

Abstract Submitted
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Jet Conversion in a Hadronic Gas AARON HERNLEY, Carnegie Mellon University, RAINER FRIES, Texas A&M University — It has been proposed that flavor conversion of leading jet partons could be used as a probe for the Quark-Gluon Plasma. In order to check the validity of this proposition, the case of a hadronic gas needs to be considered. If the two cases produce different results, flavor conversions could be used to make a stronger case for the creation of a Quark-Gluon Plasma at RHIC. Here we investigate the case of fragmented jets interacting with a hadronic medium and compare with previous results from quark and gluon jets interacting with Quark-Gluon Plasma. We compute the drag coefficients and conversion widths for pions and kaons and use these values to calculate their nuclear modification factor R_{AA} and their elliptic flow v_2 at high transverse momentum. We find there is much less suppression in a hadronic gas than in a Quark-Gluon Plasma, but there is still a net conversion of pions into kaons, leading to kaon $R_{AA} > 1$ not expected for Quark-Gluon Plasma. This significant difference between a hadronic medium and a Quark-Gluon Plasma means that jet conversion could be a unique probe for heavy-ion collisions.

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