

Heavy, neutral MSSM Higgses at PLC - a comparison of two analyses

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Measurement of the heavy neutral MSSM Higgs bosons H and A at the Photon Collider is considered for the parameter range corresponding to the so-called "LHC wedge". The main background for the measured process, $\gamma+\gamma \rightarrow A, H \rightarrow b+\bar{b}$, is due to the direct heavy-quark production, $\gamma+\gamma \rightarrow Q+\bar{Q}$. Here assumptions and results of two analyses which take into account NLO QCD corrections to the heavy-quark production are compared [Phys.Lett. B508 (2001) 311, and hep-ph/0507006]. It is shown that different approaches to NLO corrections (full resummation of Sudakov and non-Sudakov logarithms versus resummation of non-Sudakov logarithms up to 4-loop order) and jet definitions (Stern-Weinberg vs. JADE) lead to comparable results for direct heavy-quark production cross sections. The most significant difference is due to condition for minimal polar angle of quarks in 3-jet events.

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