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# DARK AND SINGULAR OPTICAL SOLITONS WITH SPATIO-TEMPORAL DISPERSION USING MODIFIED SIMPLE EQUATION METHOD

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## Abstract

This paper obtains optical soliton solutions to the governing nonlinear Schrödinger's equation that is studied with spatio-temporal dispersion. The integration algorithm that is employed in this paper is the modified simple equation method. This leads to dark and singular soliton solutions that are valuable in the field of optoelectronics. The soliton solutions appear with all necessary constraints that are deemed necessary for them to exist. There are four types of nonlinear fibers studied in this paper. They are Kerr law, power law, parabolic law and the dual-power law.

**Keywords:** solitons, spatio-temporal dispersion; modified simple equation method.

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