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Search for Heavy, Long-Lived Neutral Particles that Decay to Photons at CDF II using a Nanosecond Photon Timing System RANDY WHITE, Texas A&M University — New particles can be produced from the high energy proton anti-proton collisions at the Fermi National Accelerator Laboratory (Fermilab). The products of these collisions, recorded by the Collider Detector at Fermilab (CDF), can be measured for the arrival times of photons produced in the decay of particles created in the interaction. Thus we may be sensitive to the production of new, massive particles that decay in flight to photons. Such particles can be produced in versions of Supersymmetry, and even be produced as the decay of a Higgs boson. Since the photons that may have come from such events will arrive at the surface of the detector later than photons produced directly from the primary collision, they can be separated in time and analyzed for significance with a nanosecond timing resolution. New results will be presented.

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