

# SOLUTION FOR HOMEWORK ASSIGNMENT NO. 05

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## Exercise 5.1

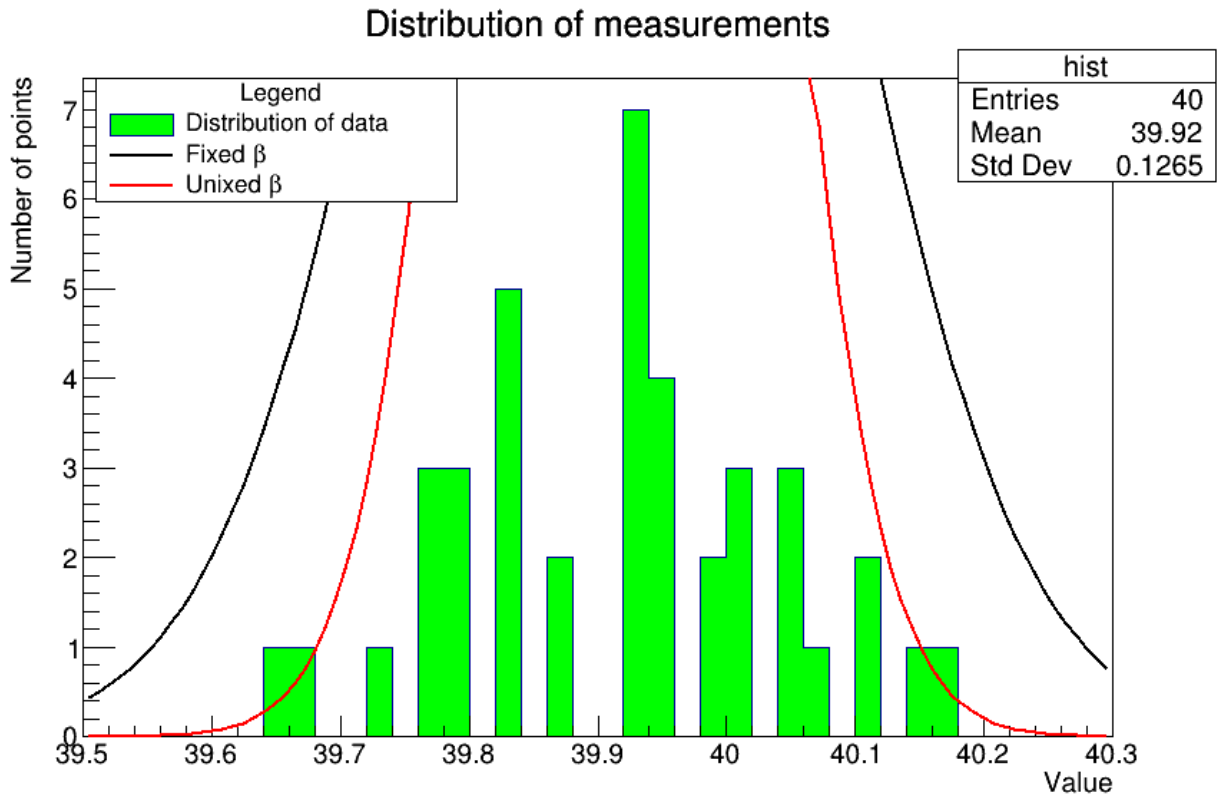
- a) We are asked to find the position  $\alpha$  for a given distance  $\beta = 30$ . To do this we maximize a likelihood function based on the probability  $p(x; \alpha, \beta)$  which is given as

$$p(x; \alpha, \beta) = \prod_{i=1}^n \quad (1)$$

## Exercise 5.2

After importing the dataset we plotted it to confirm that we indeed have a gaussian distribution. The resulting plot is illustrated in figure 1. The output by the fit is given in table 1.

**Figure 1:** Distribution of data points given in the file 'data\_05.h'. The distribution of points seem to follow a gaussian distribution.



**Table 1:** Summary of all fitted parameters.

<b>Parameter</b>	<b>Value</b>	
	<b>fixed <math>\sigma</math></b>	<b>unfixed <math>\sigma</math></b>
$\mu$	39.916	39.916
$\sigma$	0.15	0.089