

# Well-posedness, wave breaking, Holder continuity and periodic peakons for a nonlocal sine- $\mu$ -Camassa-Holm equation

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## Abstract

In this paper, we investigate the initial value problem of a nonlocal sine-type  $\mu$ -Camassa-Holm ( $\mu$ CH) equation, which is the  $\mu$ -version of the sine-type CH equation. We first discuss its local well-posedness in the framework of Besov spaces. Then a sufficient condition on the initial data is provided to ensure the occurrence of the wave-breaking phenomenon. We finally prove the Hölder continuity of the data-to-solution map, and find the explicit formula of the global weak periodic peakon solution.

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