



Chapter I

a Cult of Symmetry

Once upon a time in gauge grove...

a Coven of Quantum field theorists

A canvas...

a manifold

dimension of 4



a bundle
of vectors,
rank of 2

& A field... a connection

Give a #: The Action

Total square curvature: $\|\mathcal{F}\|^2 = \mathcal{F}^{\alpha\beta}\mathcal{F}_{\alpha\beta}$

Topological curvature: $\int \mathcal{F}^{\alpha\beta}\mathcal{F}_{\alpha\beta}$

Yang-Mills

$U(1)$ E&m
 $SU(2)$ weak
 $SU(3)$ strong

