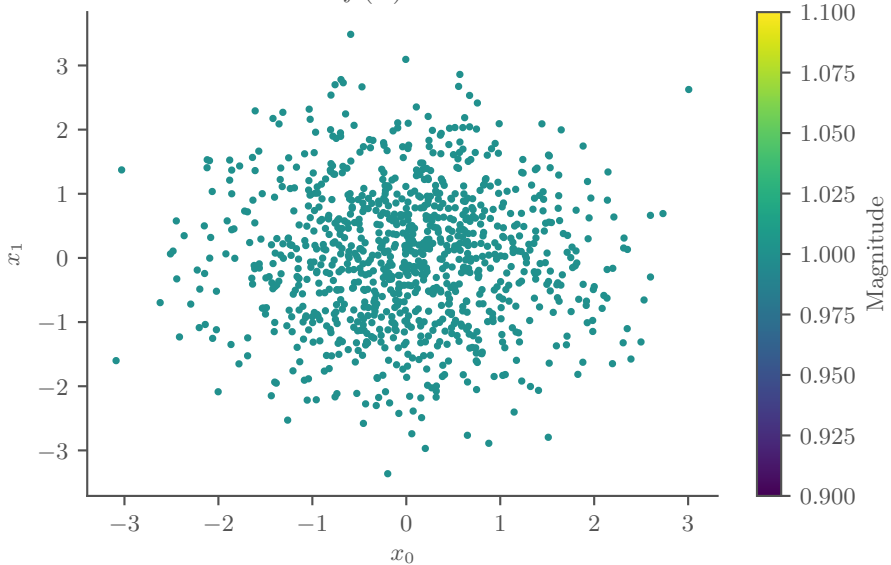


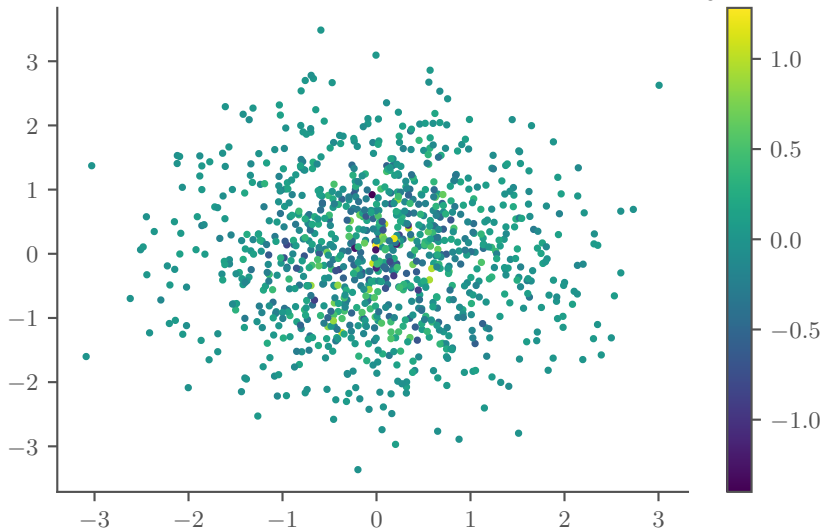
$$f(\mathbf{x}) = 1$$



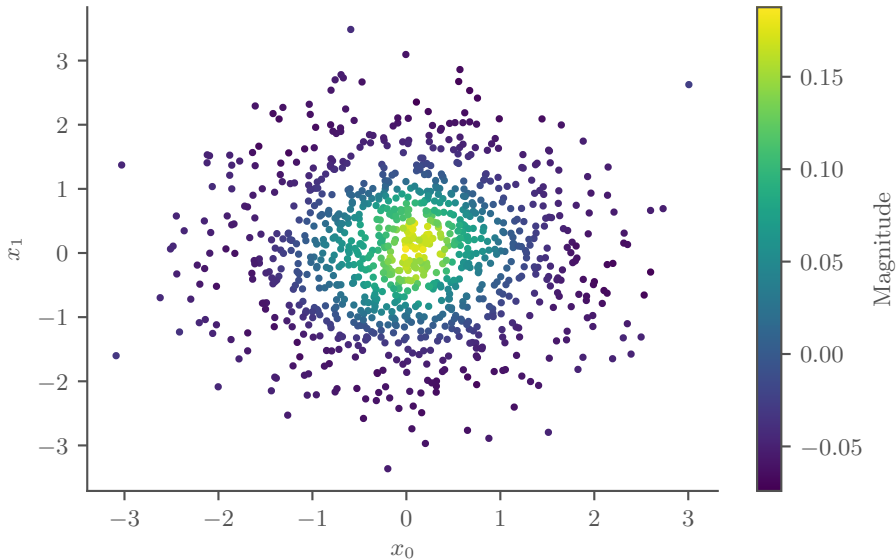
$$\mathcal{L}_{\psi,1}f \ (f(\mathbf{x}) = 1)$$

 $x_1$  $x_0$  $\times 10^{-15}$ 

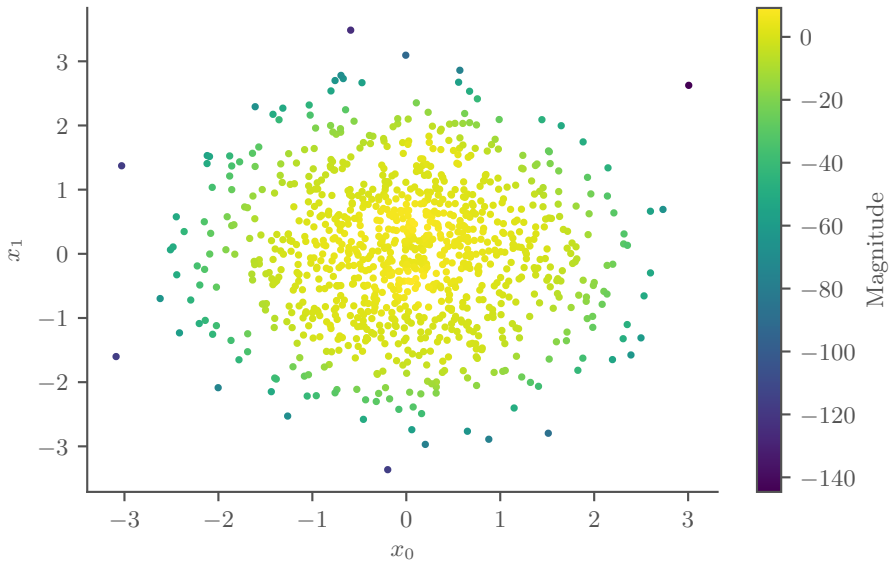
Magnitude



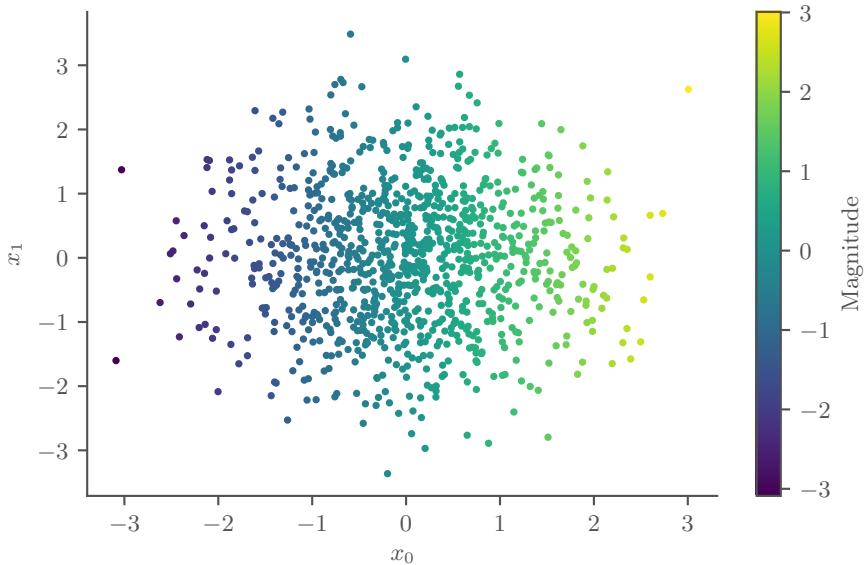
$$\mathcal{L}_{\psi,1}f \approx \frac{1}{\epsilon} \mathbf{P}^{-2} \mathbf{Q} \mathbf{\Lambda} \mathbf{Q}^T \mathbf{f} \quad (f(\mathbf{x}) = 1)$$



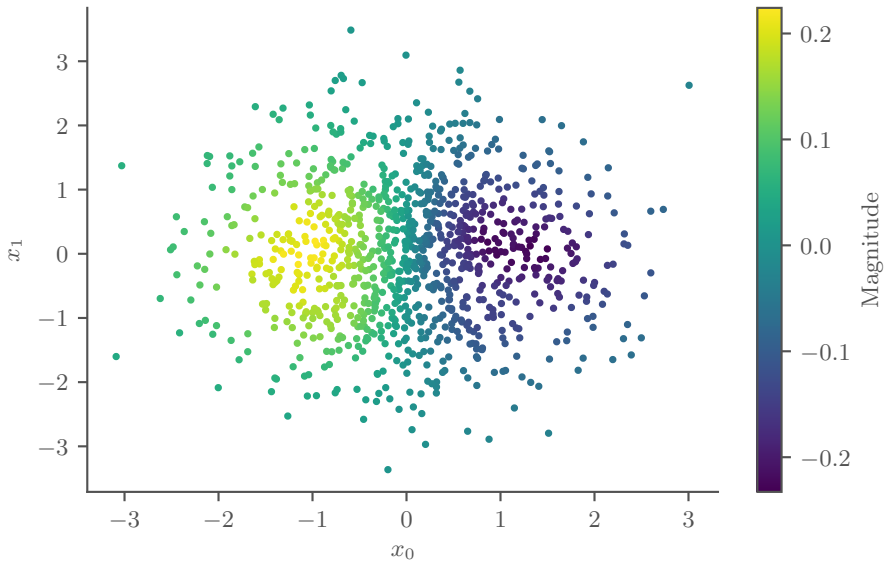
$$\mathcal{L}_{\psi,1}^{-\dagger} f \approx \epsilon \mathbf{Q} \mathbf{\Lambda}^{-\dagger} \mathbf{Q}^T \mathbf{P}^2 f \quad (f(\mathbf{x}) = 1)$$



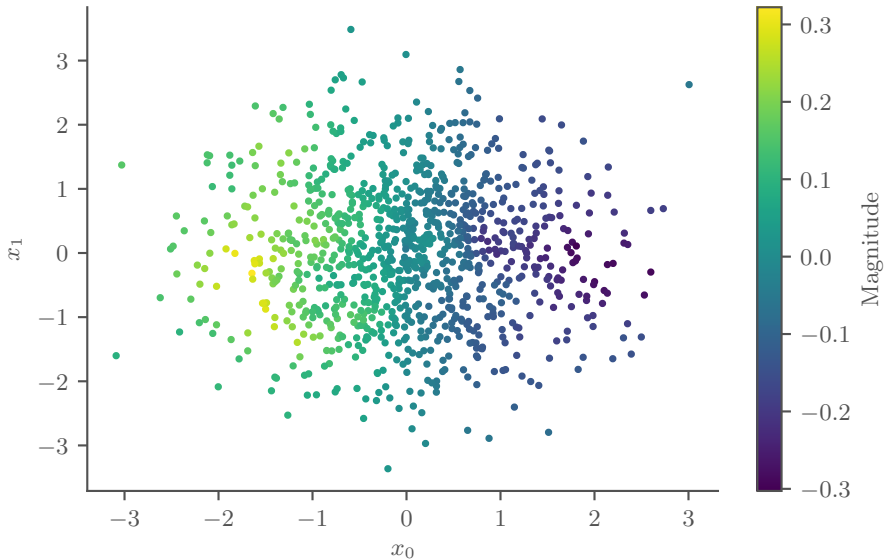
$$f(\mathbf{x}) = x_0$$



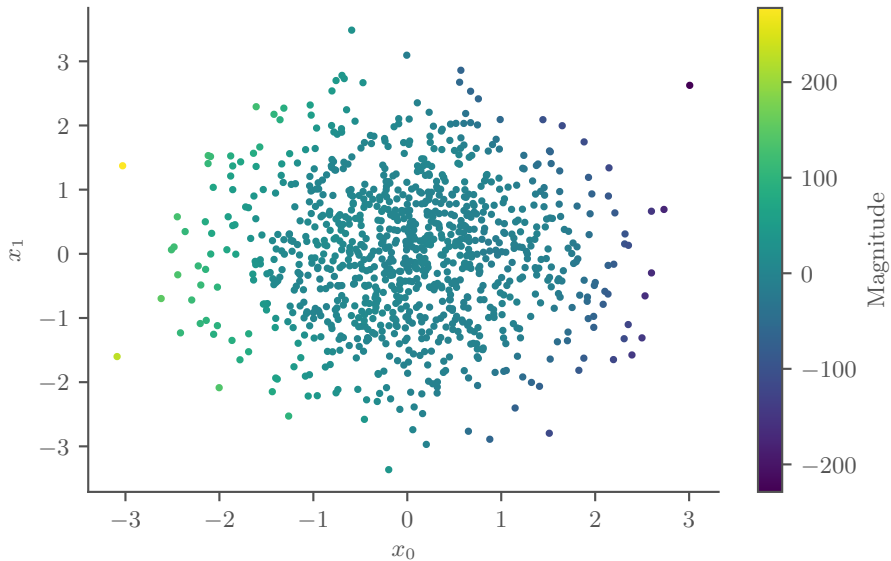
$$\mathcal{L}_{\psi,1}f \quad (f(\mathbf{x}) = x_0)$$



$$\mathcal{L}_{\psi,1}f \approx \frac{1}{\epsilon} \mathbf{P}^{-2} \mathbf{Q} \mathbf{\Lambda} \mathbf{Q}^T \mathbf{f} \quad (f(\mathbf{x}) = x_0)$$

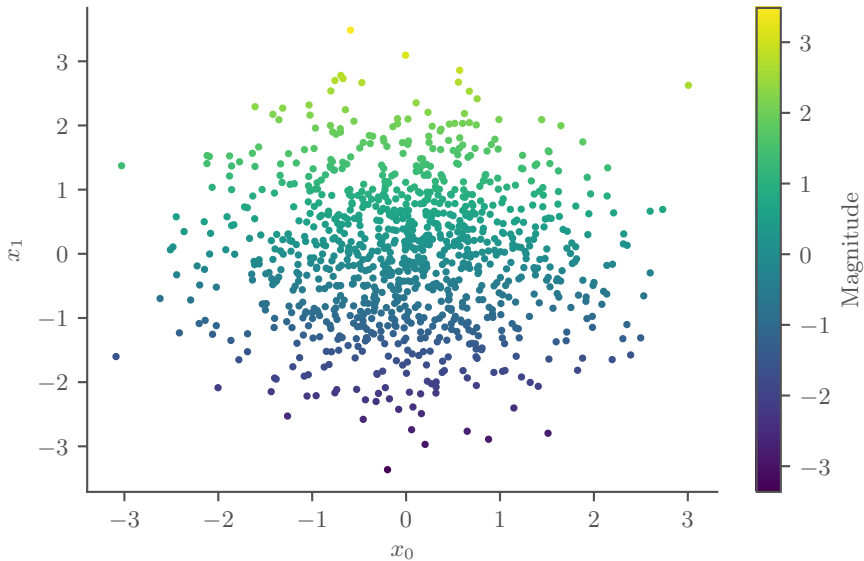


$$\mathcal{L}_{\psi,1}^{-\dagger} f \approx \epsilon \mathbf{Q} \mathbf{\Lambda}^{-\dagger} \mathbf{Q}^T \mathbf{P}^2 f \quad (f(\mathbf{x}) = x_0)$$

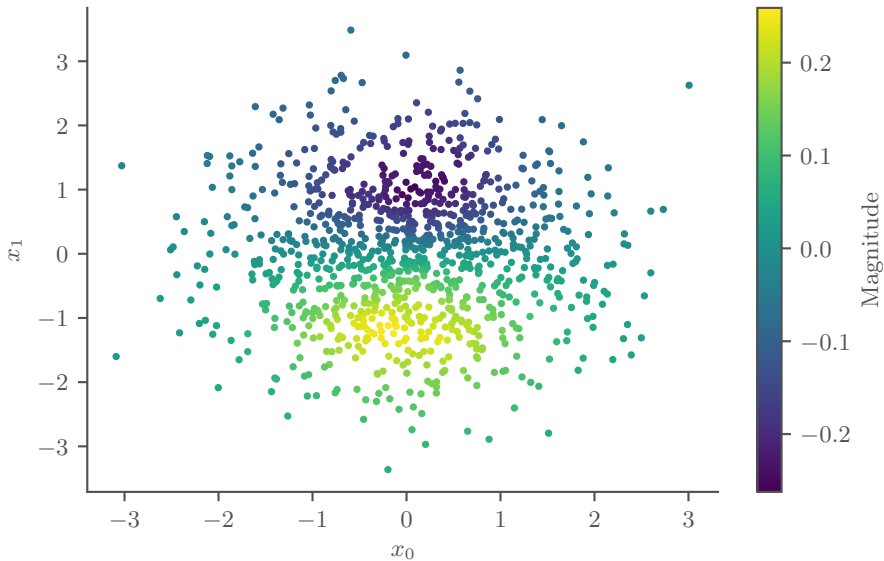




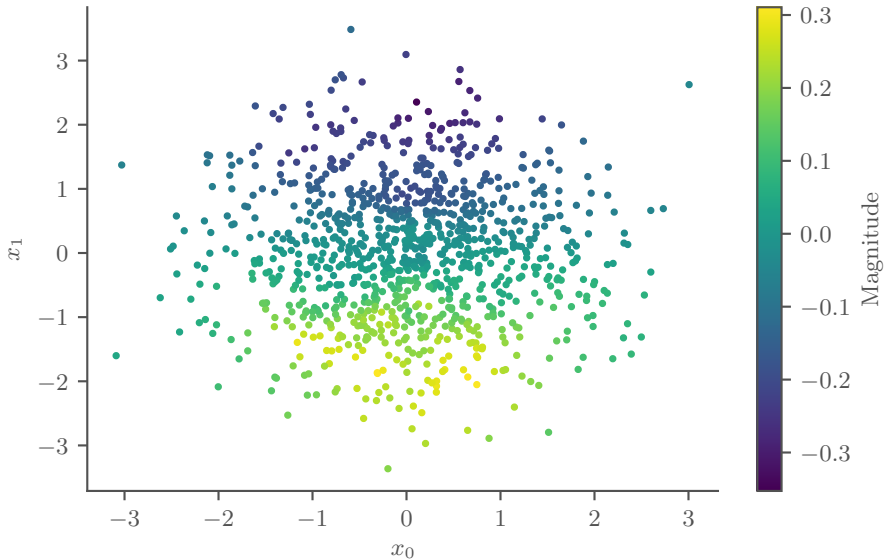
$$f(\mathbf{x}) = x_1$$



$$\mathcal{L}_{\psi,1}f \quad (f(\mathbf{x}) = x_1)$$



$$\mathcal{L}_{\psi,1}f \approx \frac{1}{\epsilon} \mathbf{P}^{-2} \mathbf{Q} \mathbf{\Lambda} \mathbf{Q}^T \mathbf{f} \quad (f(\mathbf{x}) = x_1)$$



$$\mathcal{L}_{\psi,1}^{-\dagger} f \approx \epsilon \mathbf{Q} \mathbf{\Lambda}^{-\dagger} \mathbf{Q}^T \mathbf{P}^2 f \quad (f(\mathbf{x}) = x_1)$$

