GSSI - statistical and software tools for data analysis (M. Agostini)

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1 Coverage

Let us consider a toy analysis where the distribution of both the signal (s) and the background (b) is known. Both are defined in the range $(-10, 10)$ and their probability density functions are

$$f_b(b) = \frac{1}{20}$$

$$f_s(s) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{(s-\mu)^2}{2\sigma^2}} \quad \text{where} \quad \mu = 0 \;\; \sigma = 1$$

A frequentist analysis is performed for different combinations of *true* signal and background expectation values in order to extract a confidence interval for the signal at 90