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Section:

9. Ordinary Differential Equations and Dynamical Systems

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Convergence problems of normalizing transformations with symmetry

The subject fits in bifurcation theory for symmetric and reversible vector fields. We discuss resonant normal forms and semi-normal forms of singularities of families of symmetric and reversible vector fields at a hyperbolic resp. partially hyperbolic fixed point. In this setting one wants the normalizing transformation to commute with the given symmetry. For symmetric vector fields we give sufficient conditions for that, and in the reversible case we pinpoint a problem in the convergence of a commuting normalizing transformation. A simple concrete example will be presented.