

Anomaly Mediation at Future Hadron Colliders

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We discuss prospects of studying models with anomaly mediated supersymmetry breaking at future hadron colliders with centre-of-mass energy of 100 TeV. In such a class of models, charged Wino becomes long-lived with its decay length of ~ 6 cm, and the charged Wino tracks may be identified in particular by the inner pixel detector; the charged Wino tracks can be used not only for the discrimination of standard model backgrounds but also for the event reconstructions. We show that precise determinations of the Bino, Wino, and gluino masses are possible at the FCC. For such measurements, information about the charged Wino tracks, including the one about the velocity of the charged Wino using the time of the hit at the pixel detector, is crucial. With the measurements of the gaugino masses in the pure gravity mediation model, we have an access to more fundamental parameters like the gravitino mass. We also show that the lifetime of charged Wino may be measured by using the information about the distribution of the flight lengths of charged Winos. We propose a procedure for the lifetime determination and show how the accuracy changes as we vary the mass spectrum of superparticle. We also discuss the effects of the detector layouts on the lifetime determination.

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