

Abstract Submitted  
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**$J/\psi$  polarization study at  $\sqrt{s_{NN}} = 200$  GeV Au+Au collision of PHENIX experiment** HAI QU, Georgia State University, PHENIX COLLABORATION — The polarization of quarkonium is typically measured via the angular distribution of its decay leptons. This measurement provides a critical test of the quarkonium production mechanism. There were about  $1.5 \times 10^9$  Au+Au minimum bias events collected by the PHENIX experiment in Run-4. The estimated number of  $J/\psi$  particles to be identified from the PHENIX muon arm data is more than one order of magnitude larger than the  $J/\psi$  samples from Run-2. Due to the limited  $J/\psi$  statistics from even this much large data set, very accurate event-by-event acceptance corrections are required to extract quantitative polarization from the data. The current status of this study for PHENIX Run-4 Au+Au data is presented here.

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