Soliton solutions of Fokas system in monomode optical media

Ismail Onder[1], Aydin Secer[1,2], Muslum Ozisik[1]

[1]*Yildiz Technical University, Dept. of Mathematical Engineering, 34220, Istanbul, Turkey,*
[2]*Computer Engineering, Biruni University, Istanbul, Turkey*
E-mail: ionder@yildiz.edu.tr

Abstract: With the developing technology, the use of communication and tools in the world is increasing, so the importance of data transfer is also high. With these developments, there has been a huge increase in the number of studies in the optical subfield of physics in recent years. In fiber optic cables, many events such as data transmission, non-linear throw, refractive index of light are modeled with NLPDEs. In this study, analytical solutions of the Fokas system were obtained. The Fokas system models nonlinear pulse transmission in monomode optical fibers. Unified Riccati equation expansion method (UREEM) was used to obtain optical soliton solutions. We have obtained various solitons for the model. Results are depicted via 3D, 2D and contour plots.

Keywords: Optical solution; Nonlinear refractive index; Auxiliary method; Group velocity dispersion.

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