Integrability and solvability of nonlocal wave interaction models

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A general class of integrable nonlinear multi-component wave interaction equations is discussed to the purpose of showing that Lax integrability does not imply solvability of the initial value problem by means of the direct and inverse spectral methods. A simple system in this class, with applicative relevance to nonlinear optics, is discussed as a prototype model. Conservation laws and special solutions are displayed as an expansion of the content of the paper [1].

References

[1] A. Degasperis, *Integrable nonlocal wave interaction models*, J. Phys.A: Math. Theor., 44 (2011), 052002 (7pp).