

Second Order Lax Pairs of Nonlinear Partial Differential Equations with Schwarzian Forms

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Z. Naturforsch. **57 a**, 737–744 (2002); received February 26, 2002

In this paper we study the possible second order Lax operators for all possible (1+1)-dimensional models with Schwarzian forms. If the Schwarzian form of a (1+1)-dimensional model can be expressed by two known conformal invariants (invariant under the Möbius transformation), the model has a second order lax pair. The explicit Lax pairs for some (1+1)-dimensional are given. The conclusions are also extended to some (2+1)-dimensional equations.

Key words: Lax Pairs; Schwarzian Forms; Möbius Transformation; Conformal Invariants.