\[ \Sigma_e(n) = \sum_{E}^{E+n} \int_{E}^{E+n} \delta(E - E_i) \rho(E_i) \frac{1}{\lambda} \frac{\rho(E_i)}{\rho(E_j)} \]

\[ = \sum_{E}^{E+n} \int_{E}^{E+n} \delta(E - E_i) \rho(E_i) - \frac{1}{\lambda} \rho(E_i) \rho(E_j) \]

\[ = \eta - \frac{\eta^2}{\lambda} \quad \text{for} \quad N \rightarrow \infty \quad \Sigma_e(n) = 0 \]

This could have been obtained without calculation; the variance of a set of random numbers in an interval of length \( n \) is equal to \( \eta \). That is why this ensemble is known as the Poisson ensemble.

The \( \frac{1}{\lambda} \) correction ensures that \( \Sigma_e(n) = 0 \).