

$${}^{xy}\mathcal{Z} = {}^x\theta^\alpha {}^y\mathcal{Z}_\alpha + {}^x\chi^\beta {}^y\mathcal{Z}_\beta + \dots$$

$$H_{\mathbb{R}}^3 \ni {}^y\mathcal{Z}_\alpha \text{ basic harmonic 3-forms}$$

$${}^y\mathcal{Z}_\alpha \text{ closed/co-closed}$$

$$d\mathcal{Z} = \underbrace{{}^x d\theta^\alpha} \wedge {}^y\mathcal{Z}_\alpha + \dots$$

$$d\widehat{d\mathcal{Z}}^* = \underbrace{{}^x d d\theta^\alpha}_* \wedge {}^y\mathcal{Z}_\alpha^*$$

$$\text{motion } d\widehat{d\mathcal{Z}}^* = \underbrace{d\mathcal{Z}}_2 \wedge_2 \underbrace{d\mathcal{Z}} \Rightarrow \underbrace{{}^x d d\theta^\alpha}_* = 0 \Rightarrow {}^x\theta^\alpha \text{ massless scalars}$$

$$T_{y g_{ij}} \text{Met}_G \ni {}^y\gamma_{ij}$$

$$\text{Lichne } \Delta_L {}^y\gamma = 0$$

$${}^{xy}g_{ij} = {}^x\theta^\alpha {}^y\gamma_{ij} \Rightarrow {}^x\theta^\alpha \text{ massless scalar super-partners}$$

$$7_{\mathbb{R}}^0:$$

$$\text{2-norm} = 27_{O_7} = 27_{G_2}$$

$$\text{3-form} = \begin{bmatrix} 7 \\ 3 \end{bmatrix} = 35_{O_7} = 1_{G_2} + 7_{G_2} + 27_{G_2}$$