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Branching ratio for the superallowed beta-decay of ^{10}C TOMMI ERONEN, M. BENCOMO, L. CHEN, J.C. HARDY, V. HORVAT, V. IACOB, N. NICA, H.I. PARK, B. ROEDER, A. SAASTAMOINEN, Cyclotron Institute, Texas A&M University, College Station, Texas — Superallowed β decays play a key role in testing the Standard Model of Particle Physics. These decays occur between nuclear analog states having spin-parity of 0^+ and isospin $T = 1$. Currently, and in the foreseeable future, they offer the most accurate value for the V_{ud} matrix element of the Cabibbo-Kobayashi-Maskawa quark mixing matrix. Each superallowed transition is characterized with an $\mathcal{F}t$ value combining both experimental and theoretical quantities. We have just made a preliminary new measurement of the ^{10}C branching ratio, which currently is the least precisely known quantity for any of the "traditional nine" superallowed transitions. Furthermore, ^{10}C is the only case that appears to have its corrected $\mathcal{F}t$ value outside the world average value, which could be explained with the existence of a scalar current. We performed the branching-ratio measurement with a β-γ coincidence setup using a scintillator for β and an HPGe with $\pm$0.15% calibrated relative efficiency for γ detection. Since the branching ratio is obtained from the ratio of intensities of 718 keV and 1022 keV γ lines, most systematic uncertainties cancel out. I will show an overview of the experiment and preliminary results.

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