

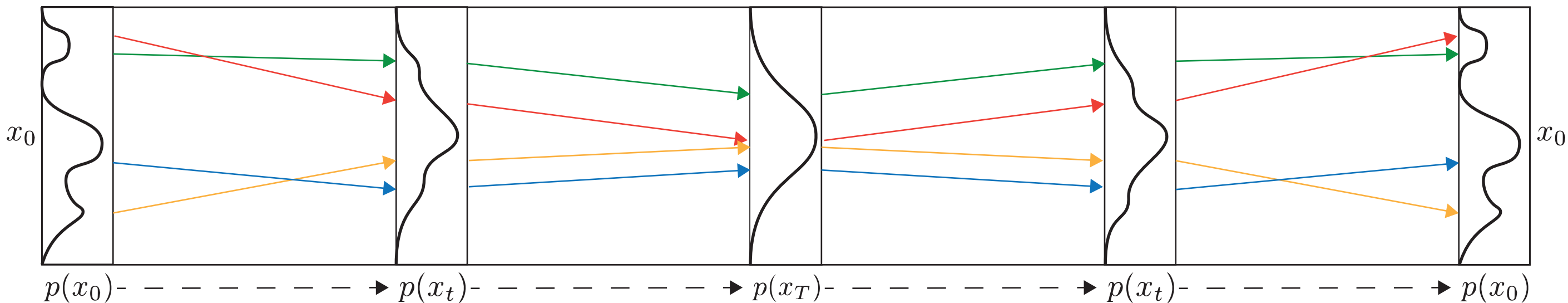
a)

Denoising Diffusion Probabilistic Models (DDPMs)

Forward process

Backward process

Data $\longrightarrow q(\mathbf{x}_t | \mathbf{x}_{t-1}) = \mathcal{N}(\mathbf{x}_t; \sqrt{1 - \beta_t} \mathbf{x}_{t-1}, \beta_t \mathbf{I}) \longrightarrow$ Prior $\longrightarrow p_\theta(\mathbf{x}_{t-1} | \mathbf{x}_t) = \mathcal{N}(\mathbf{x}_{t-1}; \mu_\theta(\mathbf{x}_t, t), \Sigma_\theta(\mathbf{x}_t, t)) \longrightarrow$ Data



b)

Stochastic Differential Equations (SDEs)

Forward process

Backward process

Data $\longrightarrow dx = f(x, t)dt + g(t)dw \longrightarrow$ Prior $\longrightarrow dx = [f(x, t) - g^2(t)\nabla_x \log p_t(x)] dt + g(t)d\bar{w} \longrightarrow$ Data

