GRB 190114C: from prompt to afterglow?

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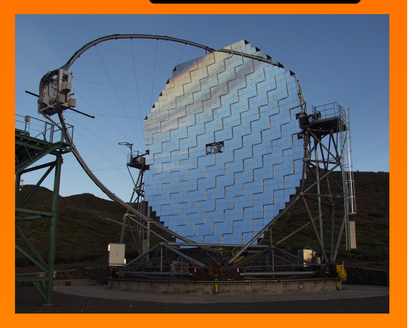
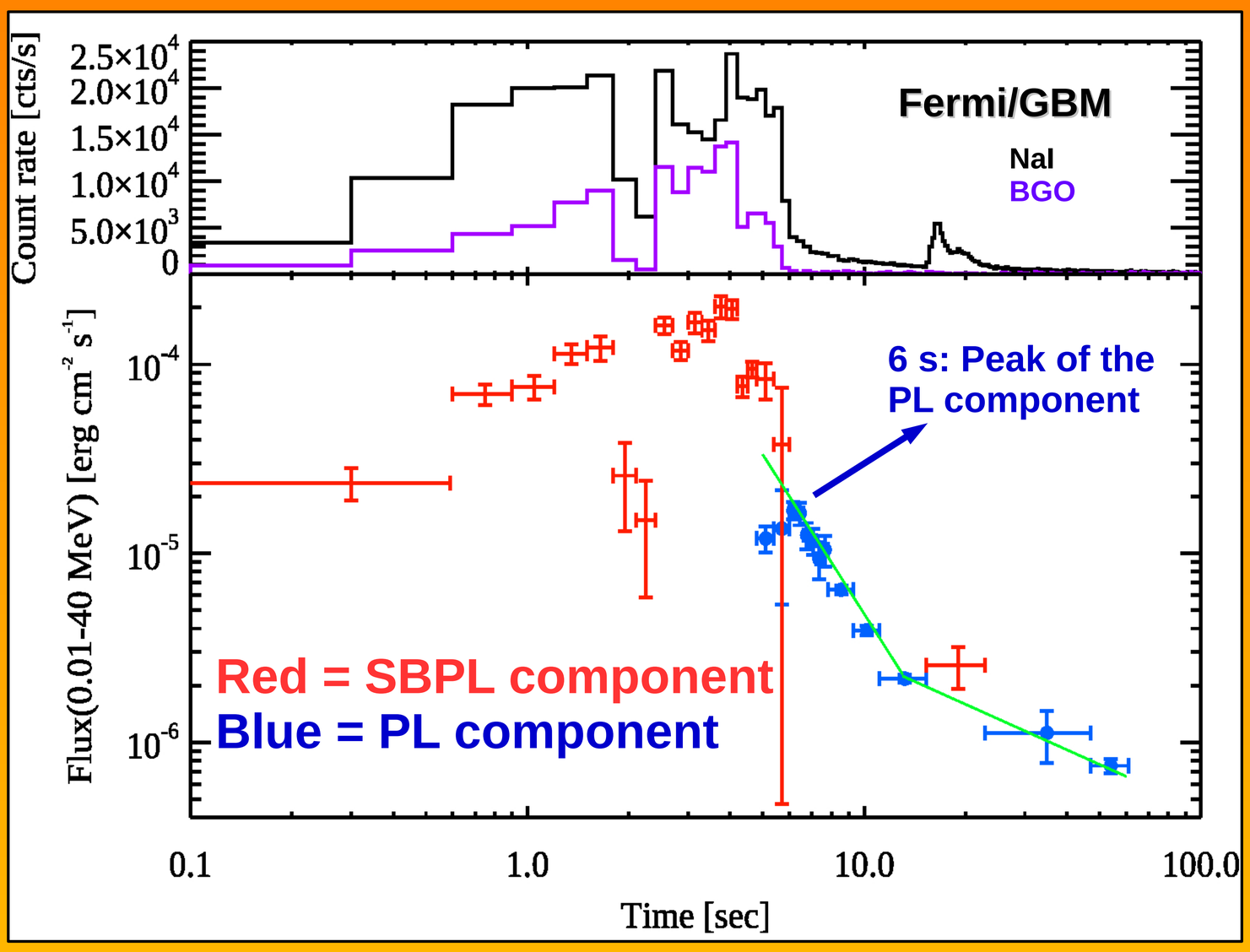
- **GRB 190114C is the first gamma-ray burst detected at VHE (> 300 GeV) by the MAGIC Cherenkov telescope** (Mirzoyan, R., et al. 2019, MAGIC Collaboration, Nature, 2019)
- **We analyze its spectral evolution detected by the Fermi/GBM between 10 keV and 40 MeV up to ~60 s from the trigger time**





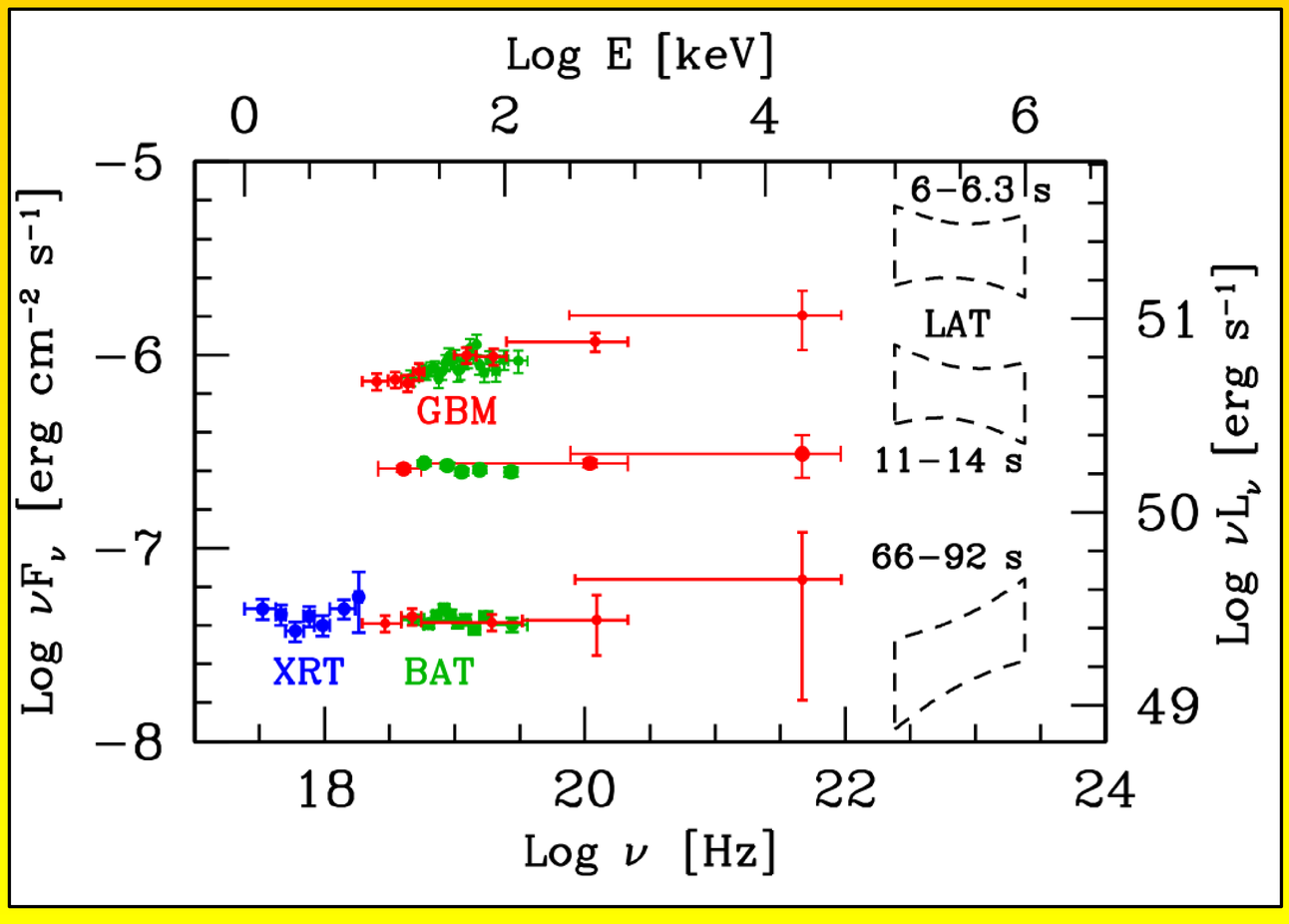
- The first 4 s of the burst show a typical prompt emission spectrum, fit by a smoothly broken power-law (SBPL) function with typical parameters
- Starting from 4 s post-trigger, we find an **additional non-thermal component**, fit by a **power-law (PL) with spectral index** $\Gamma_{PL} \sim -2$ peaking at 6 s $\left(Flux_{peak} = 1.7 \times 10^{-5}\, erg\, cm^{-2}\, s^{-1}\right)$

➡ **Interpreting the power-law component as the afterglow emission of the burst, we derived the estimate of the jet bulk Lorentz factor Γ_0 :**

$\Gamma_0 \sim 700$ Homogeneous medium with density $n_0 = 1\, cm^{-3}$

$\Gamma_0 \sim 230$ Wind medium with $\dot{M}_w = 10^{-5}\, M/yr\,,\ v_w = 10^3\, km/s$

➡ **Evidence of compresence of prompt and afterglow components in the GBM energy range**



The **spectral energy distribution** obtained from XRT+BAT+GBM and early LAT data analysis (Wang et al., 2019) seemed to belong to a single emission component, later confirmed as the early afterglow emission by the extendend analysis of the Fermi collaboration (Ajello et al., 2020)