

Contribution Title: NONLINEAR OPTICAL MODELS AND ALGEBRAIC SKELETONS  
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By realizing infinitesimal truncated algebraic skeletons we obtain a family of nonlinear Schrödinger equations describing the propagation of waves in birefringent nonlinear optical fibers in  $1 + 1$  dimensions. A Cartan connection on the tower over the skeleton is constructed by resorting to a realization given in the form of a Kač–Moody algebra endowed with a loop structure. By means of its representation on the tower, the existence of solitary waves, in particular solitons, in *twisted* birefringent nonlinear optical fibers is proved by constructing the associated spectral linear problem.