

Contribution ID: 41 Type: not specified

Young stellar cluster as cosmic ray sources

Tuesday, 15 October 2024 15:15 (45 minutes)

In the last decade or so, several young stellar clusters in pour Galaxy have been associated with diffuse gammaray sources detected from GeV to multi-TeV enegy band, supporting the idea that efficient particle acceleration is taking place in those objects. Particle acceleration may occur through different mechanisms: i) at the termination shock of stellar winds produced by massive stars, ii) at the shock of supernove exploding inside the cluster or iii) due to the second order Fermi acceleration in the highly turbulente environment generated by winds and SN explotions. Which mechanism dominate remains to be understood.

In this talk I will review the acceleration models applied to stellar clusters, highlighting the prediction for the resulting gamma-ray emission.

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Session Classification: Presentations