Ξ^0 β decays at KTeV

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Abstract

KTeV is a Fermilab fixed target experiment designed to study mainly CP violation and rare decays in the neutral Kaon system. However, with a large fraction of neutral Hyperons (Λ^0 and Ξ^0) in the beam, this experiment allows the study of their decays. We report here on the status of these studies in Hyperon beta decay modes. The discovery of the $\Xi^0 \to \Sigma^+ e^- \overline{\nu}$ decay mode will be presented with a preliminary measurement of its branching ratio. An order of a thousand of these events have been accumulated. Asymmetry measurements of this decay mode will be presented and a status of the analysis of the Ξ^0 form factor discussed. Studies of $\overline{\Xi}^0$ beta decay and Ξ^0 muonic decay will also be presented. Finally, the future of Hyperon beta decay physics at KTeV will be given in the framework of the next data taking period scheduled in 1999.