$$\eta = \frac{(n-\lambda_n)(m-\lambda_m)}{\lambda_n \lambda_n} \tag{1}$$

where

$$\lambda_i(x) = NQ_i dS_i(x) = NQ_i(dS + \delta S_i(x)) = NdSQ_i(1+\delta_i(x)) \tag{2}$$

$$\langle \eta \rangle = \int_V d^3x P(x) \sum_{n,m} \frac{(n-\lambda_n)(m-\lambda_m)}{\lambda_n \lambda_n} \mathrm{Poisson}(n|\lambda_n)\mathrm{Poisson}(m|\lambda_m) \tag{3}$$

$$\int_V d^3x P(x) \sum_{n,m} \left[nm - NdS\left(nQ_m(1+\delta_m) + mQ_n(1+\delta_n)\right)\right] \frac{1-\delta_n-\delta_m}{N^2 dS^2 Q_n Q_m} \cdot \tag{4}$$

$$\mathrm{Poisson}(n|NdSQ_n)\mathrm{Poisson}(m|NdSQ_m)\left[1+\delta_n(n-NdSQ_n)\right]\left[1+\delta_m(m-NdSQ_m)\right] \tag{5}$$