Rogue Wave Solutions of a Three-Component Coupled Nonlinear Schrödinger Equation

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Abstract:

In this talk, we investigate rogue wave solutions in a three-component coupled nonlinear Schrödinger equation. With the certain requirements on the backgrounds of components, we construct a new multi-rogue wave solution that exhibits a structure like a four-petaled flower in temporal-spatial distribution, in contrast to the eyeshaped structure in one-component or two-component systems. The results could be of interest in such diverse fields as Bose-Einstein condensate, nonlinear fibers and super fluid.

References:

- F. Baronio, A. Degasperis, M. Conforti, and S. Wabnitz, Phys. Rev. Lett. 109, 044102 (2012).
- 2. B.L. Guo, L.M. Ling, Chin. Phys. Lett. 28, 110202 (2011).
- 3. Y.V. Bludov, V.V. Konotop, and N. Akhmediev, Eur. Phys. J. Special Topics 185, 169 (2010).
- 4. L.C. Zhao, J. Liu, Joun. Opt. Soc. Am. B 29, 3119-3127 (2012).
- 5. M. Vijayajayanthi, T. Kanna, and M. Lakshmanan, Phys. Rev. A 77, 013820 (2008).