$$S^d \implies L^2\left(\mathcal{F}^S\right) \text{ Hilbert space}$$

$$M^{d+} \implies U^M \in L^2\left(\mathcal{F}^{\partial M}\right) \text{ vacuum}$$

$$_{\varphi}U^M = \int\limits_{\Phi|_{\partial M} = \varphi}^{\mathcal{F}^M} \mathcal{D}\Phi \exp\left(-\frac{2\pi i}{h}\mathcal{L}(\Phi)\right)$$

$$\Phi \in \mathcal{F}^M \implies \mathcal{L}(\Phi) = \int^M \mathcal{L}_\Phi$$

$$\mathcal{L}(\Phi) = \mathcal{L}_0(\Phi) + \mathcal{V}(\Phi)$$

$$\exp\left(-\frac{2\pi i}{h}\mathcal{L}(\Phi)\right) = \exp\left(-\frac{2\pi i}{h}\left(\mathcal{L}_0(\Phi) + \mathcal{V}(\Phi)\right)\right) = \exp\left(-\frac{2\pi i}{h}\mathcal{L}_0(\Phi)\right)\exp\left(-\frac{2\pi i}{h}\mathcal{V}(\Phi)\right)$$

$$\mathcal{D}\Phi \exp\left(-\frac{2\pi i}{h}\mathcal{L}_0(\Phi)\right) = d\mathcal{W}(\Phi) \text{ Wiener meas}$$

$$\mathcal{D}\Phi \exp\left(-\frac{2\pi i}{h}\mathcal{L}(\Phi)\right) = d\mathcal{W}(\Phi)\exp\left(-\frac{2\pi i}{h}\mathcal{V}(\Phi)\right)$$

$$_{\varphi}U^M = \int\limits_{\Phi|_{\partial M} = \varphi}^{\mathcal{F}^M} d\mathcal{W}(\Phi)\exp\left(-\frac{2\pi i}{h}\mathcal{V}(\Phi)\right)$$