

Physics 493L: Homework #1

Due March 1, 2011

10 points

For the following, write your own MATLAB script and functions.

Create a data set using the model  $y = A + Bx$ , with  $A = 5, B = 2, x = \{1, 2, \dots, 50\}'$ . Corrupt the result with normally distributed noise with known variance  $\sigma^2 = 25$ . Use the Maximum Likelihood Estimator to find  $A$  and  $B$ . Plot your results. Remember to use axis labels and a legend.

Repeat the above process assuming the observed values are Poisson distributed. Use the appropriate MLE for Poisson distributed data. See 'GenPoisson.m' on our class web page.

Turn in the MATLAB m-files (via e-mail) that I can use to reproduce your results.