

## HEAVY-FLAVOUR PRODUCTION IN PB-PB COLLISIONS AT THE LHC MEASURED BY ALICE

Dieter Roehrich<sup>1</sup> for the ALICE collaboration

<sup>1</sup>Department of Physics and Technology, University of Bergen, Norway

According to lattice QCD calculations, ultra-relativistic heavy-ion collisions create a relatively long-lived deconfined state, the Quark-Gluon Plasma (QGP), thus providing a testbed for the study of QCD in a new regime with respect to pp or  $e^+e^-$  collisions. Getting experimental information on the evolution of the system from the pre-equilibrium initial stage to the hadronisation is essential. Heavy quarks probe the QGP directly since they are created during the pre-QGP stage of the collision, with a relatively well known cross section, and their number is conserved throughout the collision history. Open heavy-flavour measurements probe the energy loss mechanisms in the plasma especially when compared to light quarks. Quarkonium, a strongly bound state consisting of a heavy quark-anti-quark, is predicted to melt in the QGP and is thus sensitive to the temperature in the plasma. However, at high enough heavy-quark densities, quarkonium states may be recreated at hadronisation. ALICE measurements of quarkonium ( $J/\psi$  at forward and mid-rapidity) and open heavy-flavour (D-meson hadronic decay channel at mid-rapidity) production in nuclear collisions at LHC energies ( $\sqrt{s_{NN}} = 2.76$  and 5.02 TeV) will be presented and compared to theoretical predictions.