Rare Decays of the Omega Hyperon from the Fermilab HyperCP Experiment

The HyperCP experiment has the largest data sample of Ω and $\overline{\Omega}$ hyperons, enabling us to study the rare decay $\Omega \to \Xi\pi^+\pi^-$ with a $\sim$200-event sample, and to place a first observation limit of $< 6.7 \times 10^{-6}$ for the flavor-changing neutral-current decay $\Omega \to \Xi\mu^+\mu^-$. Prospects for a large increase in yield in the $\Omega \to \Xi\pi^+\pi^-$ sample as well as an improvement in the sensitivity to $\Omega \to \Xi\mu^+\mu^-$ will be discussed, as well as plans for searches for rare Ω four-body beta decays.