

## Exact Soliton Solutions of the Integrable (2+1)-Dimensional Fokas-Lenells Equation

**Authors :** Meruyert Zhassybayeva, Kuralay Yesmukhanova, Ratbay Myrzakulov

**Abstract :** Integrable nonlinear differential equations are an important class of nonlinear wave equations that admit exact soliton solutions. All these equations have an amazing property which is that their soliton waves collide elastically. One of such equations is the (1+1)-dimensional Fokas-Lenells equation. In this paper, we have constructed an integrable (2+1)-dimensional Fokas-Lenells equation. The integrability of this equation is ensured by the existence of a Lax representation for it. We obtained its bilinear form from the Hirota method. Using the Hirota method, exact one-soliton and two-soliton solutions of the (2 + 1)-dimensional Fokas-Lenells equation were found.

**Keywords :** Fokas-Lenells equation, integrability, soliton, the Hirota bilinear method

**Conference Title :** ICP 2018 : International Conference on Physics

**Conference Location :** Barcelona, Spain

**Conference Dates :** October 29-30, 2018