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Section:

9. Ordinary Differential Equations and Dynamical Systems

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Nonlinear separation of zeros

Two nontrivial solutions $x(t)$ and $y(t)$ of a nonlinear second order ordinary differential equation are considered provided that the zero is a solution also. The estimation of the number of zeros of $x(t)$ between two consecutive zeros of $y(t)$ is made on a basis of the comparison of local properties of $x(t)$ and $y(t)$, expressed in terms of the respective linear equations of variations. The classical Euler theorem on separation of zeros of solutions of linear equations is included.