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Evidence for the Decay $\Sigma^+ \to p\mu^+\mu^-$ EDMOND DUKES, Univeristy of Virginia, HYPERCP COLLABORATION — The HyperCP (E871) experiment collected $\sim 10^{10}$ hyperon decays in the 1997 and 1999 Fermilab fixed-target running periods. Using the data from the 1999 run, we report on the observation of three isolated events with reconstructed masses consistent with the hypothesis $\Sigma^+ \to p\ \mu^+\ \mu^-$. This is the rarest decay ever observed in the baryon sector. The dimuon mass distribution is unexpectedly narrow, suggesting that the decay may proceed via an intermediate state of mass $214.3 \pm 0.5\,\mathrm{MeV}/c^2$. Possible interpretations of the observed events will be discussed including the decay of an sgoldstino-like particle.

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