

论文

ULTIMATE STABILITY OF A TYPE OF CHARACTERISTIC EQUATION WITH DELAY DEPENDENT PARAMETERS

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摘要 Delay differential systems are widely used in many different fields. It is important to determine the local stability of their equilibria. For systems with delay dependent parameters, the stability analysis of equilibria is complicated and difficult. In this paper, we shall investigate the ultimate stability of a type of characteristic equation with delay dependent parameters. Our results show that the characteristic equation with delay dependent parameters may be one of ultimately stable, ultimately unstable, and alternate between stable and unstable. Applying our results, the ultimate stability can be often decided directly and need not appeal to

mathematic software. Two examples are given in this paper.

关键词 [Characteristic equation, time delay, ult](#)

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Abstract Delay differential systems are widely used in many different fields. It is important to determine the local stability of their equilibria. For systems with delay dependent parameters, the stability analysis of equilibria is complicated and difficult. In this paper, we shall investigate the ultimate stability of a type of characteristic equation with delay dependent parameters. Our results show that the characteristic equation with delay dependent parameters may be one of ultimately stable, ultimately unstable, and alternate between stable and unstable. Applying our results, the ultimate stability can be often decided directly and need not appeal to mathematic software. Two examples are given in this paper.

Key words [Characteristic equation](#) [time delay](#) [ultimate stability](#)

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