Reverse Space-Time Nonlocal Sasa-Satsuma Equation and its Solutions

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The Sasa-Satsuma equation is an integrable high-order nonlinear Schrödinger (NLS) equation. It can describe the propagation of femtosecond pulses in optical fibers. Very recently, Ablowitz and Mussliman introduced a class of reverse space and reverse space-time nonlocal nonlinear integrable equations, including the reverse space nonlocal NLS equation, the real and complex reverse space-time nonlocal mKdV, et.al. So, what is nonlocal version of high-order NLS? In this talk, we introduce a reverse space-time nonlocal Sasa-Satsuma equation, i.e., a reverse space-time nonlocal high-order NLS equation, and derive its solutions through the Darboux transformation method. Periodic solutions, and some localized solutions, such as dark soliton, W-shaped soliton, M-shaped soliton and breather soliton of the reverse space-time nonlocal Sasa-Satsuma equation are constructed. This is a joint work with Caiqin Song and Dongmei Xiao.