If we take Fig. 2 as a guide in examining the possibility of distinguishing antistellar collapse from stellar collapse, we note that the initial neutronization burst is quite intense compared to the later thermal antineutrino emission. Possibly the energy spectra of the two detection mechanisms will allow a distinction. In the case of the antineutrino, all the energy appears in the positron and the cross-section is weighted by the square of the neutrino energy. In the neutrino-electron scattering, only half the neutrino energy is imparted to the electron on the average, and the cross-section increases only as the neutrino energy. Thus a stellar collapse shows an initial phase of neutrino-electron scattering on which later $\bar{\nu}_e$, ν_μ and $\bar{\nu}_\mu$ are superposed; an anti-stellar collapse would show a very strong initial antineutrino burst, with a later contribution from ν_μ-electron scattering.

The existing (negative) evidence concerning the existence of antimatter in the universe is derived from a) charged-particle searches in the cosmic-ray primaries, which are impractical at high energies; or b) annihilation products like gamma-rays; but these have so many possible sources that their origin is difficult to determine.

IV. Extragalactic GSC Event Rate

In order to estimate the number of GSC events that would be seen in a detector of the size envisaged, we need an estimate of the rate of events within range of our detector. This estimate is at best a very uncertain one; it contains three factors,