Algebro-geometric solutions to nonlinear evolution equations in two space variables

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Abstract

There is a well-known method for constructing solutions of certain nonlinear partial differential equations using algebraic curves. Extending the technique to higher dimensional varieties can be a bit tricky. But thanks to the splitting principle for vector bundles on one-dimensional projective space, the generalization to surfaces, while somewhat more elaborate than its one-dimensional counterpart, is rather straightforward, as I will try to show.