



DK Seminar

May 6, 2015, 14:00 - 15:30

University of Vienna (UniVie): Oskar-Morgenstern-Platz 1, WPI, 8th floor, Seminarroom.

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On the Cauchy problem of some 2-d models on the background of 1-d soliton solution of the cubic nonlinear Schrödinger equation.

Abstract: The 1-d cubic nonlinear Schrödinger equation (NLS) has a special solution called isolated soliton $\varphi(x, t) = e^{it}\sqrt{2}/\cosh x$. In my last talk, I presented about our motivation and strategy to study the transverse (in-) stability of $\varphi(x, t)$ for the Davey-Stewartson system (elliptic-elliptic case). In the first step, our purpose is to establish the well-posedness (local, but if possible global) of the Cauchy problem in the suitable functional frame work, that is in $H^s(\mathbb{R} \times \mathbb{T})$, if one considers y -periodic perturbations of $\varphi(x, t)$, or in $\varphi(x, t) + H^s(\mathbb{R}^2)$, if one considers a localized perturbation of $\varphi(x, t)$. In this talk, I will present some results on the above Cauchy problem for the Davey-Stewartson system (elliptic-elliptic case) and discuss the difficulty for the Davey-Stewartson system (elliptic-hyperbolic case).