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GLOBAL STABILITY AND PERIODIC SOLUTIONS IN A CLASS OF DIFFERENTIAL DELAY EQUATIONS

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We consider a class of differential delay equations which can be viewed as singular perturbations of difference equations. Those equations have a wide range of applications in various sciences and applied areas such as mathematical biology and physiology, life sciences, and nonlinear boundary value problems for hyperbolic partial differential equations. We establish sufficient conditions for the global asymptotic stability of the unique equilibrium and for the existence of periodic solutions for several particular cases within the class of equations.

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