Wazwaz, Abdul-Majid; El-Tantawy, S. A.
New (3 + 1)-dimensional equations of Burgers type and Sharma-Tasso-Olver type: multiple-soliton solutions. (English) Zbl 1373.37161

Summary: We construct new (3 + 1)-dimensional Burgers and Sharma-Tasso-Olver-type equations. We determine the dispersion relation for each of the newly derived models. By using the simplified Hirota’s method, we derive multiple-soliton solutions for each equation. We derive a generalized dispersion relation that works for both equations.

MSC:
37K10 Completely integrable infinite-dimensional Hamiltonian and Lagrangian systems, integration methods, integrability tests, integrable hierarchies (KdV, KP, Toda, etc.)
35C05 Solutions to PDEs in closed form

Keywords:
Burgers equation; Sharma-Tasso-Olver equation; dispersion relation; multiple-soliton solutions

Full Text: DOI

References:


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