

higher bundles and higher symmetries

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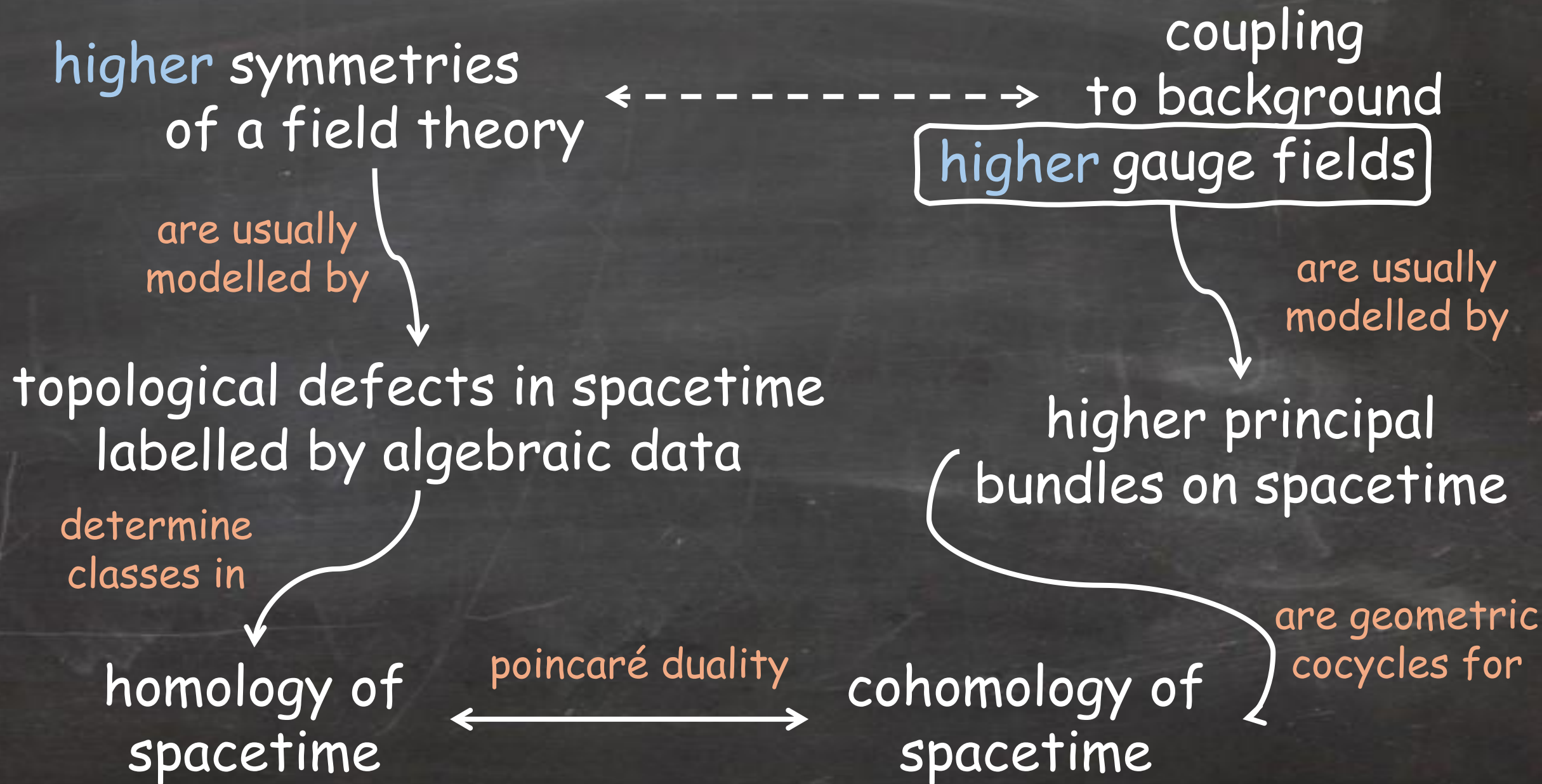
Research Centre
for Mathematics and
Theoretical Physics (MTP)

symmetries
of a field theory



coupling
to background
gauge fields

higher symmetries
of a field theory ←-----→ coupling
to background
higher gauge fields



extremely nascent project with s. bunk and o. gwilliam:

higher/homotopical
differential geometry

+

factorisation algebra
picture of field theory

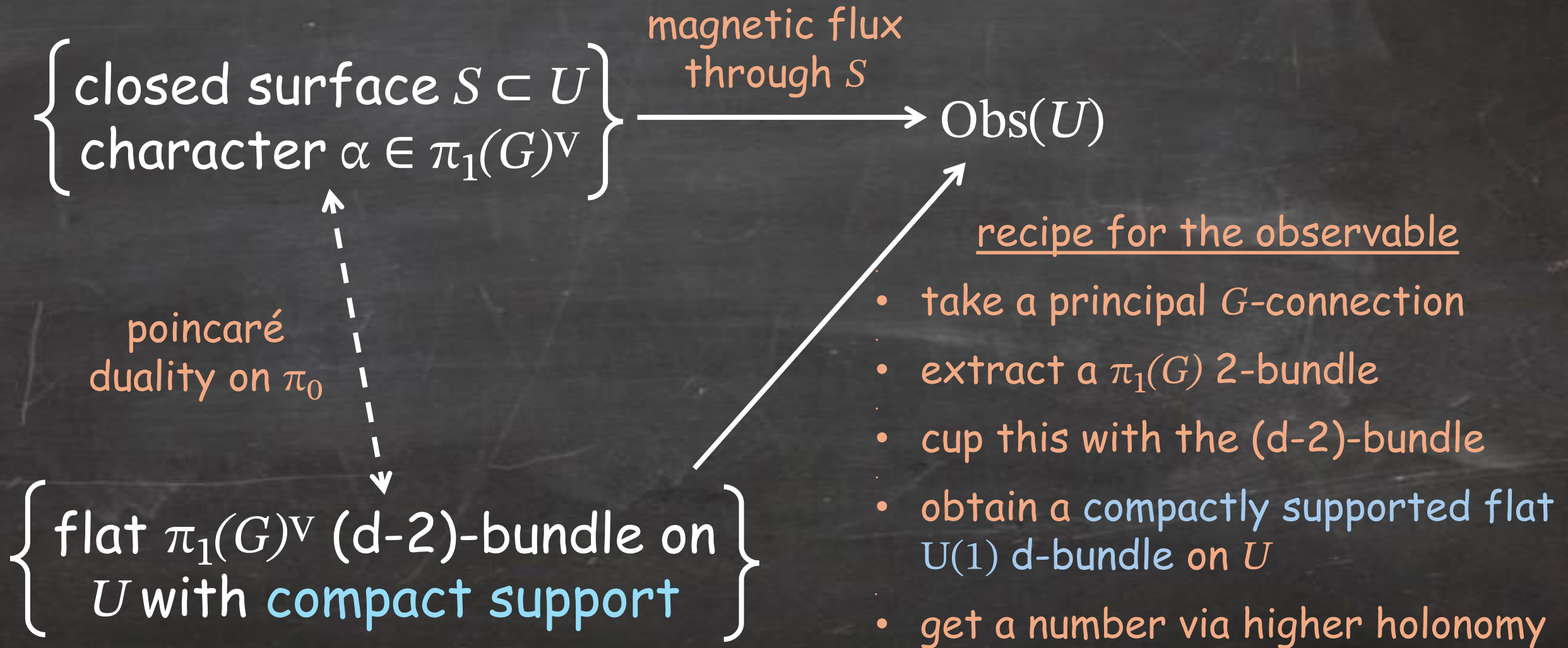


a good mathematical theory
of higher symmetries of field theories,
from the gauge field perspective

classical G -gauge theory on some d -dim spacetime U

$$\left\{ \begin{array}{l} \text{closed surface } S \subset U \\ \text{character } \alpha \in \pi_1(G)^V \end{array} \right\} \xrightarrow{\text{magnetic flux through } S} \text{Obs}(U)$$

classical G -gauge theory on some d -dim spacetime U



> get a number

theorem (k.) "compactly supported transgression"

- fix a manifold M
- and an oriented manifold Σ

(no boundary, but not necessarily compact)

$$\text{Corr}(M, \Sigma) \times \text{Hom}_c(M, B_{\nabla}^p U(1)) \rightarrow B_{\nabla}^{p-\dim \Sigma} U(1)$$

stack of proper-open
correspondences(!)

stack of **compactly
supported** p -bundles
with connection on M

classifying stack
of $(p-d)$ -bundles
with connection