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”Mirages” and large offsets in the data as a result of asymmetric CR diffusion

We show that a large asymmetric halo may be misidentified as multiple “mirage” sources, and that asymmetric diffusion could lead to a very large offset between the injection site and the identified halo. We add background noise into the region and try to identify the sources. We utilize the concept of asymmetric diffusion to elucidate several observed sources that were previously challenging to interpret. Our model offers intuitive explanations for these observations and has the potential to help identify a broad range of sources in the future.

Primary authors: GIACINTI, Gwenael (Tsung-Dao Lee Institute, Shanghai Jiao Tong University); BAO, Yiwei (TDLI Shanghai & Nanjing University); ZHANG, Haiming (Nanjing University); LIU, Ruoyu (Nanjing University); CHEN, Yang (Department of Astronomy, Nanjing University)

Presenter: GIACINTI, Gwenael (Tsung-Dao Lee Institute, Shanghai Jiao Tong University)