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## Spectrum of Pairs injected by Geminga into the Interstellar Medium

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The recent detection of the Geminga PWN by HAWC in the multi-TeV band allows us to infer precious information about the transport of pairs in the immediate surroundings of the pulsar and on the spectrum of pairs contributed by a Geminga-like pulsar to the spectrum of pairs in the cosmic radiation. Moreover, this detection allows us to address the issue of how typical are the so-called TeV halos associated to PWNe. Our calculations confirm the need to have suppressed diffusion within 30-50 pc around the pulsar, and are used here to infer precious constraints on the spectrum of pairs accelerated at the termination shock: more specifically, we discuss the conditions under which such spectrum is consistent with that typically expected in a PWN. Finally, we discuss the implications of the existence of a TeV halo around Geminga in terms of acceleration of protons in the pulsar environment, a topic of profound relevance for the whole field of particle acceleration and physics of pulsars.

### Collaboration name

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