

WEYL GAUGED GRAVITY

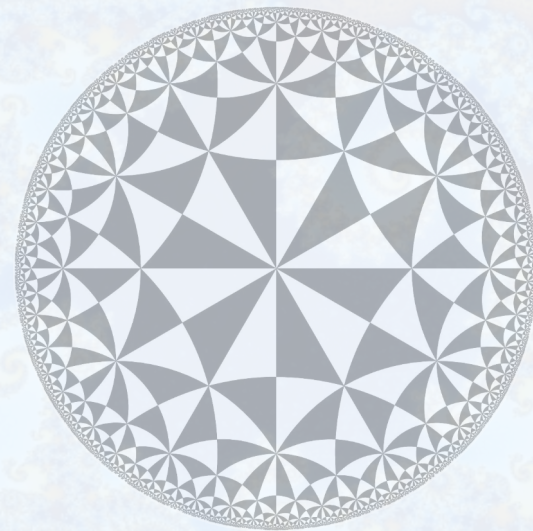
What if Scale Invariance is the fundamental approach to Quantum Gravity?

Weyl Geometry

$$\begin{cases} g'_{\mu\nu} = \Omega^2 g_{\mu\nu} \\ S'_\mu = S_\mu - \partial_\mu \ln(\Omega) \end{cases}$$

$$\Omega = e^{2\sigma(x)} > 0$$

Scale Invariance



Weyl Gauged Gravity

$$\mathcal{L}_{\text{WG}} = \frac{1}{2\lambda} \hat{C}^2 + \frac{1}{\xi} \hat{R}^2 + \frac{1}{4\alpha^2} W^2$$

S_μ decoupling

$$\mathcal{L}_{\text{WG}} \xrightarrow{\text{low energy}} \mathcal{L}_{\text{EH}}$$

Renormalizability &
Possible AF



Interplay with SM