Exact Solutions of a Coupled Burgers System

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Abstract: The exact solutions of a new coupled Burgers system are studied in three different ways. The first type of solutions are found thanks to the coupled Burgers system possessing a simple single Burgers reduction. The second type of multiple soliton solutions are revealed via the decouple procedure. The third type of exact solutions are found by means of a prior ansatz and solutions of the heat conduction equation. Two different kinds of soliton fission phenomena of the model are discovered and a special type of completely elastic soliton collision without phase shift of the model is also displayed.

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