$$S \xleftarrow[\text{diffeo}]{\curvearrowleft} \acute{S} \implies \mathcal{Q}_{-\infty}^{\sharp}S \xleftarrow[\text{isometric}]{\mathcal{Q}_{-\infty}^{\sharp}\curvearrowleft} \mathcal{Q}_{-\infty}^{\sharp}\acute{S}$$

$$\mathcal{Q}_{-\infty}^{\sharp}\Sigma \in \mathcal{Q}_{-\infty}^{\sharp}\partial\Sigma$$

$$\partial\Sigma = \partial\acute{\Sigma} \implies \partial\underline{\Sigma - \acute{\Sigma}} = \varnothing \implies \mathcal{Q}_{-\infty}^{\sharp}\Sigma \rtimes \mathcal{Q}_{-\infty}^{\sharp}\acute{\Sigma} = \mathcal{Q}_{-\infty}^{\sharp}\underline{\acute{\Sigma} - \Sigma} \in \mathbb{C}$$

$$\dim \mathcal{Q}_{-\infty}^{\sharp}S = \mathcal{Q}_{-\infty}^{\sharp}S \times \mathbb{T} \in \mathbb{C} \impliedby \partial(S \times \mathbb{T}) = \varnothing$$

$$\text{Diff}\ (S) \to \mathsf{U} \mid \mathcal{Q}_{-\infty}^{\sharp}S$$

$$\text{tr}\ \mathcal{Q}_{-\infty}^{\sharp}\curvearrowleft = \mathcal{Q}_{-\infty}^{\sharp}S \underset{\curvearrowleft}{\times} \mathbb{I}$$