

# The low rate of Galactic supernova remnant pevatrons

*Tuesday, 26 October 2021 17:00 (20 minutes)*

The search for pevatrons (objects capable of accelerating particles up to  $10^{15}$  eV) has become one of the key targets of the high-energy gamma-ray community.

These objects are of crucial importance in the context of the origin of cosmic rays (CRs), since the sources of Galactic CRs are expected to

be able to accelerate particles up to PeV energies, at least at some stage of their evolution.

Currently, the

most widely accepted candidates for the origin of Galactic CRs are supernova remnants (SNRs),

and more precisely the shocks expanding in the interstellar medium (ISM) after stellar explosions. But surprisingly, all detected SNRs have been shown not to be pevatrons, making the situation somewhat bewildering.

A special attention is currently being devoted to the search of a SNR pevatron, and we discuss the possibility that only very rare SNRs might be pevatrons, and thus, the probability of detecting one is remarkably reduced.

## Please choose the session this abstract belongs to

Cosmic rays

**Primary author:** Dr CRISTOFARI, Pierre (Observatoire de Paris)

**Co-authors:** Dr AMATO, Elena (INAF); Prof. BLASI, Pasquale (Gran Sasso Science Institute)

**Presenter:** Dr CRISTOFARI, Pierre (Observatoire de Paris)

**Session Classification:** Session 3