



# Are T Tauri stars gamma-ray emitters?

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T Tauri stars are young, low mass, pre-main sequence stars surrounded by an accretion disk. These objects present strong magnetic activity and powerful magnetic reconnection events. Strong shocks are likely associated with fast reconnection in the stellar magnetosphere. Such shocks can accelerate particles up to relativistic energies. We aim at developing a simple model to calculate the radiation produced by non-thermal relativistic particles in the environment of T Tauri stars. We want to establish whether this emission is detectable at high energies with the available or forthcoming gamma-ray telescopes. We assume that particles (protons and electrons) pre-accelerated in reconnection events are accelerated at shocks through Fermi mechanism and we study the high-energy emission produced by the dominant radiative processes. We calculate the spectral energy distribution of T Tauri stars up to high-energies and we compare the integrated flux obtained with that from a specific Fermi source, 1FGL J1625.8-2429c, that we tentatively associate with this kind of young stellar objects (YSOs). We suggest that under reasonable general conditions nearby T Tauri stars might be detected at high energies and be responsible for some unidentified Fermi sources on the Galactic plane.

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