Theoretical Physics Seminars

Searching for top squark in the compressed region of SUSY spectrum at the Large Hadron Collider

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From: Physical Research Laboratory (PRL)

When: August 8 , 2017 Tuesday 4:00 pm

Place: Room No. 469

Searching for the top squark is very important in the context of stabilizing the Higgs boson mass against large quantum correction and gauge coupling unification. While Large Hadron Collider has already excluded large parameter space in supersymmetry, it poorly constrains the light top squark if the mass difference between the top squark and the neutralino is very small. Existing search strategy breaks down here mainly due to two reasons first, huge SM background and the second is unique compressed kinematics which makes all the decay products extremely soft. Here we propose a class of novel kinematic variables designed uniquely for the compressed region to control the huge SM background giving complimentary scheme in leptonic searches. We have considered the top squark undergoing four body decay in the leptonic channel and using this topology information our new kinematic variables significantly improve the current LHC limit.

All are welcome