A global bifurcation diagram for a one-parameter family of nonautonomous scalar ODE's driven by a minimal flow

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The description of nonautonomous bifurcation patterns is of growing interest in the scientific community, both for its theoretical interest and for its possible applications to the analysis of mathematical models. In the talk, in the wake of [1] and using results and methods of [2], conditions on the coefficients of the one-parameter family

$$x'(t) = \varepsilon\,(a(t) + b(t)\,x(t)) + c(t)\,x^2(t) - x^3(t) \tag{1}$$

as ε varies are established to describe the global diagram of the motion. Such conditions include the recurrency of the coefficients and the analysis is based on the study of the number and the structure of the minimal invariant subsets of the extended state space for the corresponding skew-product flow induced by the solutions of equations (1).

[1] R. Fabbri, R. Johnson, F. Mantellini, *A nonautonomous saddle-node bifurcation pattern*, Stoch. Dyn. **4** (2004), no 3, 335–350.

[2] J. Dueñas, C. Núñez., R. Obaya, *Bifurcation theory of attractors and minimal sets in d-concave nonautonomous scalar ordinary differential equations*, J. Differential Equations, **361** (2023) 138–182.