

5/26/16 Lecture 17 outline / summary

• Recall: $\mathcal{L} \supset \bar{\psi}(i\not{D} - m)\psi$, with $D_\mu = \partial_\mu + iqA_\mu + igT^a A_\mu^a$. $F_{\mu\nu} = [D_\mu, D_\nu]/(-ig) = \partial_\mu A_\nu - \partial_\nu A_\mu - ig[A_\mu, A_\nu]$, in the adjoint representation of the gauge group. $\mathcal{L} \supset -\frac{1}{4}\text{Tr}F_{\mu\nu}F^{\mu\nu} \supset -gf^{abc}\partial_\mu A_\nu^a F^{\mu b} A^{\nu c} - (g^2/4)f^{abc}f^{ade}A_\mu^b A_\nu^c A^{\mu d} A^{\nu e}$.

- Continue with QCD Feynman rules, examples of color factors.
- Asymptotic freedom and QCD.