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Supersymmetry versus Extra Dimensions at the LHC (15' + 5')

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Non-minimal universal extra dimensions (nmUED) involve the choice of boundary localized kinetic terms (BLKT) for the 5 dimensional gauge bosons and fermions. We find that with suitable choice of these parameters needed to explain the current Higgs data, the BLK terms removes the approximate degeneracy of the KK mass spectrum, and the pair productions of the level-1 quarks and gluons give rise to hard jets, leptons and large missing energy. Thus the LHC will not be able to distinguish between the supersymmetry and extra dimensions, and the production of the 2nd KK excitation will be the key for such a distinction.

Primary author: Prof. NANDI, Satyanarayan (Oklahoma State University)

Co-authors: Dr KARABACAK, Durmus (Oklahoma State University); Dr GHOSH, Kirtiman (University of Delhi, India)

Presenter: Prof. NANDI, Satyanarayan (Oklahoma State University)

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