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Vanishing in motivic stable stems

Recent work of Röndigs-Spitzweck-Østvær sharpens the connection between the slice and Novikov spectral sequences. Using classical vanishing lines for the $E_2$-page of the Adams-Novikov spectral sequence and the work of Andrews-Miller on the $\alpha_1$-periodic ANSS, I will deduce some new vanishing theorems in the bigraded homotopy groups of the $\eta$-complete motivic sphere spectrum. In particular, I will show that the $m$-th $\eta$-complete Milnor-Witt stem is bounded above (by an explicit piecewise linear function) when $m \equiv 1$ or $2 \pmod{4}$, and then lift this result to integral Milnor-Witt stems (where an additional constraint on $m$ appears). This is joint work with Oliver Röndigs and Paul Arne Østvær.