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MAGNETIC MONOPOLES PRODUCTION AND MASS LIMITS: THEORIES AND SEARCHES

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The electric charge discrete nature has a prevalent role in the Dirac magnetic Monopole symmetrized Maxwell theory. Moreover hypothetical particles are overriding in several grand unified theories, and even connected with Berry geometric phase. Here theoretical proposals on magnetic Monopoles and related experimental searches are updated and compared. Our calculations aiming to obtain mass limits for different production mechanisms are presented, mainly Drell-Yan and Photon-Fusion of the Dirac magnetic Monopoles and Monopolium, in pp experiments for present and future colliders as LHC, HE-LHC, and FCC. Distinct theoretical frameworks proposed for 0,1/2, 1 spin angular momentum are addressed. Also distint masses ranges are explored considering ALICE, ATLAS, CMS and Moedal efforts, and perspectives.

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