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Model-Independent Searches for New Physics in Multi-Body Invariant Masses WASIKUL ISLAM[1], Department of Physics, Oklahoma State University, OK 74078, USA., SERGEI CHEKANOV, JINLONG ZHANG, SMITA DARMORA, Argonne National Laboratory, CARLOS C.E. WAGNER, Physics Department, EFI and KICP, University of Chicago, Chicago, IL 60637, USA. — Model-independent searches for physics beyond the Standard Model typically focus on invariant masses of two objects (jets, leptons or photons). In this study we explore opportunities for similar model-agnostic searches using multi-body invariant masses. In particular, we will discuss physics cases when new physics can be observed in a model-independent way in three- and four-body invariant masses of jets and leptons while two-body invariant masses, that have been extensively explored at collider experiments in the past, cannot provide sufficient signatures for experimental observations. A number of models beyond the Standard Models leading to signals in multi-body invariant masses are discussed.

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