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## vector meson productions from quark gluon plasma and electromagnetic fields in heavy ion collisions

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In semi-central AA collisions, both deconfined matter (QGP) and strong strong electromagnetic fields from fast moving charge nucleus can be produced when nuclei collide with each other. QGP with extremely large energy density result in strong color screening on the heavy quarkonium potential and quarkonium yield suppression. At the same time, abundant number of heavy(or strange) quarks inside QGP can also recombine to regenerate new quarkonium.

In the extremely low transverse momentum  $p_T < 0.1$  GeV/c, additional contribution from electromagnetic fields can significantly enhance the final yields of vector mesons, which have been observed in RHIC and LHC experiments. We studied the vector meson (charmonium, phi meson) productions from both QGP and electromagnetic fields consistently, from peripheral to most central collisions within different  $p_T$  bins, and compare our theoretical results with the experimental data.

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