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Novel measurements of dijet quenching with ATLAS

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High energy partons are well established to lose energy when traversing the hot and dense medium produced in heavy-ion collisions. This results in a modification to the transverse momentum distributions of jets, producing a phenomenon known as jet quenching. It has been previously established in Pb+Pb collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76$~TeV that jet quenching results in significant modifications to the
transverse momentum balance of dijet pairs. More differential measurements are needed to better understand the asymmetric jet quenching observed and explore the role of energy loss fluctuations and path-length dependent energy loss.

In this talk, we report new, fully unfolded measurements of the dijet momentum balance in Pb+Pb and *pp* collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$~TeV with extended kinematic reach over previous publications, as well as in Xe+Xe collisions at $\sqrt{s_{\mathrm{NN}}} = 5.44$~TeV.
This talk will additionally present a new observable, the nuclear modification factor of subleading and leading jets, which provides a
precise quantification of asymmetric energy loss experienced by dijets.

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