The intensity correlation method of spatial and angular (three-dimensional) location of solitary or remote space sources of X-radiation, gamma-radiation or neutrons is suggested and studied. The main idea of the method is based on the phenomenon of pair correlation of intensities \( J_i(t) = e_i |\xi_i(t)|^2 \) and \( J_j(t+\tau) = e_j |\xi_j(t+\tau)|^2 \) of nuclear radiation measured by two separated detectors \( i \) and \( j \) [1]. Here \( \xi_i(t) = \sum_n \Psi_i (R_i, t-t_{kn}) \) are sums of pulse spherical waves \( \Psi_i (R_i, t-t_{kn}) \) for the usual case of the random Gaussian process of quanta detecting, \( \xi_j(t) \) is the single detected quantum (or neutron) after detector (on the exit of detector); \( e_i \) and \( e_j \) are the effectiveness of the quantum detecting, \( \delta \omega \) is the spectral band of the intensity correlator (signal acquisition and processing system); \( \langle n_i \rangle \) and \( \langle n_j \rangle \) are the averaged quantity of detected quanta (neutrons) in the detectors \( i \) and \( j \).

For the usual case of the random Gaussian process of quanta detecting \( \xi_i(t) \) the correlation function of intensity has the form

\[
K_{ij}(\tau) = \langle \xi_i(t) \xi_j(t+\tau) \rangle = \langle \xi_i(t) \xi_i(t+\tau) \rangle + \langle \xi_j(t) \xi_j(t+\tau) \rangle + \langle \xi_i(t) \xi_j(t+\tau) \rangle - \langle \xi_i(t) \rangle \langle \xi_j(t+\tau) \rangle = \delta \omega \int_{-\delta \omega}^{\delta \omega} F(\omega) e^{i \omega \tau} d\omega.
\]

Here \( F(\omega) = \int_{-\infty}^{\infty} F(t) e^{-i \omega t} dt \) is the spectral intensity (having the spectral half-width \( \delta \omega \) of the single detected quantum (or neutron) after detector (on the exit of detector); \( \Delta \omega \) is the spectral band of the intensity correlator (signal acquisition and processing system); \( \langle n_i \rangle \) and \( \langle n_j \rangle \) are the averaged quantity of detected quanta (neutrons) in the detectors \( i \) and \( j \).

For the usual case \( \Delta \omega < \delta \omega \) we have the correlation function

\[
K_{ij}(\tau) \approx 4 \langle n_i \rangle \langle n_j \rangle |F(0)|^2 \sin(\Delta \omega \tau)/\tau^2.
\]

The maximum value of this correlation function is equal \( K_{ij}(0) = 4 \langle n_i \rangle \langle n_j \rangle |F(0)|^2 |\Delta \omega|^2 \) and corresponds to the additional delay \( \Delta \tau = -\tau \) of the registered intensity signal \( J_i(t+\tau) \) from one of the detectors \( i \) or both detectors \( i \) and \( j \) introduced in the correlator.

The maximal distance to an investigated source of radiation equals \( L_{\text{max}} = a \delta \omega^2/4 c \sqrt{\delta} \). Here \( a \) is the distance between two detectors, \( \delta = |K_{ij}(0) - K_{ij}(\tau_{ij})|/K_{ij}(0) \approx 10^{-5} \). \( 10^{-6} \) is measurement accuracy of correlation function near its maximum value \( K_{ij}(0) \),

\[
\tau_{ij} = a^2/2 L_{\text{max}} c. \quad \text{At usual values} \quad \Delta \omega = 10^6 \text{s}^{-1}, \quad a = 10^4 \text{km} \text{ we have } L_{\text{max}} \approx 10^{14} \text{km}.
\]

For three-dimensional location of the remote source of radiation it is necessary to use three or more spatially separated independent detectors, situated at \( r_1, r_2, r_3, \ldots \), and three or more independent intensity correlators. For this case the position of the detected remote source \( \mathbf{r}_g = \{x_g, y_g, z_g\} \) of radiation may be calculated using the system of equations

\[
[(x_x - x_0)^2 + (y_y - y_0)^2 + (z_z - z_0)^2]^{1/2} + c \Delta \tau = [(x_x - x_0)^2 + (y_y - y_0)^2 + (z_z - z_0)^2]^{1/2};
\]

for maximum values of correlation functions \( K_{ij}(0) \) for different pairs \( i \neq j = 1,2,3,\ldots \) of detectors of investigated radiation.