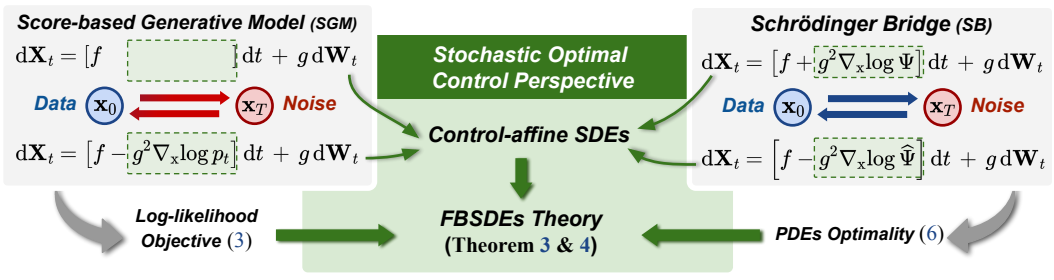
Score-based Generative Model (SGM)
$\mathrm{d}\mathbf{X}_t = [f \quad]\,\mathrm{d}t + g\,\mathrm{d}\mathbf{W}_t$
Data
$\mathbf{x}_0$
$\mathbf{x}_T$
Noise
$\mathrm{d}\mathbf{X}_t = [f - g^2\nabla_{\mathrm{x}}\log p_t]\,\mathrm{d}t + g\,\mathrm{d}\mathbf{W}_t$
Stochastic Optimal Control Perspective
Control-affine SDEs
Schrödinger Bridge (SB)
$\mathrm{d}\mathbf{X}_t = [f + g^2\nabla_{\mathrm{x}}\log \Psi]\,\mathrm{d}t + g\,\mathrm{d}\mathbf{W}_t$
Data
$\mathbf{x}_0$
$\mathbf{x}_T$
Noise
$\mathrm{d}\mathbf{X}_t = \left[f - g^2\nabla_{\mathrm{x}}\log \widehat{\Psi}\right]\mathrm{d}t + g\,\mathrm{d}\mathbf{W}_t$
Log-likelihood Objective (3)
FBSDEs Theory
(Theorem 3 & 4)
PDEs Optimality (6)