Photoproduction of π^0 on hydrogen with CLAS from 1.1 GeV - 5.45 GeV from $e^+e^-\gamma$ decay

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Outline

1 Introduction

- QCD

Quantum Chromodynamics

- Fundamental theory of strong interactions
- Non-Abelian gauge theory with gauge group SU(3)
- Force carriers: Colored gluons
- $L_{QCD} = -\frac{1}{4} F^{(a)}_{\mu\nu} F^{(a)\mu\nu} + i \sum_q \bar{\psi}^i_q \gamma\mu (D_\mu)_{ij} \psi^j_q$
  - $F^{(a)}_{\mu\nu} = \partial_\mu A^a_\nu - \partial_\nu A^a_\mu - g_s f_{abc} A^b_\mu A^c_\nu$

    (Field strength tensor)
  - $(D_\mu)_{ij} = \delta_{ij} \partial_\mu + i g_s \sum_a \frac{\lambda^a_{ij}}{2} A^a_\mu$

    (Covariant derivative)