

Geophysical Research Abstracts
Vol. 12, EGU2010-13189, 2010
EGU General Assembly 2010
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Positons and Rogue Waves

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Positons and Rogue Waves

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January 18, 2010

Abstract

We discuss various exotic wave solutions described by different integrable equations including KdV, KP, cylindrical KP, NLS and some other integrable equations. Most of these solutions can be obtained using quite different tools: Riemann-Hilbert approach, finite-gap-integration method, Darboux-transformation method for mention a few. More precisely we discuss the so called multi positons and multi solitons-positon solutions but also some classes of the rational solutions having a particular feature to appear from “nowhere” and than disappear again. Some of them are very actively discussed last time in connection with the theory of hydrodynamical , optical and even “financial” rogue waves. Besides analytical part of the talk we present some plots illustrating the related analytical constructions.

*The author thanks the organizers of the session NH5.2 "Extreme Sea Waves " for the kind invitation to participate and the ANR grant ANR-09-BLAN-0117-01 for financial support.