



Physikalisches Kolloquium
Einladung

Physics Colloquium
Invitation



Monday, 01 July 2019



Lecture Hall N24/H13, 16:15

Coffee and cookies will be served in front of the lecture hall from 16:00

History of Quantum Chromodynamics

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PERSONAL



In 1971 Gell-Mann and I introduced the colour quantum number of the quarks, which explained the bound state structure of the baryons and the decay rate of the neutral pion. One year later we discussed a gauge theory, based on the gauge group of the colour transformations $SU(3)$.

This theory is similar to quantum electrodynamics, but the gauge bosons of QCD, the gluons, interact not only with the quarks, but also with themselves. This leads to the phenomenon of asymptotic freedom - the coupling constant decreases at high energies. This has been measured at SLAC, DESY, Fermilab and CERN.

At very high energies there should exist a new state of matter, the quark-gluon-plasma, e.g. inside massive neutron stars or in nucleus collisions at high energy.

Today the theory of quantum chromodynamics is considered to be the exact theory of the strong interactions and of the nuclear forces.