cherenkov telescope array

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The Cherenkov Telescope Array transient and multi-messenger program

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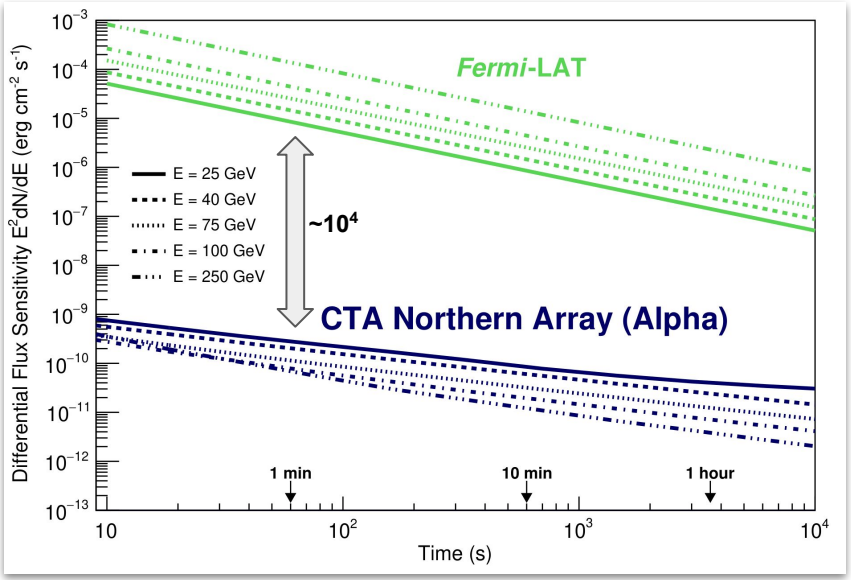
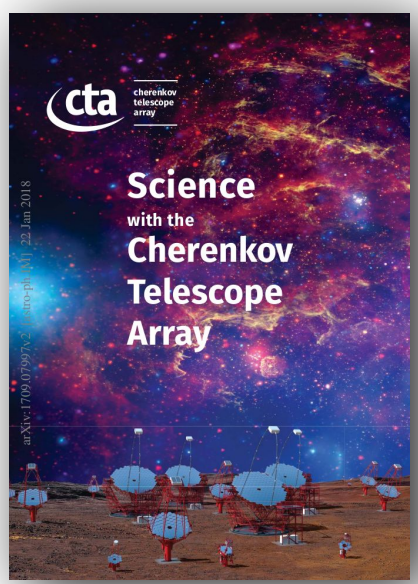
for the **CTA collaboration**

CTA transient and multi-messenger program

Transients are an integral part of the CTA **"Key Science Projects"** (KSP). A dedicated Science Working Group is in place to prepare for the first observations (react rapidly to target of opportunities-ToO, define the observational program, prepare the science analysis, etc..) and to set up the needed multi wavelength/multimessenger connections and synergies with external facilities.



https://www.cta-observatory.org



https://arxiv.org/pdf/1709.07997.pdf

CTA transient and multi-messenger program

- **Gamma-ray bursts (GRBs)**, based on external alerts from monitoring facilities. The work involve the simulation of a realistic GRB population calibrated over multi-band data to estimate CTA detection prospects.
- **Galactic transients**, work involving simulation and detection prospect for a wide range of galactic transients: flares from pulsar wind nebulae (PWN), X-ray binaries, novae, microquasars, magnetars...
- **High-energy neutrino transients**, the aim of this work is to develop a strategy for CTA follow-up of neutrino alerts to maximize the chance of detecting a VHE counterpart.based on alerts from neutrino observatories.
- **GW transients**, based on alerts from GW observatories. Follow-up by CTA with suitable strategies can play a unique and essential role for identifying and understanding their sources.
- **Core-collapse Supernovae**, work involving the investigation of CTA prospects in detecting a wide range of different types of CCSNe (IIP, IIL, IIb, IIn, etc.) and their different signature in the VHE regime.