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## Cosmic-ray positron measurements: on the origin of the $e^+$ excess and limits on magnetar birthrate

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Positrons were discovered in cosmic rays 50 years ago.

During the last 25 years, reliable magnetic spectrometer observations consistently revealed an excess of these particles above a few GeV with respect to the expected secondary component. The most recent measurements of the positron flux and the  $e^+/(e^++e^-)$  ratio carried out by the Pamela and AMS experiments confirm the average trend of previous magnetic spectrometer observations up to 50 GeV and indicate that this excess is observed up to about 500 GeV. Many different hypotheses were suggested in the literature to explain these observations.

However, when the characteristics of possible sources of  $e^+$  are taken into account, astrophysical objects and in particular, pulsars and, possibly, magnetars, remain the most plausible candidates even if disk formation may critically affect the actual contribution of these stars to cosmic-ray positrons.

The magnetar birthrate is revised within the proposed scenario.

### Collaboration

– not specified –

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