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Homework Class 1

HEP Data Analysis
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Using ROOT and c++ programming language to write codes to finish the following exercises.

Exercise 1

- Draw a Landau function, $f_s(x)$.
- Draw a Gaussian function, $f_b(x)$.
- Normalize them to be PDFs, i.e. integration of the area to be 1.

Exercise 2

- Make a composed function of the two function you draw in Exercise 1, $f(x) = k \cdot f_s(x) + (1 - k) \cdot f_b(x)$.
- Normalize it to be a PDF, and you should also keep $f_s(x)$ and $f_b(x)$ being normalized PDFs.

Exercise 3

- Using the above $f(x)$ in Exercise 2 to generate Monte-Carlo events, and fill them into a histogram.