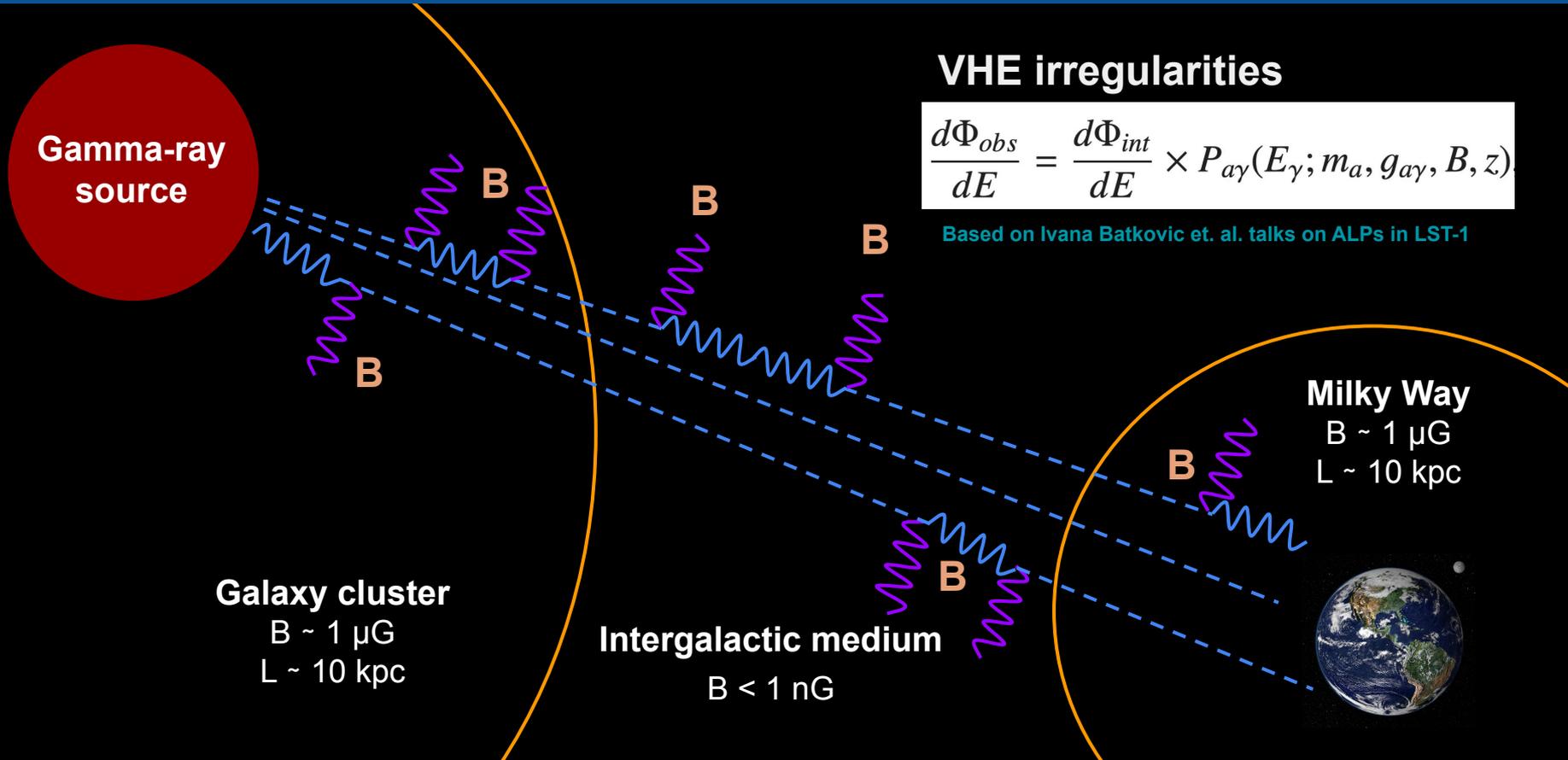


Searching for axion-like particles in the path of blazar PG 1553+113



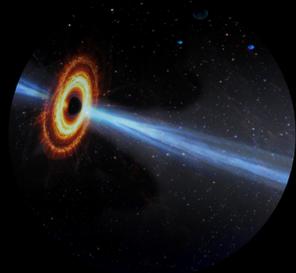
VHE irregularities

$$\frac{d\Phi_{obs}}{dE} = \frac{d\Phi_{int}}{dE} \times P_{a\gamma}(E_{\gamma}; m_a, g_{a\gamma}, B, z)$$

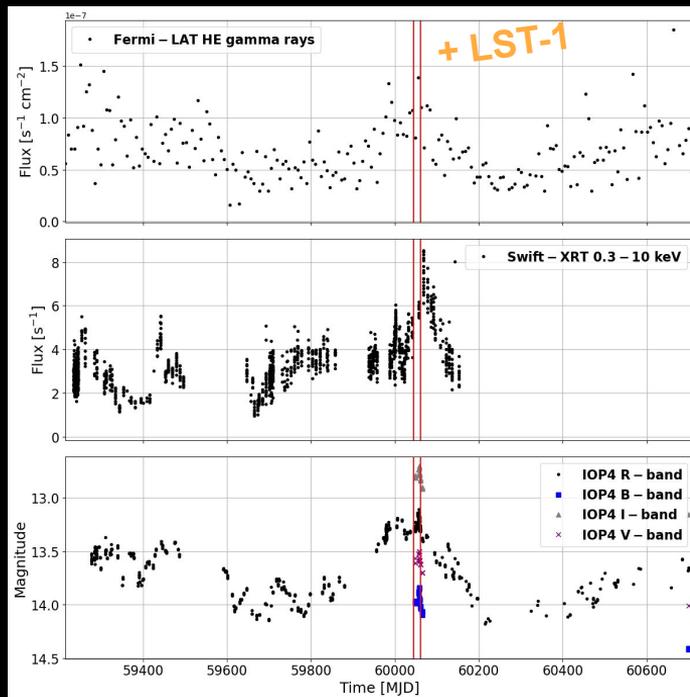
Based on Ivana Batkovic et. al. talks on ALPs in LST-1

Searching for axion-like particles in the path of blazar PG 1553+113

Credit: Juan Carlos Algaba



PG 1553+113

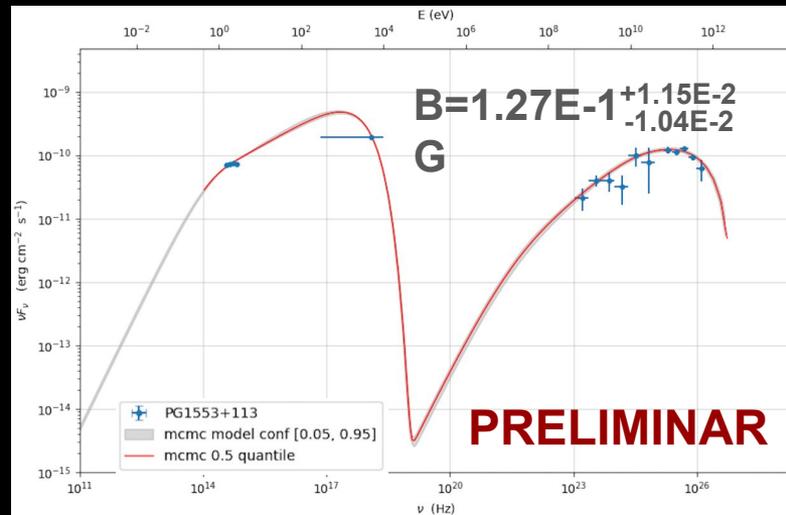


HIGH EMISSION STATE, 11-28 April 2023

One-zone SSC model

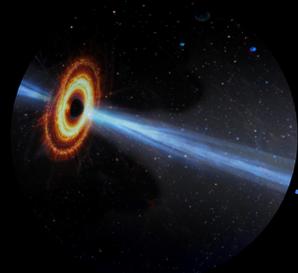
EHLB ($\nu_{\text{sync}} > 10^{17}$ Hz) \rightarrow second peak in VHE

JeTSeT [Tramacere A. 2020](#)



Searching for axion-like particles in the path of blazar PG 1553+113

Credit: Juan Carlos Algaba



PG 1553+113

$B = 1.27E-1^{+1.15E-2}_{-1.04E-2}$ G

Galaxy cluster
 $B \sim 1 \mu\text{G}$
 $L \sim 10 \text{ kpc}$

$$E_{\text{crit}} \approx 2.5 \frac{|m_a^2 - \omega_{\text{pl}}^2|}{1 \text{ neV}} \left(\frac{g_{a\gamma}}{10^{-11} \text{ GeV}^{-1}} \right)^{-1} \left(\frac{B_{\perp}}{1 \mu\text{G}} \right)^{-1} \text{ GeV}$$

E_{crit} GeV to TeV for LST-1

m_a in 0.01 to 1 neV
 $g_{a\gamma} < 6.6 \times 10^{-10} \text{ GeV}^{-1}$ \longrightarrow No significance

Based on Ivana Batković et. al. talks on ALPs in LST-1

B

B

B

EBL

Intergalactic medium
 $B < 1 \text{ nG}$

B

Milky Way

