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J/ψ **production and interactions with the medium**

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J/ψ production provides a sensitive probe of the properties of the hot and dense medium created in high energy heavy ion collisions at RHIC. *J/ψ* suppression due to Debye screening was long considered to be a leading signature of Quark Gluon Plasma formation. Recent theoretical studies suggest that such suppression can be compensated by recombination, or explain suppression by decreased feed-down from "melted" higher mass quarkonia, while *J/ψ*'s themselves remain unscreened. Measurement of *J/ψ* production in nucleus-nucleus collisions at RHIC can clarify these questions. Baseline measurements in pp and dAu collisions can be used to distinguish cold nuclear matter effects. In this talk I will review recent results in this field from the PHENIX Experiment.