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 Δ 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.