## Local Well-posedness in Low Regularity of the mKdV Equation with Periodic Boundary Condition

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Abstract: I talk about the local well-posedness in low regularity of the Cauchy problem for the mKdV equation on one-dimensional torus by modifying the Fourier restriction method due to Bourgain. It seems interesting and important to study the well-posedness in low regularity for the mKdV equation. Because the mKdV equation is prototype among nonlinear dispersive equations and if we consider the equation in low regular spaces, it would reveal specific features of nonlinear interaction, which might be hidden behind the high regularity. I present a brief survey on the recent results on the well-posedness in low regularity and explain our results, which has recently been obtained in collaboration with Kenji Nakanishi and Hideo Takaoka. In our proof, we modify the Fourier restriction norm to take into account the oscillation of the phase of solution, which is caused by the nonlinear interaction.

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