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Background subtraction from $X_{J\gamma}$ and photon+jets in PYTHIA simulated p+p collisions at $\sqrt{S_{nn}}$ =200 GeV[1] ELIAS MANSBACH, Amherst College — Heavy-ion collisions create a new form of matter called the Quark-Gluon Plasma (QGP), in which quarks and gluons (partons) are not confined into nucleons and form a nearly ideal fluid. The QGP is a densely colored medium and understanding its features is one of the key subjects in the study of Quantum Chromodynamics. Sometimes in these collisions, partons will "hard scatter," fragment, and hadronize into jets, which are a columnated spray of particles. Photon+jet pairs have been lauded as "golden probes" of the QGP as photons do not have a QCD color charge and therefore do not interact with the QGP. Thus, photons can give us a good idea of the in-medium energy loss by partons traversing the QGP that fragment into jets. This talk analyzes photon+jet data taken from PYTHIA simulations of p+p collisions at $\sqrt{S_{nn}}$ =200 GeV and discusses $X_{J\gamma}$ data, where $X_{J\gamma}$ is the ratio of the jet's and photon's transverse momenta. A detailed look at the usefulness of unfolding and FastJet's background subtraction to reduce the effects of an azimuthally isotropic background modeled with a Boltzmann distribution on an embedded PYTHIA event is presented for data at varying jet radii and momenta transferred.

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