

Propagation of extragalactic photons at ultra-high energy

Ultra high energy photons, above 10^{17} - 10^{18} eV, may interact with the extragalactic background radiation leading to the development of electromagnetic cascades. A Monte Carlo code (ELECA) to simulate the electromagnetic cascades initiated by high-energy photons and electrons is presented. The main interaction processes (Pair Productions, Inverse Compton Scattering and Triple Pair Production) are treated with a full Monte Carlo approach while synchrotron energy losses and adiabatic losses are considered as continuous processes. Deflection in magnetic fields are taken into account as well. Results from simulations and their impact on the predicted flux at Earth are discussed in different scenarios.

Primary authors: LYBERIS, Haris (Federal University of Rio De Janeiro (UFRJ), Brazil); DE DOMENICO, Manlio (School of Computer Sciences, University of Birmingham (UK) and Laboratory of Complex System, Scuola Superiore di Catania (Italy)); Dr SETTIMO, Mariangela (University of Siegen, Germany)

Presenter: Dr SETTIMO, Mariangela (University of Siegen, Germany)