

PPG235 Justification Paragraph

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3 The Relativistic Heavy Ion Collider (RHIC), as the world's first and only
4 facility capable of colliding high-energy polarized proton beams, offers unique
5 opportunities to study quark and gluon dynamics within polarized protons, in
6 particular spin-momentum correlations. This will be the first published direct
7 photon result in polarized proton collisions from RHIC and it improves the un-
8 certainty by a factor of fifty with respect to the only previously published result
9 worldwide, in 1991 from the Fermilab E704 experiment. The results presented
10 provide clean constraints on spin-dependent gluon interference effects within
11 transversely polarized protons with leading-order sensitivity to these gluon dy-
12 namics that, because direct photons are an electroweak probe, is not complicated
13 by any final-state QCD effects from hadronization.