

Abstract Submitted  
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**Angular distributions of partons inside the parton shower: from vacuum to dense QCD matter**<sup>1</sup> IVAN VITEV, GRIGORY OVANESYAN, Los Alamos National Laboratory — We study the angular distributions of next-to-leading order splitting functions describing the probability of one parton to branch into three partons. We perform this analysis for both vacuum splittings as well as splittings inside dense QCD matter. The motivation for this study is to numerically quantify to what extent the angular ordering phenomenon, which is widely used in parton shower generators in proton-proton collisions, is present both in vacuum and in dense QCD matter. We find unexpected results with important implications for QCD phenomenology.

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