



MAGIC

Major Atmospheric

Gamma Imaging

Cerenkov Telescopes

Upper limits on the very high energy emission from GRBs observed by MAGIC



Francesco Longo^{1,2,3}, Alessio Berti⁴, Zeljka Bosnjak⁵, Alice Donini^{2,6,7}, Satoshi Fukami⁸, Jarred Gershon Green⁹, Davide Miceli^{2,6,10}, Elena Moretti⁷, Lara Nava^{2,3,11} and Koji Noda⁸ on behalf of the MAGIC Collaboration

1. Department of Physics, University of Trieste, via Valerio 2, Trieste, Italy

2. INFN, Sezione di Trieste, via Valerio 2, Trieste, Italy

3. Institute for Fundamental Physics of the Universe (IFPU), via Beirut 12, Trieste, Italy

4. Max Planck Institute for Physics, Föhringer Ring 6, Munich, Germany

5. University of Zagreb, Faculty of Electrical Engineering and Computing (FER), Zagreb, Croatia

6. University of Udine, Dipartimento di Scienze Matematiche, Informatiche e Fisiche via delle Scienze 206, Udine, Italy

7. Institut de Física d'Altes Energies (IFAE), The Barcelona Institute of Science and Technology (BIST), Bellaterra (Barcelona), Spain

8. Institute for Cosmic Ray Research, The University of Tokyo, Kashiwanoha 5-1-5, Kashiwa, Japan

9. Osservatorio Astronomico di Roma, INAF, Via Frascati, 33, Monte Porzio Catone (RM), Italy

10. Laboratoire d'Annecy de Physique des Particules (LAPP), CNRS-IN2P3, 9 Chemin de Bellevue - BP 110, Annecy Cedex, France

11. Osservatorio Astronomico di Brera, INAF, via E. Bianchi 46, Merate (LC), Italy

Executive summary

What is this contribution about?

We report the calculation of the Upper Limits on the VHE emission from GRBs observed by MAGIC

Why is it relevant interesting?

After the detection of the VHE emission from GRBs we want understand how the VHE emission is produced

What have we done?

We have estimated the UL on VHE flux based on power law emission models for GRBs with known z and compared with Swift/XRT flux

Why is it relevant interesting?

We place UL consistent with X-ray flux, differently from the VHE detected GRBs.