

# Low Mass Vector Meson measurements via di-electrons at RHIC by the PHENIX experiment

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## Abstract

Low mass vector meson measurements via di-electrons is one of the most promising probes for the early hot dense stages of relativistic heavy-ion collisions. The di-electrons interact only electromagnetically, thus carrying the information about their production stage directly to the detector. The light vector mesons ( $\rho$ ,  $\omega$  and  $\phi$ ) are considered to be sensitive to possible in-medium modifications, such as mass shifts or broadening of spectral functions, due to the onset of chiral symmetry restoration.

This talk will describe the  $\omega$ - and  $\phi$ - meson production as measured via the di-electron channel by the PHENIX detector at RHIC. The measurements cover different collision systems from  $p + p$  and  $d + Au$  to  $Au + Au$ . The  $p+p$  measurements serve as a baseline to understand cold nuclear effects in  $d + Au$ -collisions and hot nuclear matter effects in  $Au + Au$  collisions. A systematic study as a function of system size and energy densities will help to understand the production and suppression mechanisms. A comparison to hadronic decay modes will also be discussed.