

A MC approach for simulating photon-ALP interconversion at gamma-ray energies in astrophysical environments

Gaetano Di Marco, Rafael Alves Batista, Miguel Ángel Sánchez-Conde

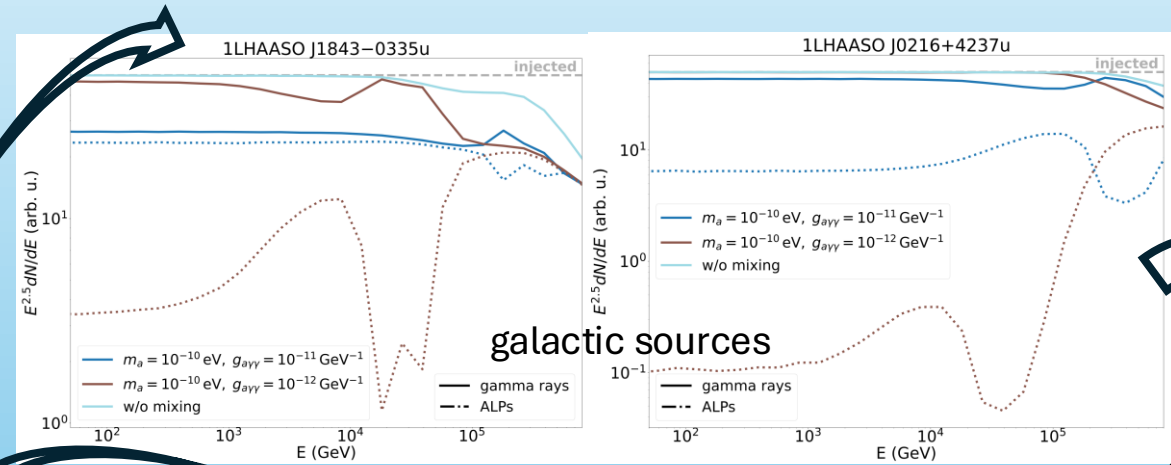
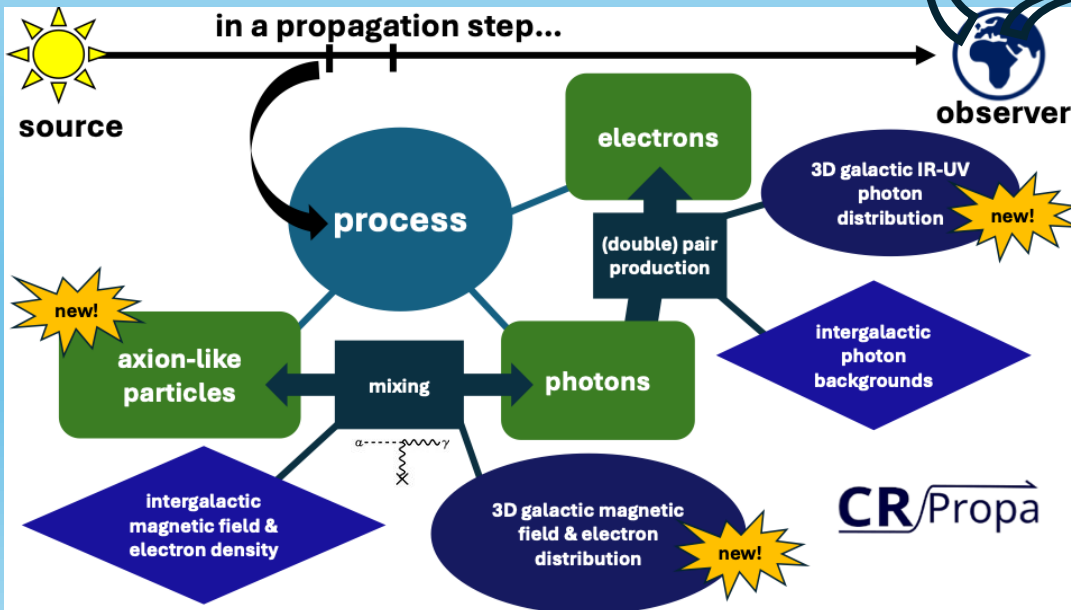
from the mixing theory...

$$\mathcal{L}_{\text{ALP}-\gamma} = g_{a\gamma\gamma} \mathbf{E}_\gamma \cdot \mathbf{B} a$$

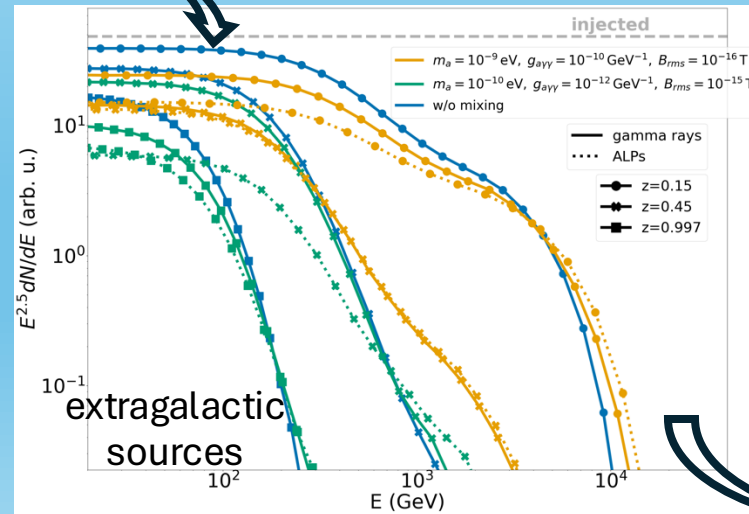
coupling constant photon polarization external magnetic field

axion-like particle field

... to the simulation framework



mixing during propagation...



comparing with detections to constrain $m_a, g_{a\gamma\gamma}$?

