

Thanksgiving Quiz

Let N be a Poisson process with parameter 2, with N_t representing the number of neutrinos arrived in a neutrino detector between time 0 and time t weeks. Select the only right answer.

- Which statement is the most true?
 - N has independent and stationary increments
 - N_t has a Poisson distribution for every $t \geq 0$
 - Both
- What is the probability that, after one week of observation, exactly one neutrino has arrived in the detector?
 - e^{-2}
 - $2e^{-2}$
 - 1
- What is the expected number of neutrino that will arrive in the detector within two weeks time from today?
 - 1
 - 2
 - 4
- What is the expected number of neutrino that will arrive in the detector between January 1, 2027 (12am) and January 15, 2027 (12am)?
 - 1
 - 2
 - 4
- The arrival time of the 10th neutrino in the detector follows a
 - Poisson
 - Exponential
 - Gammadistribution.
- The time between the arrival of the 10th neutrino and the arrival of the 12th follows a
 - Gamma distribution with shape parameter 2 and rate parameter 2 (and mean 1)
 - Exponential distribution with parameter 2 (and mean $\frac{1}{2}$)
 - Exponential distribution with parameter 1 (and mean 1)