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PeVatrons

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Since its discovery more than hundred years ago, the origin of the cosmic-ray (CR) flux measured on Earth is still unknown. To explain the energy region up the knee, located at few PeV, supernova remnants (SNRs) are usually addressed as main CR accelerators. Despite experimental efforts devoted to the identification of PeV activity in SNRs through radiative signatures at the highest energies, such a picture remains yet to be confirmed. Recently, renewed interest was raised towards star clusters as a candidate (perhaps major) class of PeVatrons, after the detection of gamma rays from many of such objects both in our Galaxy and in the Large Magellanic Cloud. In this talk, I will discuss the physics of acceleration, propagation and radiation of high-energy particles in SNRs and stellar clusters.

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