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A New Precision Measurement of the Lifetime of ^{19}Ne LEAH BROUSSARD, Duke U & TUNL, ROBERT PATTIE, HENNING BACK, ALBERT YOUNG, NCSU & TUNL, UMAKANTH DAMMALAPATI, SUBHADEEP DE, PETER DENDOOVEN, OTTO DERMOIS, LEO HUISMAN, KLAUS JUNGMANN, ARAN MOL, C. GERCO ONDERWATER, ANDREY ROGACHEVSKIY, MOSLEM SOHANI, EMIL TRAYKOV, LORENZ WILLMANN, HANS WILSCHUT, KVI — The mixed $\frac{1}{2}^+ \rightarrow \frac{1}{2}^+$ decay of ^{19}Ne is an important system for studies of the weak interaction. A measurement of the lifetime of this decay at the 10^{-4} level combined with the measured value of the β-asymmetry enables a determination of V_{ud} that rivals the precision obtained from $0^+ \rightarrow 0^+$ superallowed Fermi beta decays. The lifetime is currently known to a precision of about 0.08%, and by utilizing the unique capabilities of the Trapped Radioactive Isotopes: μicro-laboratories for fundamental Physics (TRIμP) facility at the Kernfysich Versneller Instituut (KVI), we can improve this precision by up to a factor of three. We describe recent progress towards a high-precision lifetime measurement and present preliminary results.

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