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Same sign dibosons from SUSY models with light higgsinos at the LHC

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In supersymmetric models with light higgsinos (which are motivated by electroweak naturalness arguments), the direct production of higgsino pairs may be difficult to search for at LHC due to the low visible energy release from their decays. However, the wino pair production reaction also occurs at substantial rates and leads to final states including equally opposite-sign (OS) and same-sign (SS) diboson production. We propose a novel search channel for LHC14 based on the SS diboson plus missing E_T final state which contains only modest jet activity. Assuming gaugino mass unification, and an integrated luminosity $> 100 \text{ fb}^{-1}$, this search channel provides a reach for SUSY well beyond that from usual gluino pair production.

Author: MUSTAFAYEV, Azar (U)

Presenter: MUSTAFAYEV, Azar (U)

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