Addendum to the paper:**High-Energy Neutrino Astronomy with «Small» Underground Detectors.**

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Equation (4) of the cited paper and the preceding equation for $n_p(E, r)$ as derived in the text are actually valid for continuous energy loss of proton in the source (see the formula for $E(r)$). To take into account the fluctuations in energy losses one must use the kinetic equation for $F_p(E, r)$, the number of protons with energy E traversing the sphere of radius r per 1 s, which is

$$(1) \quad F_p(E, r) - F_p(E, r + dr) = F_p(E, r) \sigma_{in} n_H dr - F_p\left(\frac{E}{\alpha}\right) \frac{1}{\alpha} \sigma_{in} n dr,$$

where the right-hand side takes into account the «absorption» and regeneration of protons in the energy interval $E, E + dE$ due to inelastic nuclear collisions with cross-section σ_{in} , and α is the fraction of energy a proton retains in one inelastic collision.

Taking into account that at $r = 0$ the function $F_p(E, r)$ is equal to $\dot{N}_p(E)$, the number of protons with energy E produced by the source per 1 s, it is easy to find from the above kinetic equation (1) the density $n_p(E, r) = F_p(E, r)/4\pi cr^2$:

$$n_p(E, r) = \frac{(\gamma - 1) \gamma L_p}{4\pi cr^2} E^{-(\gamma+1)} \exp[-(1 - \alpha^\gamma) \sigma_{in} n_H r].$$

The total number of neutrinos with energy E emitted by the source per 1 s is

$$(2) \quad \dot{N}(E)_{\nu_\mu + \bar{\nu}_\mu} dE = \frac{(\gamma - 1) \gamma}{1 - \alpha^\gamma} (\varphi_{\nu_\mu} + \varphi_{\bar{\nu}_\mu}) L_p E^{-(\gamma+1)} dE.$$

In the case of continuous energy losses the fraction of energy lost in one collision is $\alpha' = 1 - \alpha \ll 1$. Expanding $1 - \alpha^\gamma = 1 - (1 - \alpha')^\gamma \approx \gamma \alpha' = \gamma(1 - \alpha)$ one arrives at eq. (4) of the paper. Equation (2) differs from (4) by a factor $\gamma(1 - \alpha)/(1 - \alpha^\gamma)$ which is of order of 1 within a few percent.