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Color Discriminant Variable to Separate Dijet Resonances at the LHC

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A vector resonance decaying to dijets could be discovered at the 14 TeV run of the LHC. To quickly identify its color structure in a model-independent manner, we introduce a method based on the color discriminant variable, determined from the measurements of the resonance's dijet cross section, mass and width. This talk illustrates how the cross section measurements of the resonance's heavy-flavor decays help distinguish between a color-octet vector boson and leptophobic color-singlet one, where both could have flavor non-universal couplings to quarks. The method is generally applicable although couplings to light quarks are inaccessible to experiments, and the color-singlet could have non-standard invisible decays.

Oral or Poster Presentation

Oral

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