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Highly dispersive optical solitons in polarization-preserving fibers with Kerr law nonlinearity by Lie symmetry. (English) [Zbl 1479.78023](#)
Phys. Lett., A 421, Article ID 127768, 10 p. (2022).

Summary: The concept of highly dispersive (HD) optical solitons was first introduced during 2019 and has become extremely popular and has gained a lot of attention in the fibre optics community. We will study the problem with the aid of Lie symmetry analysis which is a very powerful mathematical scheme to handle differential equations that typically arise in nonlinear physics.

MSC:

- [78A60](#) Lasers, masers, optical bistability, nonlinear optics
- [35Q55](#) NLS equations (nonlinear Schrödinger equations)
- [35Q41](#) Time-dependent Schrödinger equations and Dirac equations
- [35B06](#) Symmetries, invariants, etc. in context of PDEs
- [35C08](#) Soliton solutions
- [37L50](#) Noncompact semigroups, dispersive equations, perturbations of infinite-dimensional dissipative dynamical systems
- [22E70](#) Applications of Lie groups to the sciences; explicit representations

Keywords:

[symmetry analysis](#); [solitons](#); [highly dispersive](#)

Full Text: [DOI](#)

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