

pdf of sum of abs values, Z

$$P_z(z) F(z) = \int_{\sum |x_i| \leq z} \prod f(x_i) dx_i$$

$$= \int_{A_z} \prod_{i=1}^n f(x_i) dx_i$$

$E[XY]$

$$f(x_i) \geq 0$$

as by symmetry all the

1 write up pdf of a sum

Claim x_i Gaussian then the pdf of $\sum |x_i|$ is cts

$$\sum_A \int_{A, \sum x_i \sum (-1)^{\sigma(i)} x_i \leq z} f(x_1, \dots, x_n) dx_1, \dots, dx_n$$

$$= \int_{A^{-n}} \int_0^{z - \sum_{i=1}^n x_i (-1)^{\sigma(i)}} f(x_1, \dots, x_n) \dots + \int_{A^{-n}} \int_{z-1}^0$$

$$= \int_{A^{-n}} \int_0^{z - \sum_{i=1}^n x_i} f(x_1, \dots, u - \sum_{i=1}^n x_i) du dx$$