

Abstract Submitted
for the DNP06 Meeting of
The American Physical Society

Realistic Simulation of W Boson Production in the PHENIX Muon Spectrometers KRISTIN KIRILUK¹, University of Colorado, PHENIX COLLABORATION — The separate contributions of \bar{u} and \bar{d} quarks to the proton spin are at present known only from lepton SIDIS double spin asymmetries, in which they are extracted using the “hadron tagging” technique. Single spin asymmetries of leptons from W bosons produced in longitudinally polarized pp collisions are directly sensitive to the sea quark polarizations; a detailed understanding of the final hadronic state is not required[1]. The PHENIX collaboration at RHIC plans to determine the W^+ and W^- boson production cross sections and single spin asymmetries at $\sqrt{s} = 500$ GeV by detecting decay muons at forward and backward rapidities. In order to understand resolution, backgrounds, and efficiency effects, the PHENIX spectrometer simulation PISA was used to study the planned measurements and determine realistic expectations of the yields and the sensitivity to the light quark polarizations.

[1] G. Bunce *et al.*, *Ann. Rev. Nucl. Part. Sci.* **50** (2000) 525.

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Date submitted: 01 Jul 2006

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