

# International Conference on Science and Technology for FAIR in Europe 2014



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## Evening Talk: Novel Tests of QCD at FAIR

*Thursday, 16 October 2014 20:30 (1 hour)*

The antiproton and heavy ion facilities at FAIR will provide ideal platforms for testing many novel aspects of Quantum Chromodynamics, the fundamental theory of hadron and nuclear physics. These include:

- (a) new probes of hadron and nuclear structure;
- (b) the breakdown of factorization theorems due to QCD lensing effects;
- (c) the nonuniversality of nuclear anti-shadowing;
- (d) the hidden-color degrees of freedom of nuclei;
- (e) the physics of charm and bottom production at high momentum fraction;
- (f) the production and decay of exotic heavy-quark hadrons;
- (g) higher-twist reactions such as digluon-initiated quarkonium production;
- and
- (h) color transparency and the dynamics of hard exclusive and diffractive reactions.

I will also discuss recent advances in understanding color confinement and the fundamental light-front wave-functions of hadrons in nonperturbative QCD.

**Co-author:** BRODSKY, Stan (SLAC)

**Presenter:** BRODSKY, Stan (SLAC)

**Session Classification:** Evening Talk