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Modulations of Sinh-Gordon and Sine-Gordon wavetrains. (English) Zbl 0541.35071
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An invariant representation of the modulation equations for the sinh- and sine-Gordon wavetrains is derived. A simple derivation of the representation which makes fundamental use of squared eigenfunctions is presented. This representation is used to place the modulation equations in Riemann invariant form and to cast them in a Hamiltonian form. The multiphase sinh-Gordon study is complete, while the sine-Gordon theory for more than one phase possesses technical difficulties which are described in the text. Explicit results on real two-phase sine-Gordon waves are included in Section VI.

MSC:

- 35Q99** Partial differential equations of mathematical physics and other areas of application Cited in **23** Documents
- 35P10** Completeness of eigenfunctions and eigenfunction expansions in context of PDEs

Keywords:

[sinh-Gordon](#); [modulation](#); [sine-Gordon wavetrains](#); [Riemann invariant form](#); [Hamiltonian form](#)

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