Search for Supersymmetry at $\gamma p$ - Colliders

A. U. YILMAZER
Ankara University, Faculty of Sciences,
Department of Engineering Physics
06100 Tandoğan, Ankara - TURKEY

Abstract
We discuss the possibility of searching supersymmetry at TeV scale $\gamma p$ colliders proposed recently [1]. Theoretical predictions are derived within the framework of minimal supersymmetric standard model (MSSM) with R-parity conservation. Productions of squarks, gluinos, charginos and neutralinos through the processes $\gamma p \rightarrow \tilde{q}\tilde{q}X$, $\gamma p \rightarrow \tilde{q}\tilde{q}X$, $\gamma p \rightarrow \tilde{q}\tilde{q}X$ (or $\tilde{q}\tilde{q}$) and $\gamma p \rightarrow \tilde{q}\tilde{\nu}X$ are considered [2]. Cross sections for different initial beam polarizations are calculated and it is shown that polarization asymmetries are sensitive to the sparticle masses [3]. Discovery mass limits of the superpartners are tabulated for various $\gamma p$ colliders at different center of mass energies. The results are compared with those for the existing and future e$^+e^-$, ep and pp colliders, and we conclude that the TeV scale $\gamma p$ colliders will provide in principle convenient ways to search supersymmetry [4].

References
A.K. Çiftçi, these proceedings S. Sultansoy, these proceedings.
