

NEW TYPES OF ENVELOPE SOLITONS
IN PLASMAS AND OTHER NONLINEAR MEDIA

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S u m m a r y

Various types of envelope solitons in magnetized plasmas as well as in other nonlinear media are well described by the generalized nonlinear Schrodinger equation (GNSE) which includes the high-order dispersive effects and saturation of nonlinearity. New stable soliton solutions of GNSE are found in the form of chirped solitons with nonlinearly changing phase. Using the direct variational approach to GNSE, its solutions are investigated and, it is found that two (bistability) or three (triple-stability) stable soliton branches can simultaneously exist at a fixed plasmon number. The stability of soliton solutions is also confirmed by the Lyapunov's method. Transitions to bistable and triple-stable states are studied by methods of the theory of catastrophes.