



Πανεπιστήμιο Ιωαννίνων / University of Ioannina



Τμήμα Μαθηματικών / Department of Mathematics

ΕΒΔΟΜΑΔΙΑΙΑ ΣΕΜΙΝΑΡΙΑ ΤΜΗΜΑΤΟΣ ΜΑΘΗΜΑΤΙΚΩΝ
WEEKLY SEMINAR OF THE DEPARTMENT OF MATHEMATICS

Solitons and integrable systems

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In 1834 Lord Scott Russell described an unexpected phenomenon. He happened to observe a bell-shaped wave (solitary wave), produced by a boat in a narrow channel around Edinburgh, which continued its course along the channel for miles and miles, apparently without change of form or diminution of speed. In spite of this early observation, it was only in 1965 that waves of this type were identified as an expression of nonlinear phenomena (solutions of certain 'special' nonlinear PDE's that were later on termed 'integrable'), and the word 'soliton' was coined. In this seminar, I will give a brief account of the history of solitons and soliton theory, and deal with some of the associated mathematics. In particular, I will focus on the so-called Inverse Scattering Transform, an extremely powerful technique that can be considered as the nonlinear analogue of the Fourier Transform to solve an initial value problem for linear PDE's.

**Αίθουσα Σεμιναρίων Τμήματος Μαθηματικών
Lecture Room of the Department of Mathematics**

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