



Multi-spacecraft solar energetic particle analysis of FERMI gamma-ray flare events within the HESPERIA H2020 project

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Multi-spacecraft observations of solar energetic particle (SEP) events are important for understanding the acceleration processes and the interplanetary propagation of particles released during eruptive events. In this work, we have carefully studied 25 gamma-ray flare events observed by FERMI and investigated possible associations with SEP-related events observed with STEREO and L1 spacecraft in the heliosphere. A data-driven velocity dispersion analysis (VDA) and Time-Shifting Analysis (TSA) are used for deriving the release times of protons and electrons at the Sun and for comparing them with the respective times stemming from the gamma-ray event analysis and their X-ray signatures, in an attempt to interconnect the SEPs and Fermi events and better understand the physics involved.

Acknowledgements: This project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 637324.