Upper Limits on the Cosmic-ray Luminosity of supernovae in nearby galaxies

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What is this contribution about?

This contribution presents new results about the cosmic-ray luminosity using the secondary gamma-ray flux for a supernovae, in specific for NGC 6861.

Why is relevant/interesting?

Unlike cosmic-ray charged particles, gamma rays are not deflected by magnetic fields, allowing them to be used as messengers to study cosmic ray sources. Therefore, we can use gamma ray measurements performed by observatories to obtain information for a specific cosmic ray source.

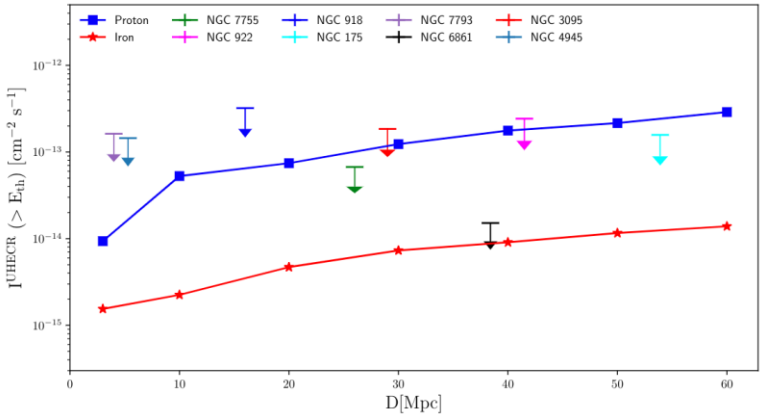

Figure 1: I^{UHECR} as a function of the source distance.

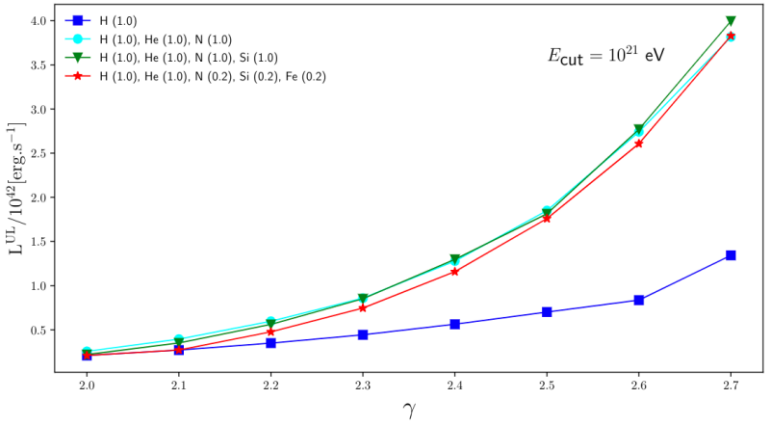

Figure 2: Cosmic-ray luminosity from gamma-rays observations.

What has been done?

We use data obtained by Hess observatory to calculate the luminosity of a cosmic ray source, a supernova: NGC 6861, for different compositions and spectral indices.

What is the result?

For a cosmic ray source, we can calculate the cosmic ray luminosity for different environments.