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Reversible System Solitary Wave

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Solitary Wave Families in Two Non-Integrable Models Using Reversible Systems Theory

Jonathan Leto

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Overview

- Definitions
- Background
- Literature Review
- Method of Solution
- The Generalized Pochammer-Chree Equations
- A Generalized Microstructure Equation

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Reversible Dynamical System (looss & Adelmeyer)

Consider

$$\frac{dz}{dt} = F(z; \mu), z \in \mathbb{R}^n, \mu \in \mathbb{R}$$
(1)

where

$$F\left(0;0\right) =0$$

. If there exits a unitary map

$$S: \mathbb{R}^n \mapsto \mathbb{R}^n, S \neq I$$

such that

$$F(Sz; \mu) = -SF(z; \mu) \forall z, \mu$$

then (1) is a reversible system.

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Families of Solitary Waves

Here we will use the term solitary wave or "solitons" in the broadest sense, as a solution to a nonlinear equation which ETC

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