* **How can you tell if statistics are Poisson? What happens to distributions at high count rates?**
  + 1. The statics are considered to be Poisson distribution if the probability of a given number of events for some time interval occur at some average rate and independently of one another.

Alex gave the example of current passing through a wire. The number of electrons that pass through a cross section of a wire is not constant; however, they pass through at an average rate and each electron that passes is independent of the other . ie. The electron have no effect on the rate of flow.

1. At high high count rates the fluctuation within the distribution are negligible

* **What is the difference between the standard deviation and the standard error, and how do these quantities relate to experimental precision? How does repeating measurements affect experimental precision?**

1. Standard deviation is a measure of the spread, that is, how much the values vary from another. Standard error measure the mean (average) of the population. It takes into account standard deviation and the sample size. In simple terms, you find the Stan Dev of each individual sample size and then take the average of all the sample sizes
2. Standard deviation indicates the precision because you are measuring how reliable your experimental results are, i.e. are you getting similar results? If you have high standard deviation, then it means your results are not very reliable, probably due to some error present during experimentation or calculation. On the other hand, The standard error is an important indicator of how precise an estimate of the sample statistic is. Repeating the experiment will indicate how precise the experiment is.

* **Explain the relationship between the exponential distribution and the Poisson distribution.**

1. Poison provides an appropriate description of the number of occurrences per interval time and the exponential will provide a description of the length of time between occurrences.