



Contribution ID : 563

Type : **Poster**

## SOURCES OF EFFECTIVE PARTICLE ACCELERATION IN SOLAR FLARES: OBSERVATIONAL ASPECT

### Abstract content

This investigation is a continuation of the statistic analysis of the Solar Proton Event Catalogue. We studied spectra of proton growing/increases, which are indentificated with the logarithm of the particle fluxes ratio above the 100 and 10 MeV, i.e. with value of  $\delta = \lg(F_{100}/F_{10})$ , for 172 powerful events when conditions for particles to leave the corona and to propagate into interplanetary space are auspiciously/opportunely. Distribution of number of flares over the  $\delta$  is Gaussian with comparatively small spread over the  $\delta$ . Its maximum corresponds to an excess of the maximal flux at 10 MeV above the 100 MeV flux by a factor of 30. An existence of a distilled/definite spectrum is an evidence for a fact that noth the soft and the harder protons are accelerated effectively during the explosive phase of the flare rather due to one/single mechanism. Low height of a location of the general acceleration follows from a carried out by us study of flare loop sizes for M2 - X4 events registered by HXT Yohkoh at the range above 50 keV. There is some excess of the softer events out of the Gaussian distribution. During these flares post-eruptive phenomena are well expressed. For them the value  $\delta$  does correlate with an introduced by us total duration of the flare. Thus, during solar flares there two sources of particle acceleration, workig at the explosive and post-eruprive phases at low and large heights correspondingly. In the second of the sources, directly seen during some prolonged flares and a "filament ejection"-like phenomena, protons are accelerated only to energies of 10-30 MeV.

**If this papers is presented for a collaboration, please specify the collaboration**

### Summary

### Reference

**Primary author(s) :** Dr. OSOKIN, Alexei (Sternberg Astronomical Institute of Moscow State University)

**Co-author(s) :** Prof. LIVSHITS, Moisey (Pushkov Institute of Terrestrial Magnetism, Ionosphere and Radio Wave)

**Presenter(s) :** Dr. OSOKIN, Alexei (Sternberg Astronomical Institute of Moscow State University)

**Session Classification :** Posters 1 + Coffee

**Track Classification :** SH.1.4