A Novel Analytical Model for Identification O1 Strange Quarks via Relativistic Ultra Fast Timing Method

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In high energy collisions the ability to isolate the strange quark is often compromised by the hadron is overlap where pions and kaons are overlapping in the high momentum spectrum it leads to their misidentification or some trigger failures to distinguish valuable signals leading to Higgs Boson decay products to be discarded as background noises. This technical issue blocks our understanding of Higgs Boson and its rare decays and stops us from finding new physical phenomena within the detectors noisy environment and the lost valuable information. This study implements a Relativistic (ToF) Time to Flight model by using the precise mathematical relationship between the mass and momentum and time the theoretical framework was established to determine the minimum timing that is required to resolve these particles species this method focuses on the temporal separation of signals at the picosecond scale to avoid the limitations of traditional energy loss measurement the analysis demonstrates that using ultra fast timing significantly suppresses misidentification errors and enhances the purity of the data stream by refining the timing trigger, we can easily or effectively filter out background noises from unwanted particles that makes it hard to see Higgs signals allowing for a higher fidelity reconstruction of strange quark interactions. This precision is crucial for isolating rare events that occurs within the detectors deep inside it (heart) providing a clear window into the fundamental mechanisms of mass and the potential detection of new physics beyond the standard model.

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