



Contribution ID: 112

Type: Talk

## Heavy-flavor azimuthal correlations of D mesons

*Tuesday, 23 July 2013 17:00 (20 minutes)*

The observation of strong jet quenching and the suppression of high- $p_t$  hadrons in relativistic heavy-ion collisions are striking experimental signatures for the formation of a deconfined QCD plasma in which partons suffer from in-medium energy loss. In particular, heavy quarks are considered as suitable probes for revealing the properties of the produced matter as they are created at very early stages in hard scattering processes and assumed not to thermalize completely within the medium. Typical observables for the interaction of heavy quarks with the medium constituents are the nuclear modification factor  $R_{AA}$  and the elliptic flow  $v_2$ , which we present within a combined Monte-Carlo approach and realistic fluid dynamic description of the expanding plasma for both RHIC and LHC energies. In the main part of this talk we will investigate the potential of correlations between heavy quarks and anti-quarks to reveal basic principles of energy loss scenarios at LHC. At low  $p_t$  any correlation of the initially heavy quark-antiquark pair is lost due to thermalization, at larger  $p_t$ , however, these correlations in  $p_t$  and azimuthal angle  $\phi$  survive and show distinctive features for purely elastic and elastic plus radiative energy loss mechanisms. We discuss these results in view of the centrality dependence, next-to-leading order production processes and details of the equation of state.

**Primary author:** Dr NAHRGANG, Marlene

**Co-authors:** AICHELIN, Joerg (Unknown); WERNER, Klaus (SUBATECH)

**Presenter:** Dr NAHRGANG, Marlene

**Session Classification:** Heavy Flavour 1