Tr. J. of Physics
22 (1998) , 629 – 629.

International Workshop on Linac-Ring
Type ep and γp Colliders

Search for Supersymmetry at γp - 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 γp 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 $\gamma p \to \tilde{q}\tilde{w}X$, $\gamma p \to \tilde{q}\tilde{g}X$, $\gamma p \to \tilde{q}\tilde{\gamma}X$ (or $\tilde{q}\tilde{z}$) and $\gamma p \to \tilde{q}\tilde{q}^{*}X$ 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 γp 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 γp colliders will provide in principle convenient ways to search supersymmetry [4].

References

[1] S.F.Sultansoy, ICTP preprint IC/89/409, Trieste(1989).
Z.Z.Aydin, V.A.Maniyev and S.F.Sultansoy, *Particle World* **4**(1994) 22
Z.Z.Aydin, A.K.Çiftçi and S.Sultansoy, *Nucl.Instrum.and Meth.***A351**(1994) 261.
Z.Z.Aydin, A.K.Çiftçi and S.Sultansoy, *Turkish J.Phys.* **19**(1995) 781 A.K.Çiftçi, S.Sultansoy, Ş. Türköz and Ö. Yavaş, *Nucl.Instrum.and Meth.* **A365**(1995) 317.
A.K.Çiftçi, these proceedings S.Sultansoy, these proceedings

[2] S.I.Alekhin et al., *Int.J.of Mod.Phys.* **A6**,(1991) 23 E.Boos et al., Proc. 26th Moriond Conf.p.501 (1991)Moriond, France
W.Büchmüller and Z.Fodor, *Phys.Lett.* **B316**,(1993) 510.
A.T.Alan, Z.Z.Aydin and S.Sultansoy, *Phys.Lett.* **B327**(1994) 70.
A.T.Alan, S.Atağ, and Z.Aydin, *J.Phys.G.* **20**(1994) 1399
A.U.Yılmazer, A.T.Alan and A.Kandemir,*Turkish J.Phys* 20(1996) 1043 A.Kandemir and A.U.Yılmazer, *Phys.Lett.* **B385**(1996) 143

[3] A.Kandemir, these proceedings.

[4] Z.Z.Aydin et al., *Int.J.Mod.Phys.A* 11(1996) 2019 Z.Z.Aydin, these proceedings.