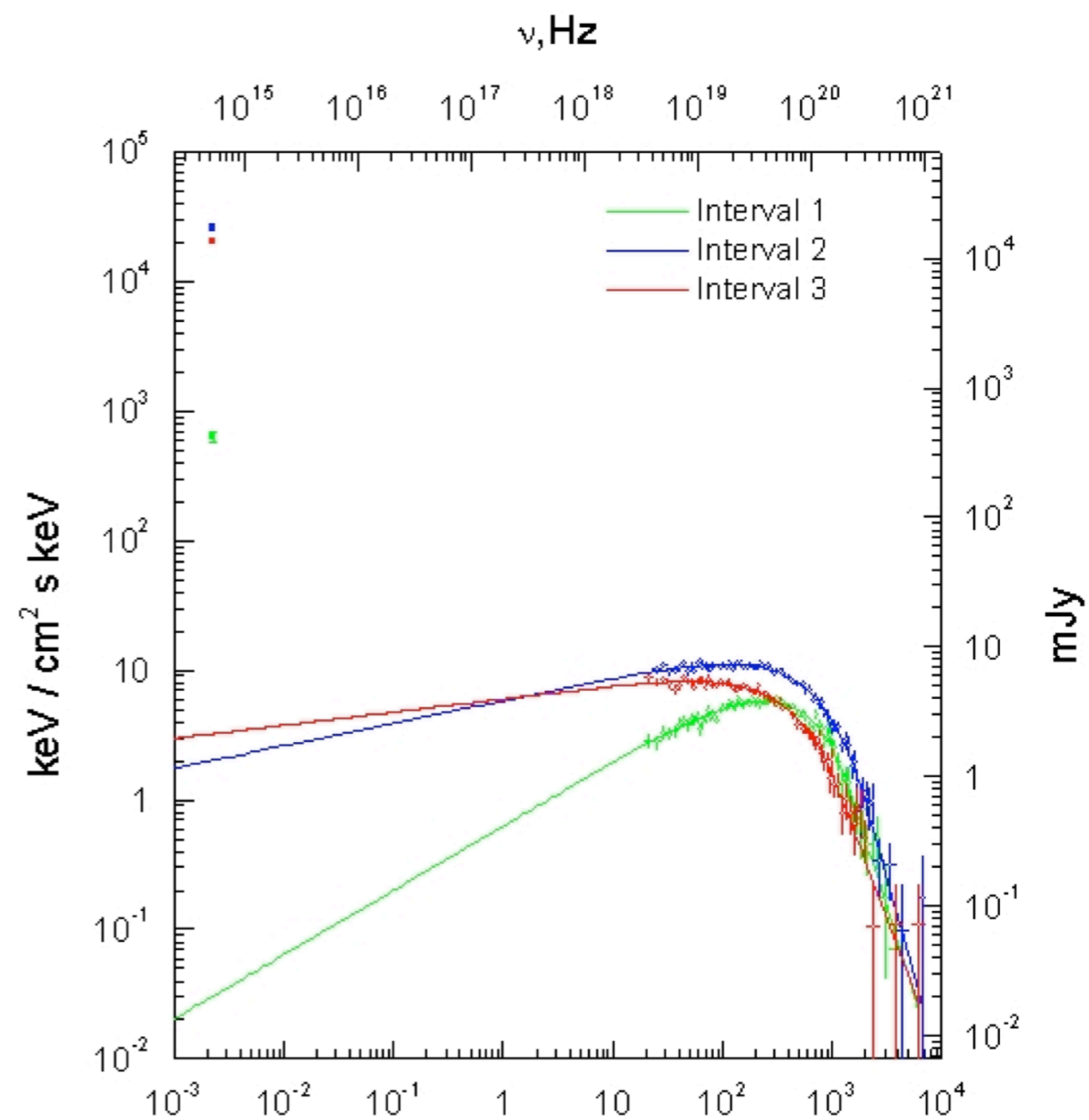
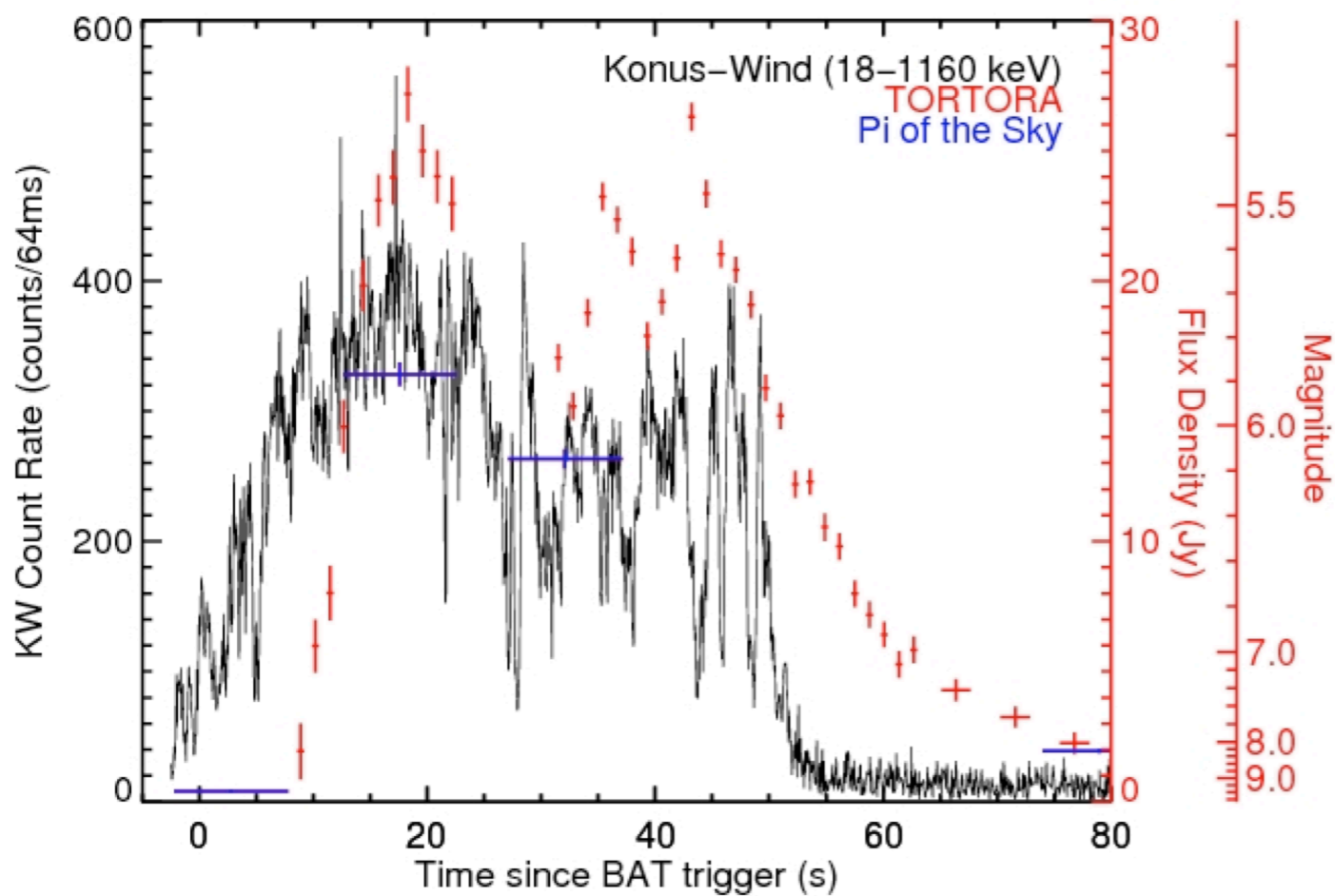
In the optical domain

A burst caught in flagrante (P. Mészáros)



Akerlof et al. 1999, Nature

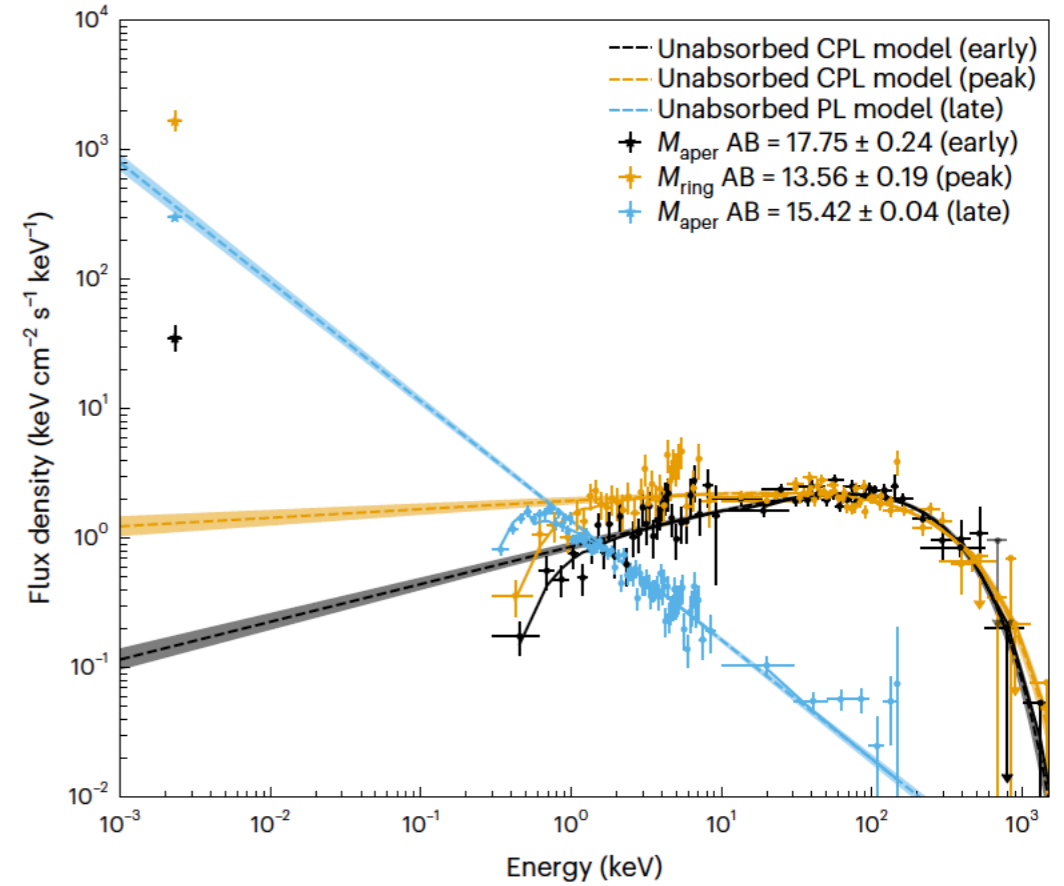
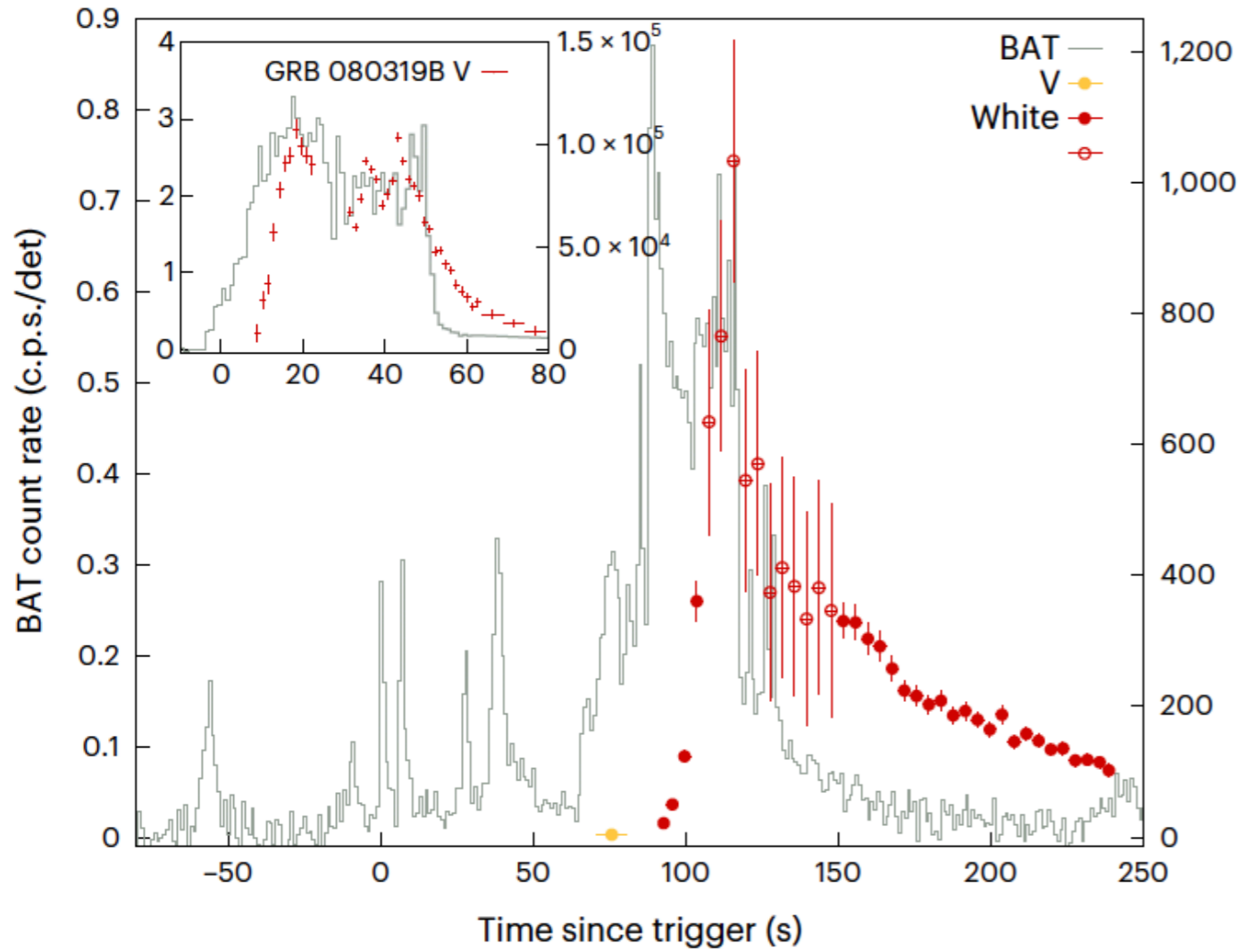
Naked eye GRB 080319B at $z=0.937$



Racusin et al. 2008, Nature

A new case

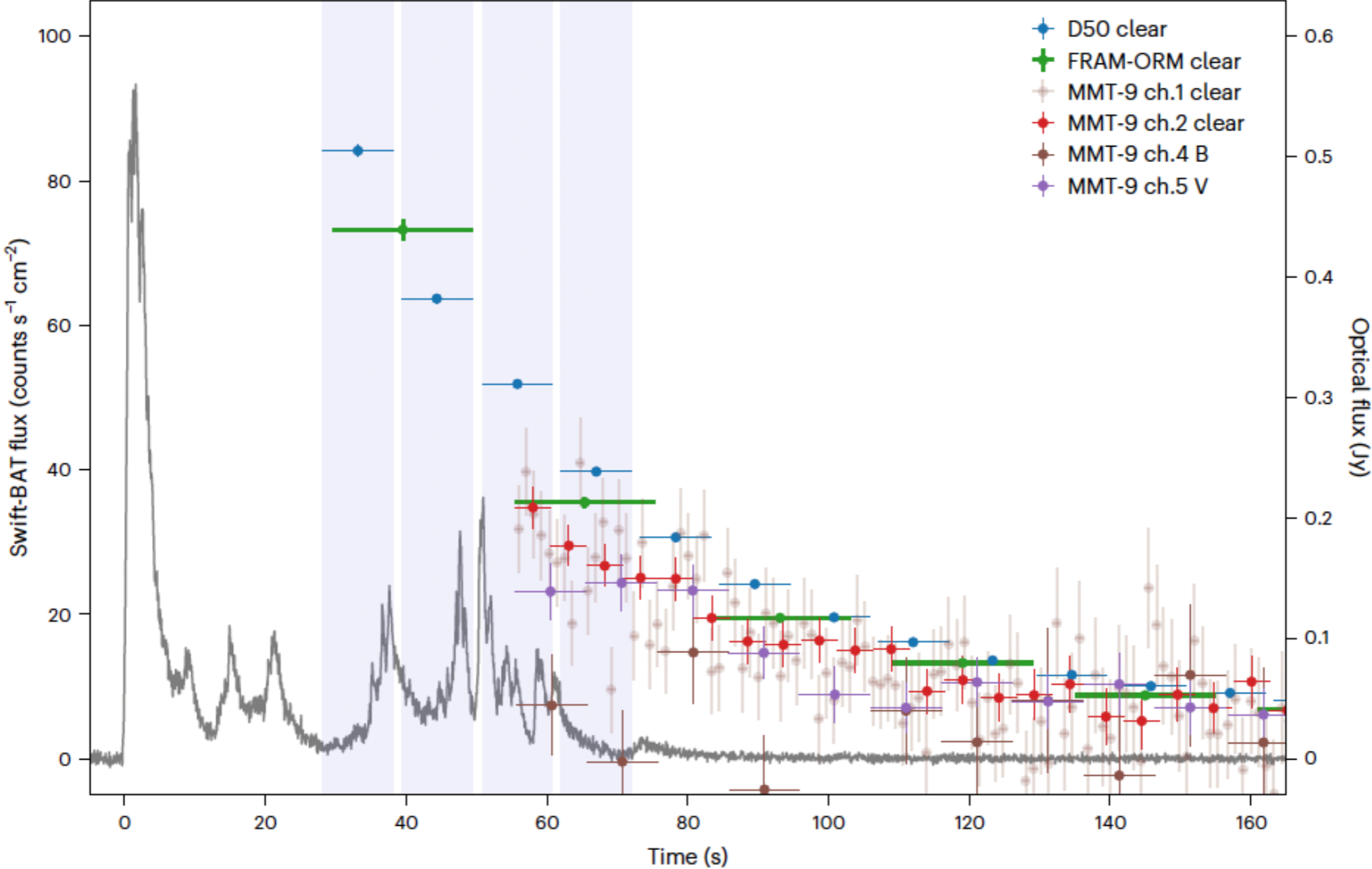
GRB 220101A, $z=4.6$



Jin et al. 2023, Nature Astronomy

GRB 210619B

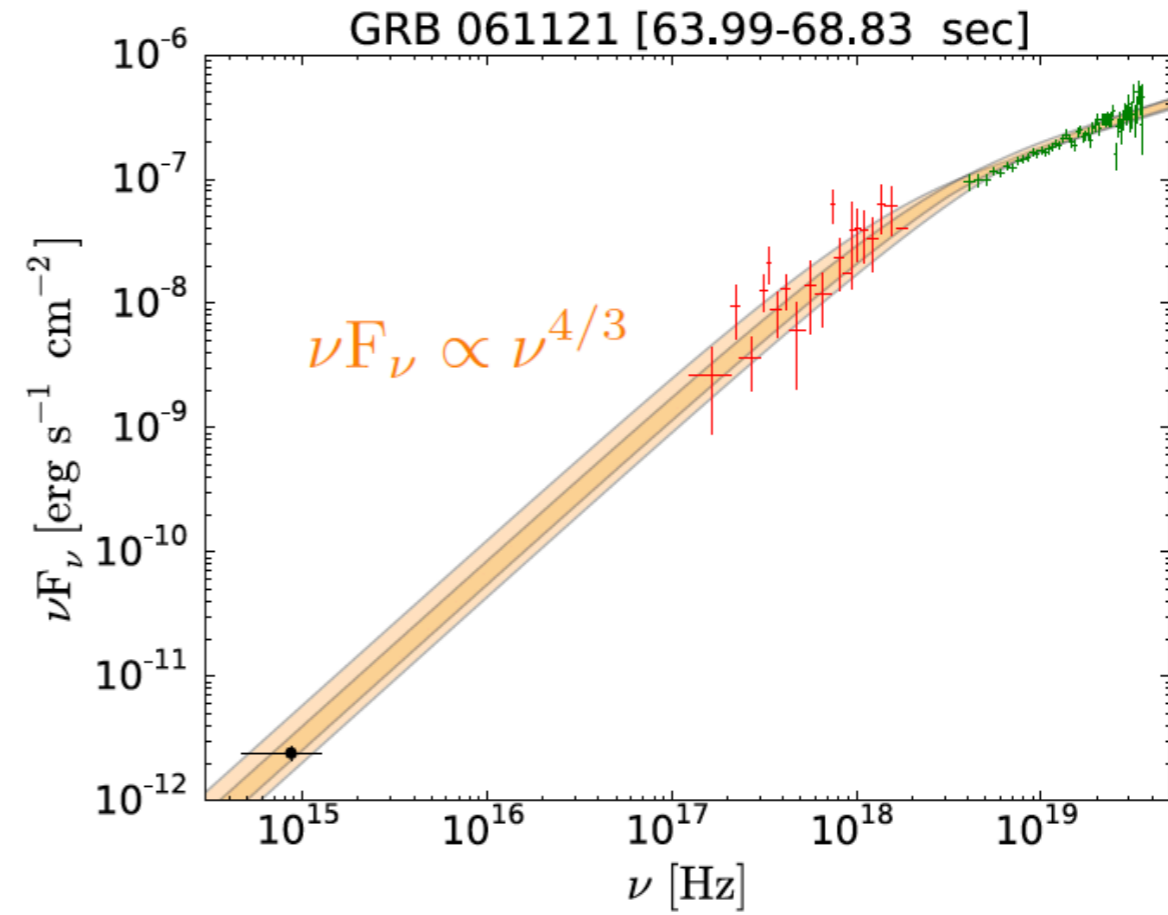
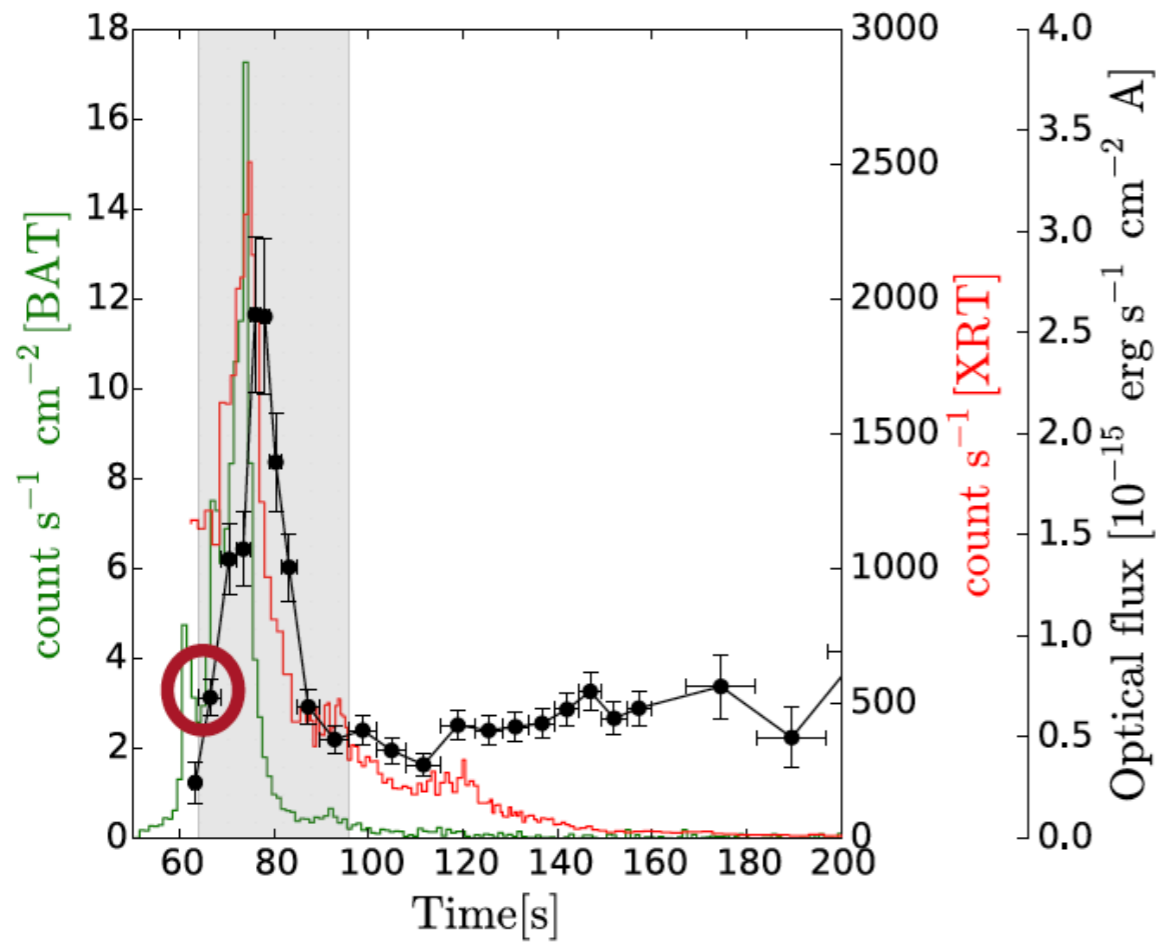
$z=1.937$



Oganesyan et al. 2023, Nature Astronomy

Consistent with the prompt emission

20 GRBs



In the optical domain

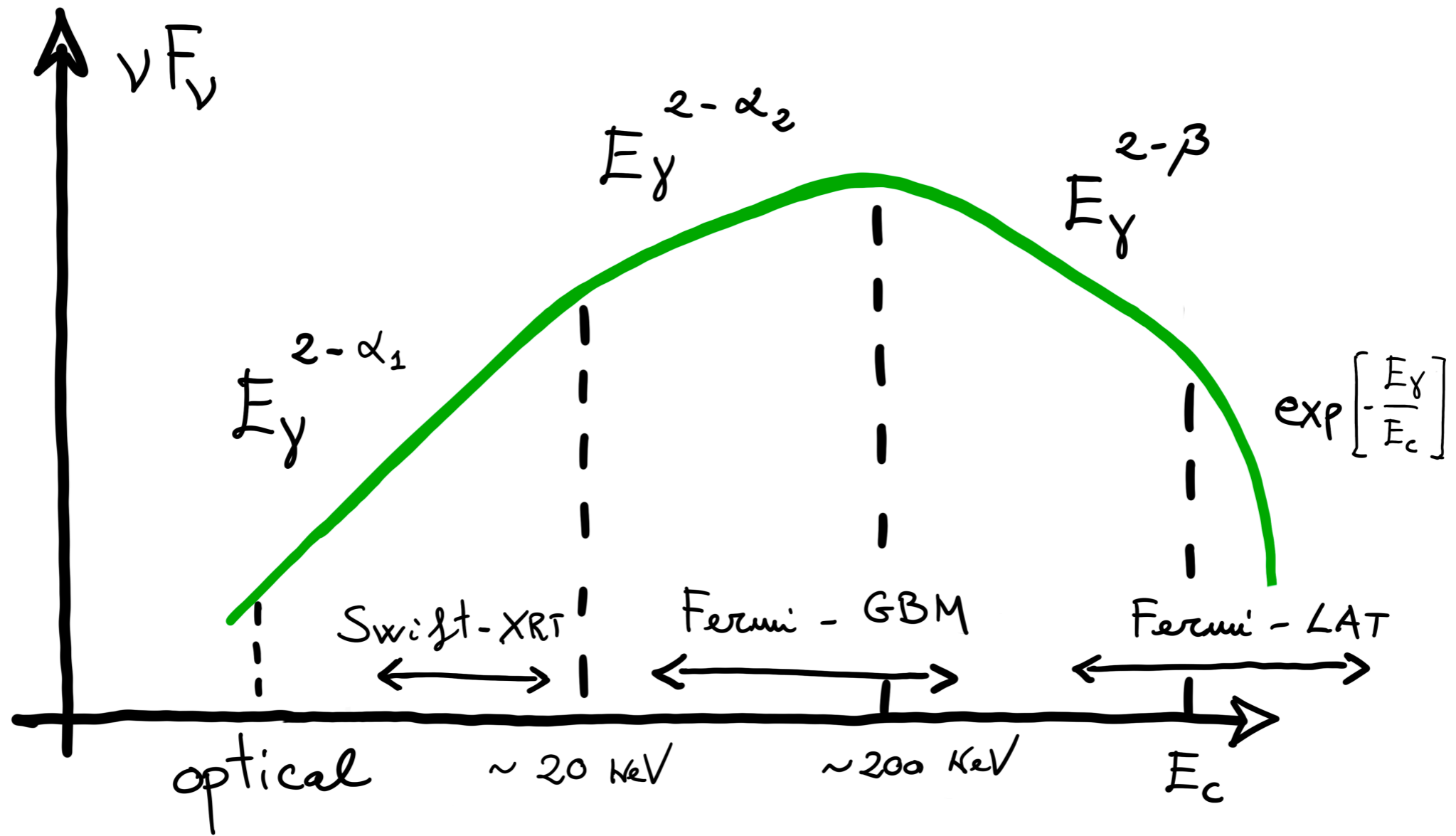
Summary

- Reverse shock radiation
- Highly variable prompt emission
naked eye vs the rest of GRBs

What is missing

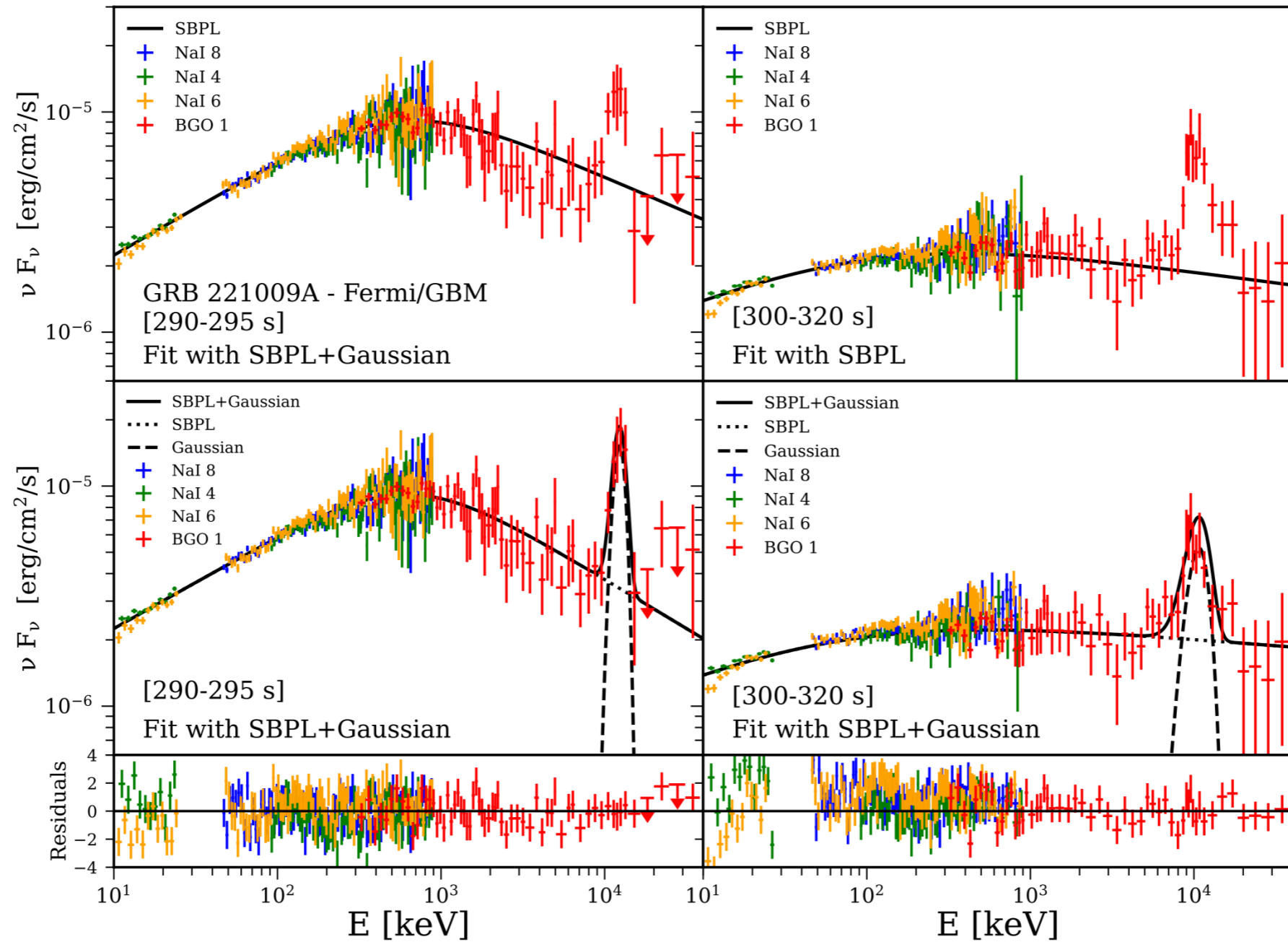
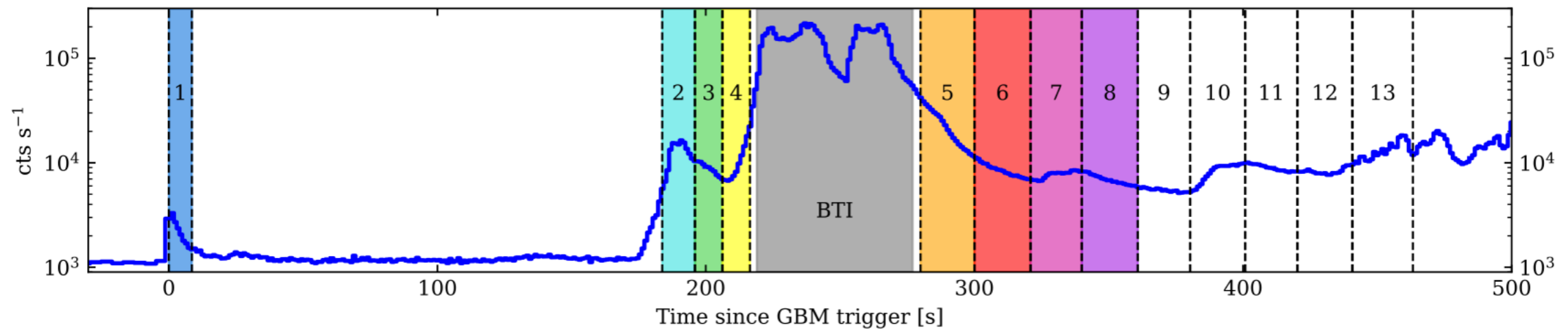
- High time-resolution optical observations

In the X-rays



Oganesyan et al. 2017, ApJ; Ravasio et al. 2019 A&A

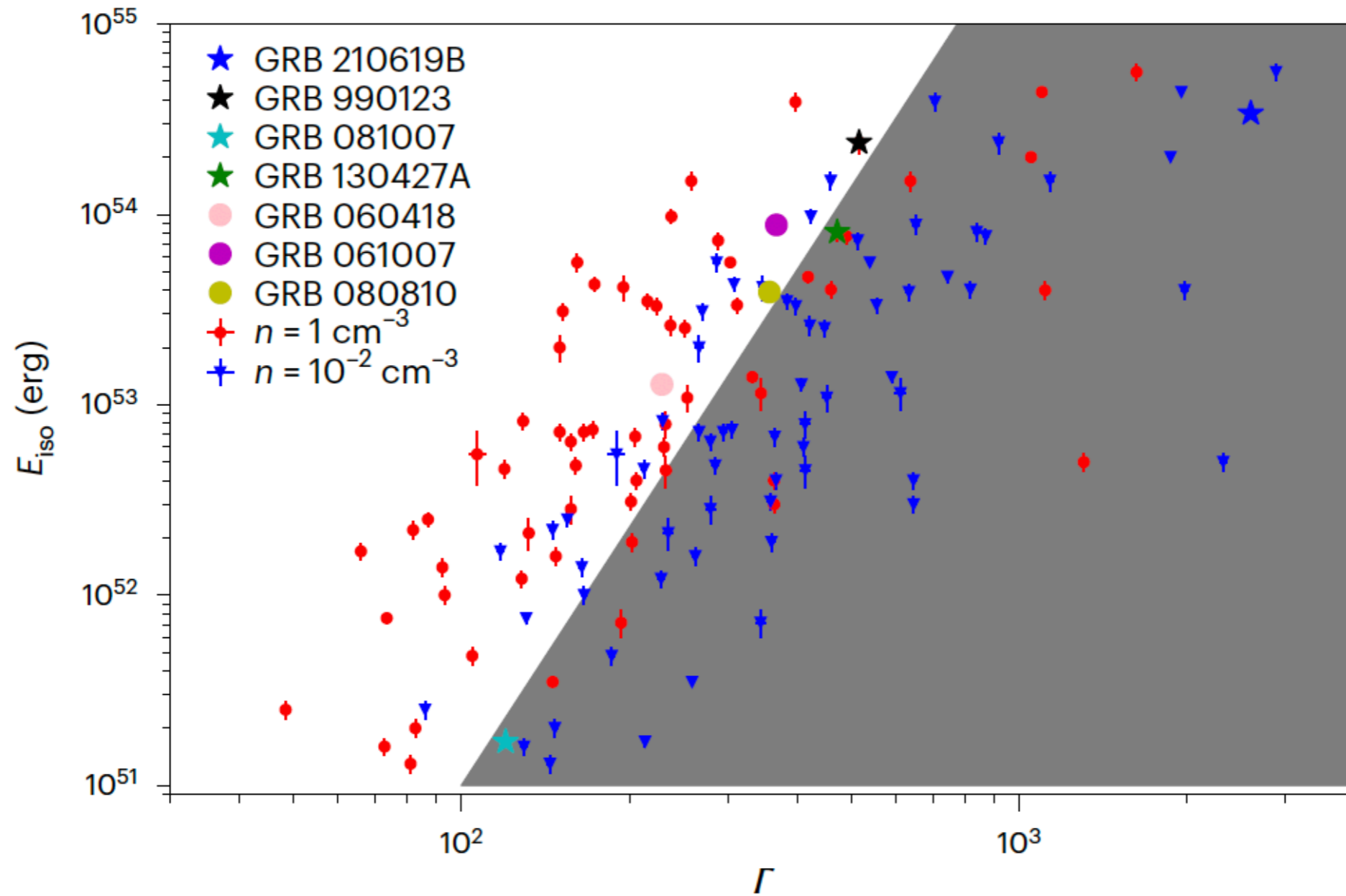
> 1 MeV ?



> 30 MeV

Next talk by Samanta Macera

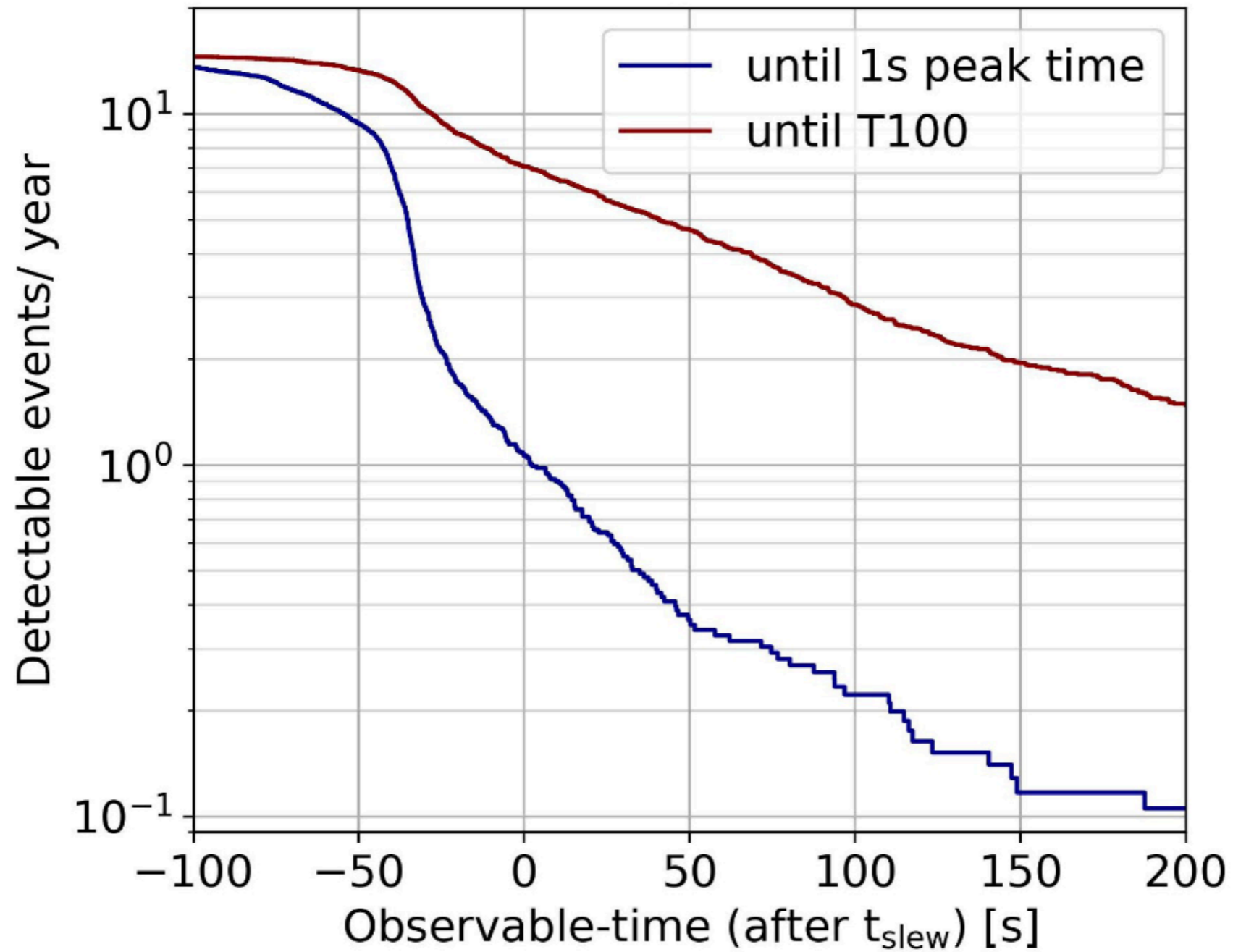
at VHE



Oganesyan et al. 2023, Nature Astronomy

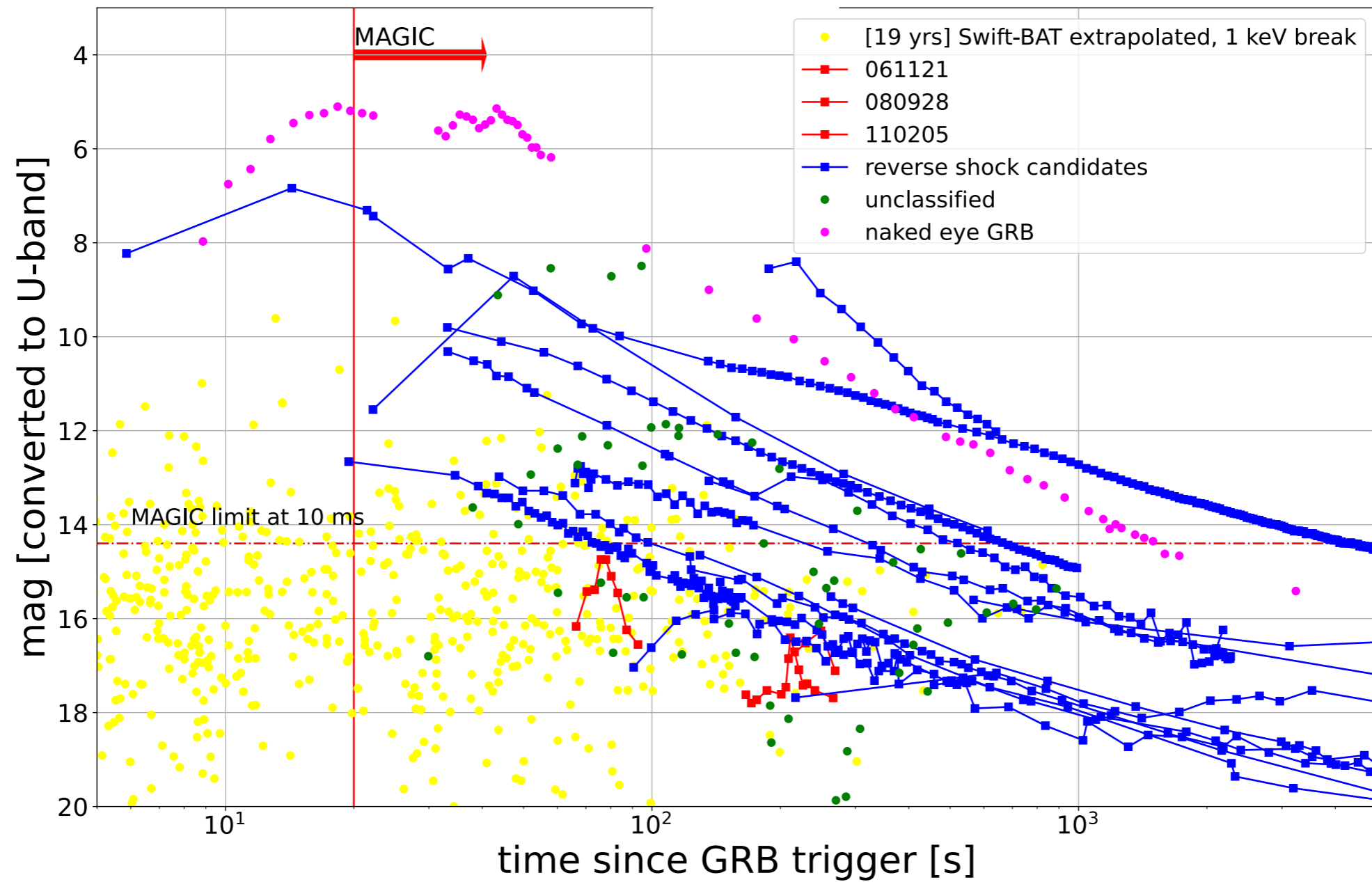
What is missing

- High time-resolution optical observations
- Prompt VHE observations



Example for Swift/BAT and MAGIC

For short GRBs (< 2 s) talk by [Jacopo Tissino](#)



Example for MAGIC

Thank you!