

Abstract Submitted  
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**Search for New Phenomena in High-multiplicity Final States Using 8 TeV and 13 TeV LHC Data** TUTANON SINTHUPRASITH, University of Virginia — The first dedicated search based on data from proton-proton collisions corresponding to an integrated luminosity of  $19.6 \text{ fb}^{-1}$  collected with the CMS detector at the LHC at  $\sqrt{s} = 8 \text{ TeV}$  is presented for new phenomena in inclusive eight- and ten-jet final states with low missing transverse momentum, with and without identification of jets originating from b quarks. The dominant multijet background expectations are obtained from low jet multiplicity control samples. Data agree well with the standard model background predictions, and limits are set in several benchmark models -Colorons, axigluons, and gluinos in R-parity violating supersymmetric scenarios. These results comprise the first experimental probe of the coloron and axigluon models in multijet final states. The second search based on 13 TeV LHC data, corresponding to an integrated luminosity of  $2.2 \text{ fb}^{-1}$  in 2015 is performed in energetic multi-particle final states. Model-independent limits on the cross section times acceptance of a new physics signal in these final states are set and further interpreted in terms of limits on the production of black holes.

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