Gauge-Higgs Unification

Higgs from higher dim. gauge field

- no divergences ⇨ no cutoff dependence
  - ⇨ (little) hierarchy (?)
- all “interactions” are gauge interactions

flavor from universal gauge interactions?

  - ➢ flavor dependent masses (@bulk/boundary)
    - ⇨ Yukawa hierarchy
- (calculable) loop-induced potential
  - ⇨ light Higgs

Gauge-Higgs Unification

- Flat

✓mild warping?

  - too small m_{KK}, m_h, m_t :

$$m_{KK} \sim 4\pi m_h \sim m_W \geq m_t$$

➢ tuning of $O(m_W^2/m_{KK}^2)$
➢ $\mathbb{Z}_2$ for factor 4

➢ large N_f
➢ brane kinetic terms

➢ large repr. -> CG coeff.

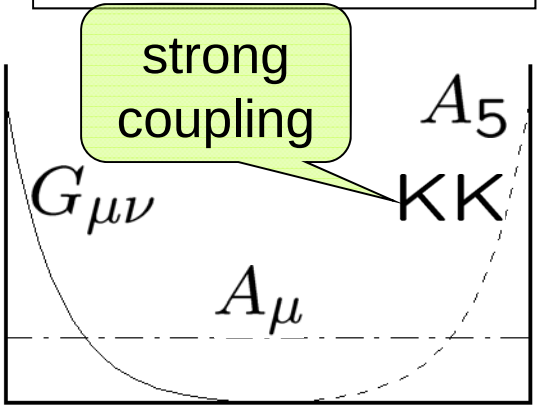
- RS

$\Lambda \sim m_{KK}$

enhanced

➢ volume supp. for m_W

strong coupling



- EWPT, FV : $m_{KK} > 3$ TeV
- CPV : $m_{KK} > 20$ TeV

model dep.

Gauge-Higgs Unification

- LHC (few studies)
  - in RS models, KK top tend to be light, (<1TeV)
  - existence of doublet vector

- Hosotani models