

## **Topics for Physics 8.701**

History of Particle Physics

Units and Magnitudes

Survey of Particles and Conservation Laws

Survey of QCD

Survey of Electroweak Theory

Survey of Flavor Physics

Feynman graph recipes

Quark Model

Study 1: Deep Inelastic Scattering

Study 2: Oscillations: K Mesons and Neutrinos

Gauge Symmetry: Principles

Gauge Symmetry:  $SU(3) \times SU(2) \times U(1)$

Survey of Dimension Counting and Renormalizability

The Grand Normalization Theorem

Consequences for Flavor and Neutrino Physics

Study 3: Higgs Particle - Higgs Sector?