On a nonlinear Schrodinger equation

The nonlinear Schrodinger equation,

\[ iu_t + a\Delta u + q(|u|^2)u = 0, \]

where \( a \) is a real constant, \( q \) is a real-valued function, and \( \Delta \) is the Laplacian operator, has been a topic of intensive research in the past 30 years. Recently, there is a growing interest in a fully nonlinear Schrodinger equation,

\[ iu_t + a\Delta u + q(|u|^2)u = b(\Delta p(|u|^2))p'(|u|^2)u, \]

where \( b \) is a real constant and \( p \) is a real-valued function, that arises in various physical models. This talk will give some current development for this equation.