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A Monte Carlo study of in-medium quark and gluon jet colour scaling

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Most jet quenching models predict that, at the parton level, the quark to gluon energy loss due to in-medium interactions scales with the ratio of the corresponding Casimirs C_F/C_A. However, in the jet framework, one expects a violation of this scaling due to the finite extension of the jet. In this talk, I will present results from a Monte Carlo study of calibrated Z+jets events which allow addressing this problem. The results presented here show an interesting scaling violation which indicates that gluon and quark jets are much more similar in medium than the corresponding partons. In addition, a parametrization of the average energy loss for quarks and gluons and for its variance is provided. Such a parametrization can prove useful to computing observables for in-medium events without needing a full Monte Carlo simulation.

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