10000

$$A = [-\pi, \pi] \times [-1, 1]$$

A

$$(x, y) \mapsto (1, x, \sin^{-1}(y)).$$

$$(r, \theta, \varphi)$$

$\mathbf{P}[$

$$] = e^{-\frac{\pi^2}{2\sqrt{P}}},$$

P

(1)

$$] = 1 - \left(1 - e^{-\frac{\pi^2}{2\sqrt{P/N}}}\right)^N,$$

N

$$[0, \infty)$$

Y_j

$$B(r_1, r_2)$$

$$2\int_{r_1}^{r^2} \frac{1}{\sqrt{2\pi}} e^{-y^2}\, dy.$$

$$\mathcal{L}_{\tau}(f)$$

$$= \mathbb{E} \exp\left[-\sum_i f(|Y_i|)\right] = \mathbb{E} \prod_i \exp\left[-f(|Y_i|)\right]$$

$$= \mathbb{E}_n \left[(2\pi)^{-n/2} \int_0^\infty \cdots \int_0^\infty \prod_{i=0}^{n} \exp\left[-f(y_i)\right] \frac{2}{\sqrt{2\pi}} e^{-y_i^2} dy_1 \dots dy_n \right]$$

$$= \mathbb{E}_n \left[(2\pi)^{-n/2} \left(\int_0^\infty 2 \exp\left[-f(y) - y^2 \right] dy \right)^n \right]$$

$$= \mathbb{E}_n \exp\left[\sum_{i=0}^{n} \log\left(\int_0^\infty \exp\left[-f(y)\right] \frac{2e^{-y^2}}{\sqrt{2\pi}} dy\right)\right]$$

$\mathcal{L}(g)$

$$g = -\log\left(\int_0^\infty \exp\left[-f(y)\right] \frac{e^{-y^2}}{\sqrt{2\pi}} dy\right)$$

$$\mathcal{L}(g) = \mathcal{L}_\tau(f)$$

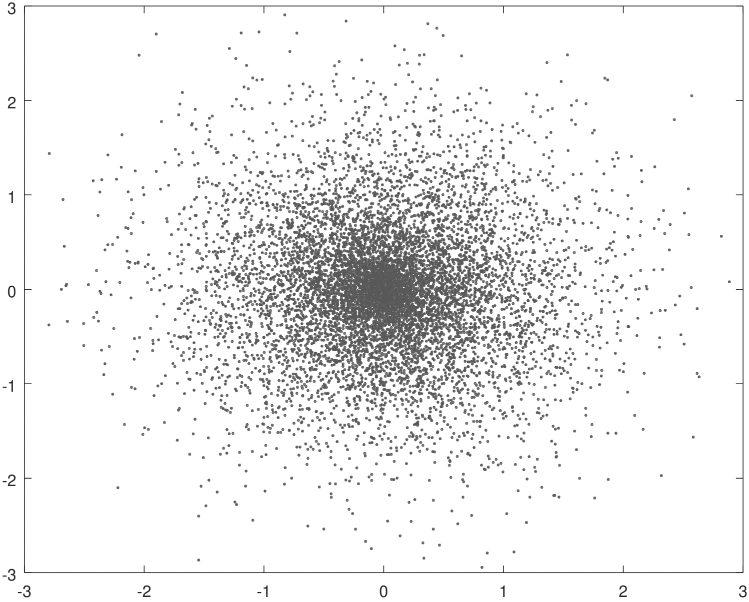
$$= \exp\left[-\int_{\mathbb{R}^2} 1 - e^{\log\left(\int_0^\infty \exp[-f(y)] \frac{2e^{-y^2}}{\sqrt{2\pi}}\, dy\right)} \Lambda(dx)\right]$$

$$= \exp\left[-\int_{\mathbb{R}^2}\left(1-\int_0^\infty \exp[-f(y)]\frac{2e^{-y^2}}{\sqrt{2\pi}}dy\right)\Lambda(dx)\right]$$

$$= \exp\left[-\int_{\mathbb{R}^2}\int_0^\infty \left(1-\exp[-f(y)]\right)\frac{2e^{-y^2}}{\sqrt{2\pi}}dy\Lambda(dx)\right]$$

$$= \exp\left[-\int_0^\infty \left(1 - \exp[-f(y)]\right)\sqrt{\frac{2}{\pi}}e^{-y^2}N dy\right], (1)$$

$$\sqrt{\frac{2}{\pi}} e^{-x^2} N.$$


3
2
1
0
-1
-2
-3
-3
-2
-1
0
1
2
3

$$F_s$$

$$F_s/2$$