$$Z = X \times Y \xrightarrow{F} \mathbb{R}$$

$$\underset{=}{\mathcal{L}}_F = 0$$

$$F(xy) = f(x)\, g(y)$$

$$\underset{=}{\mathcal{L}}_F = \Delta = \Delta_X \boxtimes \mathrm{i}_Y + \mathrm{i}_X \boxtimes \Delta_Y \text{ second/first order diff op}$$

tangential

$$\Phi(xy) = \sum_n \varphi_n(x)\, \psi_n(y)$$

$$\Delta_Y \psi_n = \lambda_n \psi_n$$

$$0 = \underset{=}{\mathcal{L}}_F \Phi = \Delta\Phi = \sum_n \underbrace{\Delta_X \varphi_n \boxtimes \psi_n + \varphi_n \boxtimes \Delta_Y \psi_n} = \sum_n \underbrace{\Delta_X \varphi_n \boxtimes \psi_n + \varphi_n \boxtimes \lambda_n \psi_n} = \sum_n \underbrace{\Delta_X + \lambda_n}\, \varphi_n \boxtimes \underbrace{\psi_n}_{\text{free}}$$

$$\Rightarrow \underbrace{\Delta_X + \lambda_n}\, \varphi_n = 0 \Rightarrow \Delta_X \varphi_n = -\lambda_n \varphi_n \text{ mass}$$

$$\Rightarrow \text{ massless spec } \Phi(xy) = \varphi^i(x)\, \psi_i(y) : \quad \psi_i \in \ker \Delta_Y$$

$$\Rightarrow X \xrightarrow[\sigma \text{ model}]{\varphi^i} \ker \Delta_Y \text{ fin dim}$$