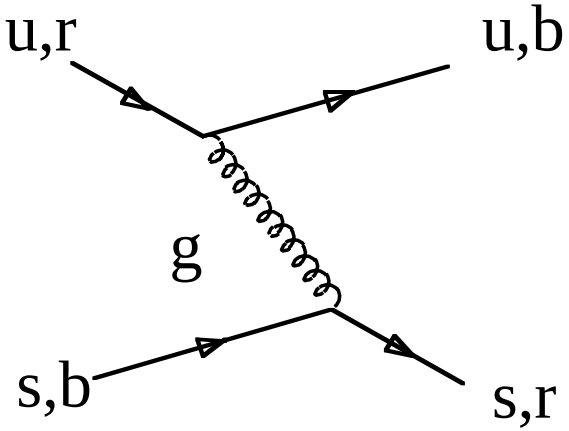

Fig.5.1 Example of quark-quark scattering by gluon exchange. In this diagram, the quark flavours *u* and *s* are unchanged but the colour state can change, as shown.

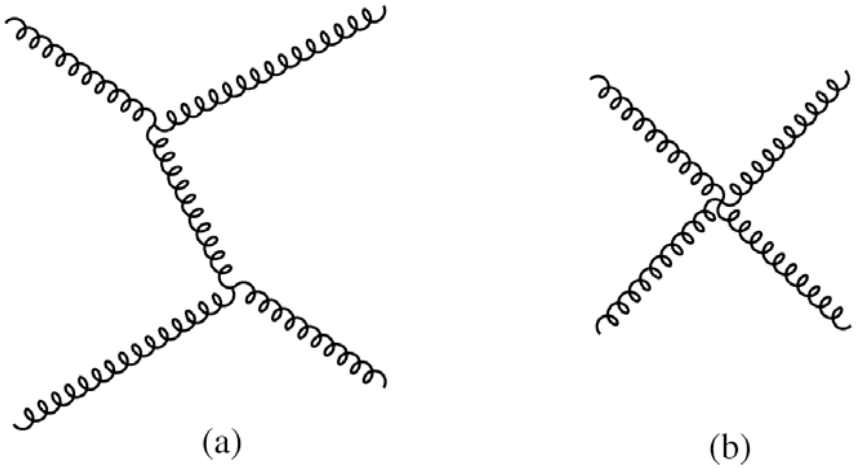

Fig.5.2 The two lowest-order contributions to gluon-gluon scattering in QCD: (a) one-gluon exchange, (b) contact interaction

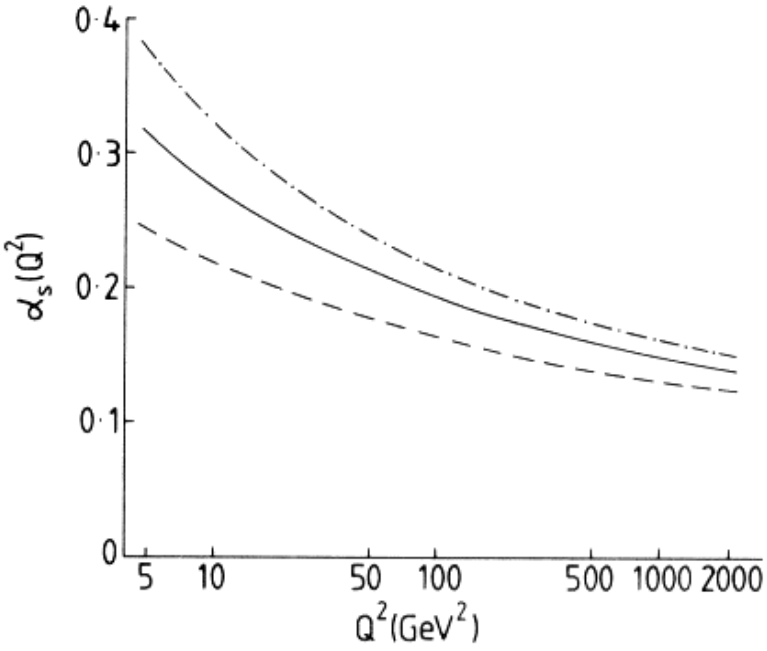

Fig.5.3 The running coupling constant α_s corresponding to four flavours and a scale parameter $\Lambda = 0.2 \pm 0.1$ GeV. The dashed, solid and dot-dashed curves correspond to $\Lambda = 0.1$, 0.2 and 0.3, respectively.

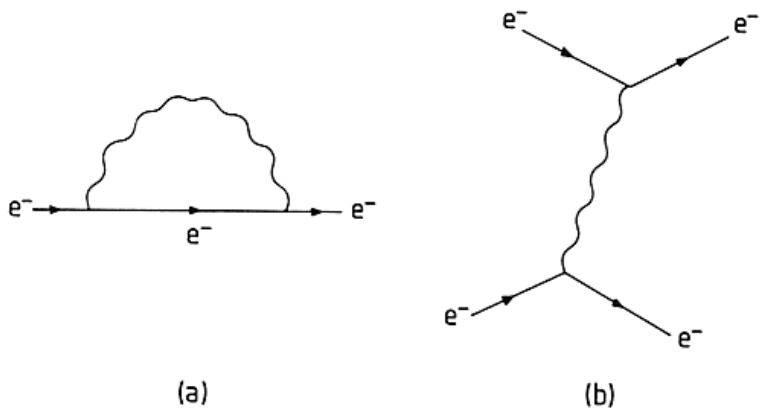

Fig.5.4 (a) The simplest quantum fluctuation of an electron and (b) the associated exchange process.

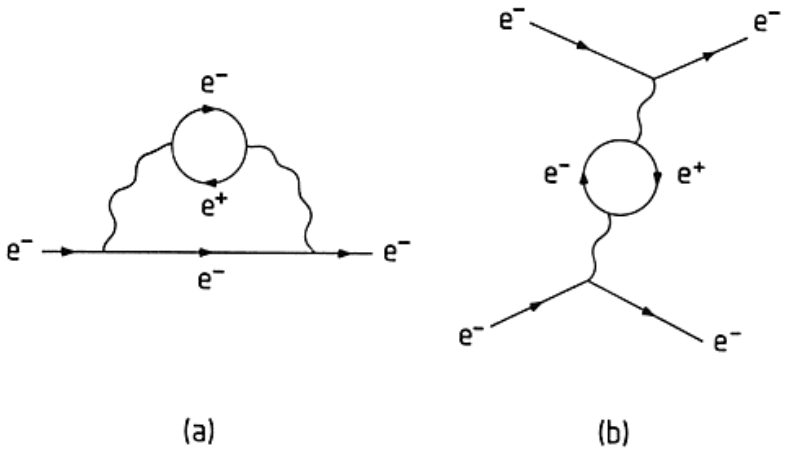

Fig.5.5 (a) A more complicated quantum fluctuation of the electron and (b) the associated exchange process.

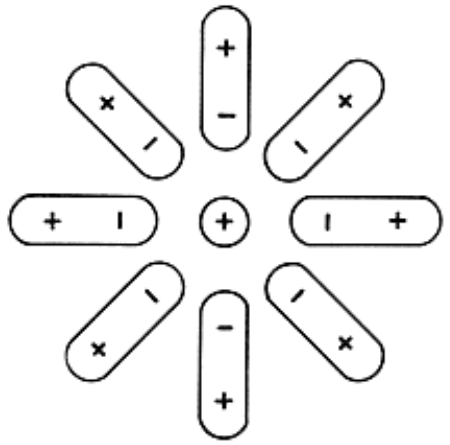

Fig.5.6 Schematic diagram representing the polarization of the molecules of a dielectric by a positive charge placed within it.

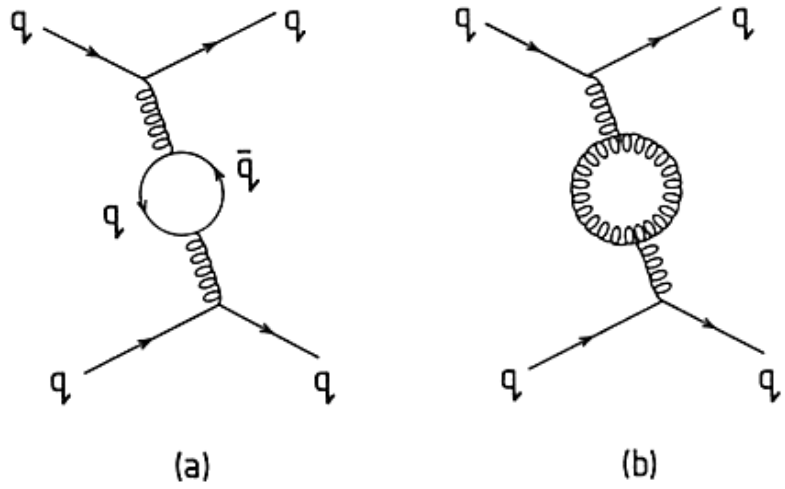

Fig.5.7 The two lowest-order vacuum polarization corrections to one-gluon exchange in quark-quark scattering.

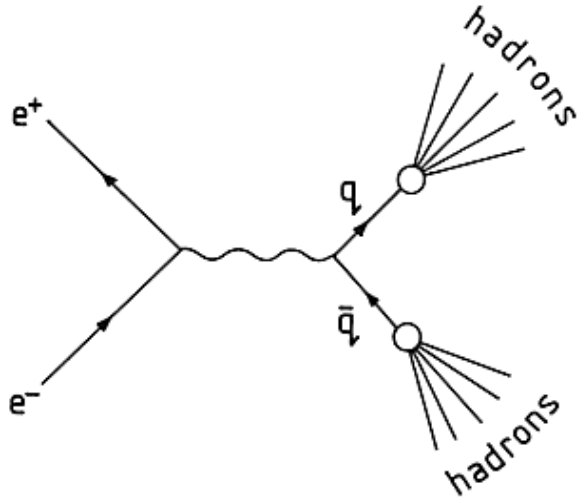

Fig.5.8 Basic mechanism of two-jet production in electron-positron annihilation

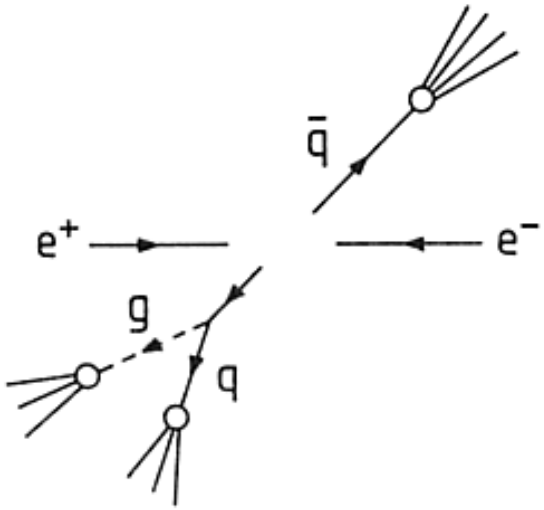

Fig.5.9 Schematic diagram of three-jet formation in electron-positron annihilation in the centre-of-mass frame.

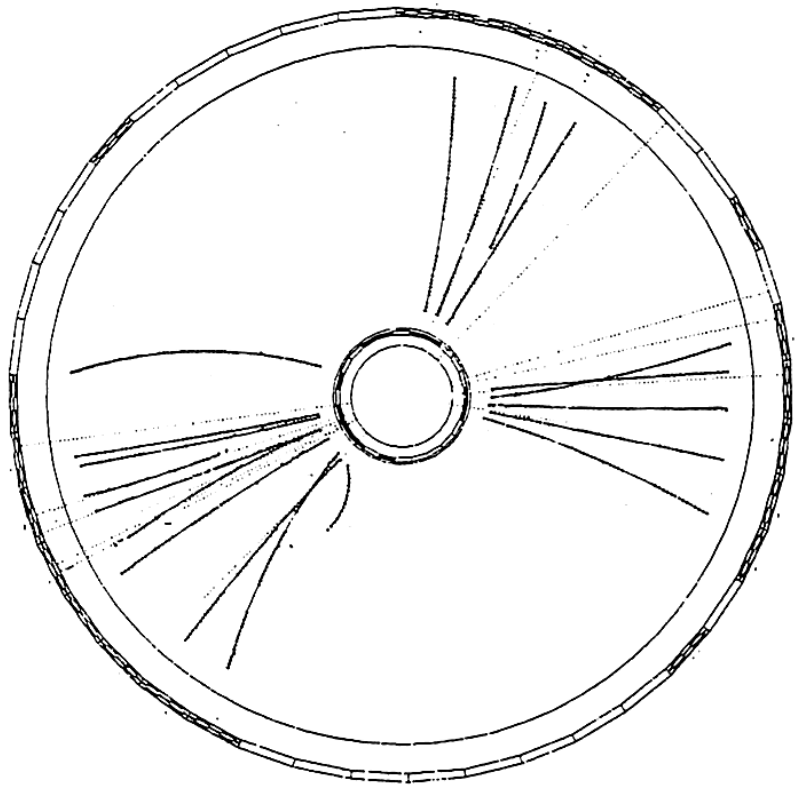

Fig.5.10 Computer reconstruction of a three-jet event in electron-positron annihilation.

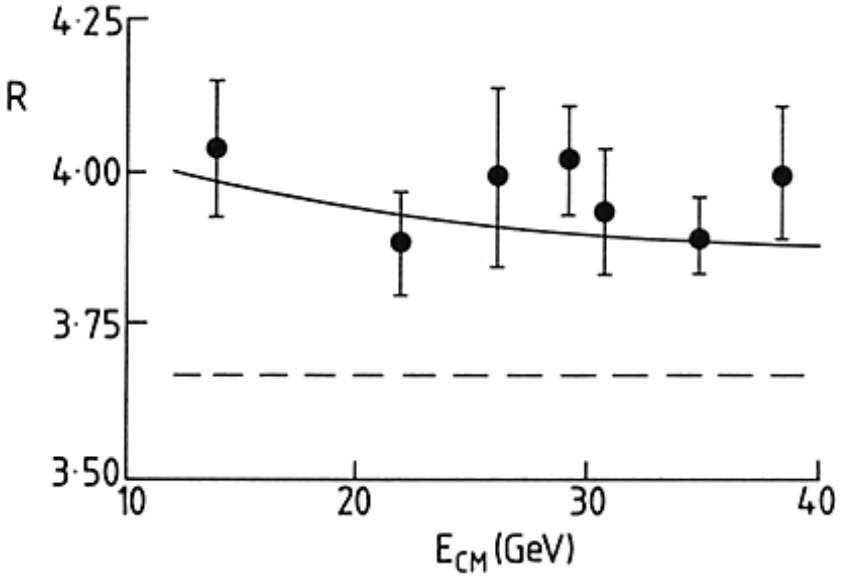

Fig.5.11 Measured values of the cross-section ratio *R* and the theoretical predictiom from QCD for $N_C = 3$ colours. The dashed line shows the prediction without QCD corrections.

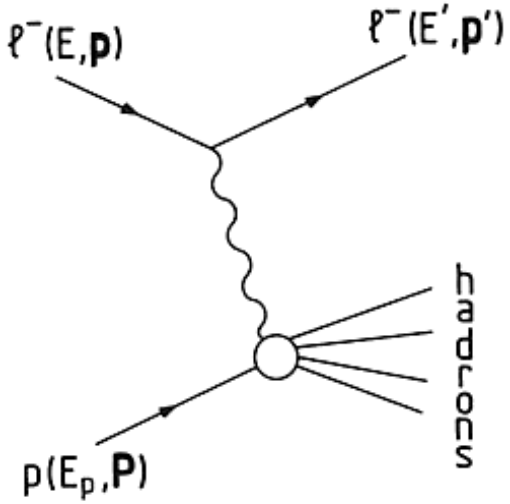

Fig.5.12 Dominant one-photon exchange mechanism for inelastic lepton-proton scattering where $\ell = e$ or μ

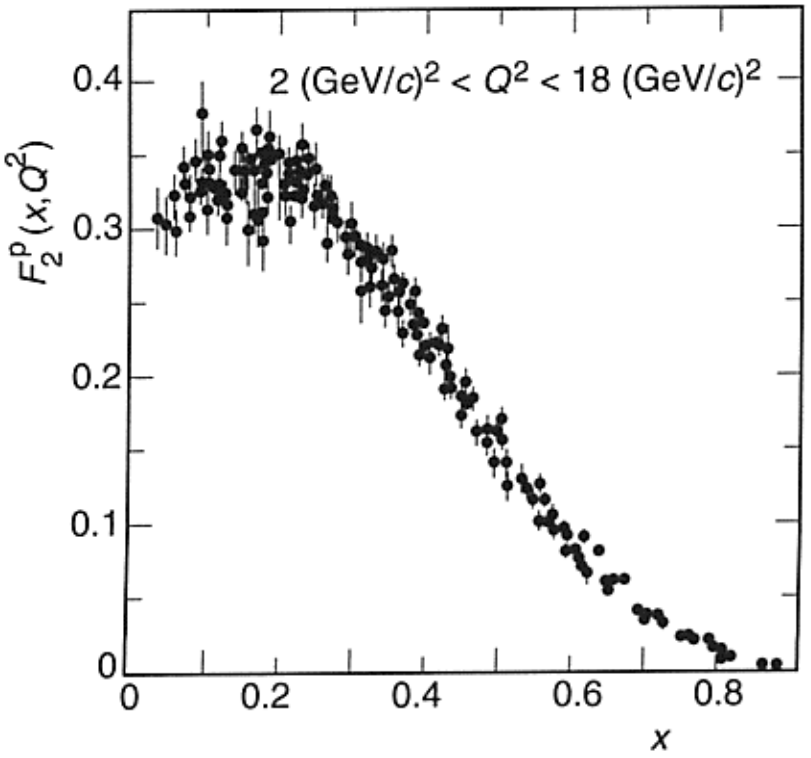

Fig.5.13 The structure function F_2 of the proton as a function of x, for Q^2 between 2 and 18 GeV^2

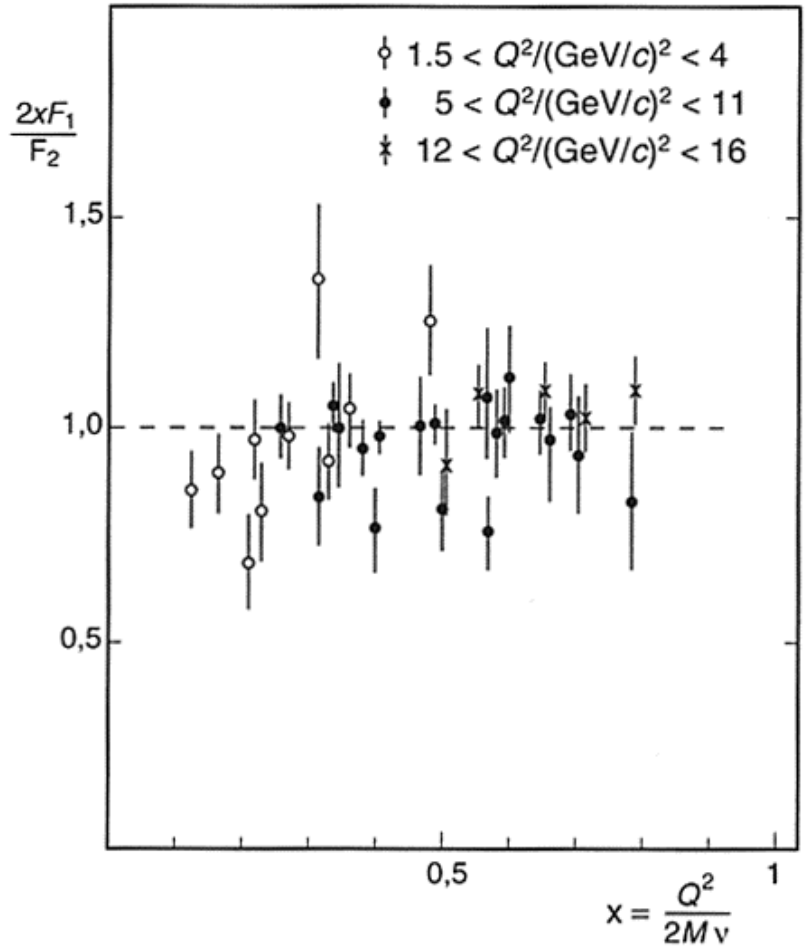

Fig.5.14 The ratio $2xF_1/F_2$ at fixed x

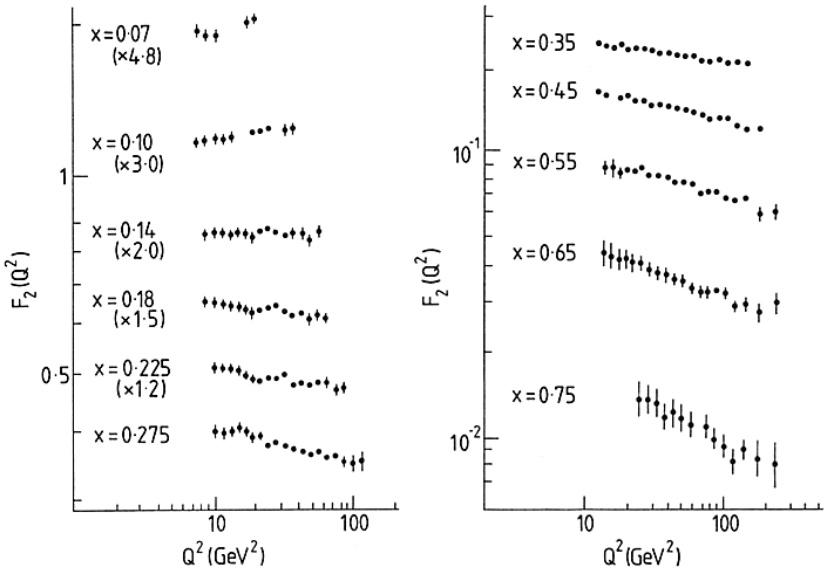

Fig.5.15 Values of F_2 from an experiment using muons.