Probability densities and correlations

Reconst. target density
$p_{\phi(\hat{\mathbf{x}})}(\boldsymbol{x}) \sim \boldsymbol{x} = \boldsymbol{f}_{\phi(\hat{\mathbf{x}})}^{-1}(\boldsymbol{z})$

True target density
$p_{\boldsymbol{x}}(\boldsymbol{x}) \sim \boldsymbol{x}$