Nonlinear Sciences > Exactly Solvable and Integrable Systems

KdV solitons in Einstein's vacuum field equations

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We present a metric for which Einstein's field equations in vacuum generate the Kortweg-de Vries (KdV) equation and thus its \$N\$-soliton solutions solve the vacuum equations. The metric of the one soliton solution has been investigated and is a non-singular, Lorentzian metric of type N in the Petrov classification.

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