



OAW

Österreichische Akademie
der Wissenschaften

INVITATION

HEPHY-SMI seminar on
fundamental interactions and symmetries

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Novel QCD Phenomena

ABSTRACT:

I will discuss several novel and unexpected aspects of quantum chromodynamics. These include:

- (a) the physics of intrinsic strange, charm and bottom quarks in the nucleon at large x and the consequences for Higgs hadroproduction
- (b) the breakdown of pQCD factorization theorems due to the lensing effects of initial- and final-state interactions;
- (c) important corrections to pQCD scaling for inclusive reactions due to processes in which hadrons are created at high transverse momentum directly in the hard processes -- and the consequences for the „baryon anomaly“ in high-centrality heavy-ion collisions; and
- (d) the nonuniversality of quark distributions in nuclei.

I will also briefly discuss some novel theoretical perspectives in QCD:

- (a) light-front holography -- a relativistic, color-confining, first approximation to QCD based on AdS/QCD;
- (b) the „principle of maximum conformality“-- a method which determines the renormalization scale at finite order in perturbation theory yielding scheme-independent results;
- (c) the replacement of quark and gluon vacuum condensates by „in-hadron condensates“ and how this helps to resolve the conflict between QCD vacuum and the cosmological constant.

DATE:

Tuesday, 30.10.2012 - 14:00 c.t.

VENUE:

Institute for High Energy Physics
1050 Wien, Nikolsdorfer Gasse 18
Library, 1st Floor

<http://www.smi.oeaw.ac.at/groups/hephysmiseminar/>



Stefan-Meyer-Institut
für subatomare Physik



Institut für Hochenergiephysik

