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Gaussian Beam Propagation for Nonlinear Optics featuring Orbital Angular Momentum Transfer[1] R. NICHOLAS LANNING, ZHIHAO XIAO, Louisiana State University, MI ZHANG, IRINA NOVIKOVA, EUGENIY E. MIKHAILOV, College of William and Mary, JONATHAN P. DOWLING, Louisiana State University — We present a general, Gaussian spatial mode propagation formalism for describing the generation of higher order multi-spatial mode beams generated during nonlinear interactions. Furthermore, to implement the theory, we simulate optical angular momentum transfer interactions, and show how one can optimize the interaction to reduce the undesired pollution of the spatial mode structure.

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R. Nicholas Lanning
Louisiana State University

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