

Hereditary symmetry of resolving systems for nonlinear equations with Fredholm operators

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Abstract. The notion of the equivalent finite-dimensional resolving system, degeneralizing the bifurcation equation is introduced for nonlinear equations in Banach spaces with Fredholm operator at the derivative. The equivalence of Lyapounov and Schmidt resolving systems for stationary equations is established. For resolving systems the inheritance of intertwining and symmetry properties of the original nonlinear equation are proved. Applications of resolving systems theory to linear problems (Cauchy problem for linear differential equation and perturbation of the linear equation by a small linear term), analogs of Grobman-Hartman theorem for differential equations with a degenerate operator at the derivative and Andronov-Hopf bifurcation under cosymmetry conditions are given.

AMS Subject Classification. 58E09, 34G20, 37D10

Key words. Bifurcation theory, Lyapunov-Schmidt construction, resolving systems, branching equation in the root subspace, hereditary symmetry, Grobman-Hartman theorem, Andronov-Hopf bifurcation, cosymmetry.