Analyticity and Regularity for the mKdV equation on $\mathbb{T} \times \mathbb{R}$

For the mKdV equation we find that in the periodic space variable $x \in \mathbb{T}$, solutions are in fact analytic. While we can find solutions that are not analytic in the real time variable t, we can show that these solutions have Gevrey-3 regularity.