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Effects of Gluino and Neutralino Phases on Squark Pair Production at Hadron Colliders AHMET TURAN ALAN, Abant Izzet Baysal University, KEREM CANKOÇAK, Mugla University, DURMUS A. DEMIR, Izmir Institute of Technology — We analyze impact of finite CP-odd phases of gluinos and neutralinos on the squark pair production at hadron colliders. We focus exclusively on the first (and also the second) family squarks which exhibit, to an excellent approximation, no chirality and flavor mixings. Therefore, production cross sections of such squarks provide an excellent probe of possible CP-odd phases in gaugino masses. We analyze individual final states $\widetilde{q}_L\widetilde{q}_L^\star$, $\widetilde{q}_R\widetilde{q}_R^\star$ and $\widetilde{q}_L\widetilde{q}_R^\star$ as well as $\widetilde{q}_L\widetilde{q}_L$, $\widetilde{q}_R\widetilde{q}_R$ and $\widetilde{q}_L\widetilde{q}_R$ for determining their sensitivities to the CP-odd phases. In addition, we compute the total cross section and compare it with predictions of the CP-conserving theory. In general, production rates of same-charge squarks measure 4-5 times higher than those of the opposite-charge squarks, and CP- odd phases significantly modify the cross sections expected in CP-conserving limit.

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