

# Solitary Wave Solution to the KdV-Burgers-Type Equation

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## Abstract:

In this talk, we provide a connection between the Abel equation of the first kind, an ordinary differential equation with  $n$ th-order in the unknown function, and the Korteweg-de Vries-Burger-type equation, a partial differential equation that describes the propagation of waves on liquid-filled elastic tubes. We present an integral form of the Abel equation with the small initial condition. By virtue of the integral form and the Banach contraction mapping principle we derive the asymptotic expansion of bounded solutions in the Banach space, and apply the asymptotic formula to construct solitary wave solutions to the Korteweg-de Vries-Burgers-type equation.