Chaotic solitons in dissipative systems

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Classical solitons in integrable systems are robust particle-like structures that do not have any freedom for chaotic behaviour. Dissipative systems are infinitely more flexible resulting in chaotic localized solutions for extended regions of the system parameters. Dissipative solitons of the cubic-quintic Ginzburg-Landau equation show variety of behaviours including stationary, pulsating and chaotic evolution of the soliton shapes. As the system under study has infinite number of degrees of freedom and several external parameters, the chaotic behaviour of solitons can be quite involved with multiplicity of routes to chaos. General approach to the problem and many examples will be presented in this talk.