一类变系数超双曲型方程的中量定理及其应用

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摘要　　对超双曲型方程的正确提法还知之不多, 著名的Asgeirsson中量定理使得一些定解问题

得以解决, 而且它可以用来证明超双曲型方程解的拓展性. 因此对Asgeirsson中量定理的推广就有重要意义. 目前对变数超双曲型方程解的中量性质的研究未取得明确结论. 本文针对一类变系数超双曲型方程引入了一种广义中量, 利用Green公式, 导出了广义中量满足一种广义E-P-D方程, 证明了该广义E-P-D方程解的存在性和所具有的正则性,从而对于一类变系数的超双曲型方程, 得到了解的中量定理. 利用该中量定理,得到了(模) 超双曲型方程Cauchy问题的解和超双曲型方程解拓展性及其应用.

关键词　　 Riemann函数,广义E-P-D方程,中量,解的拓拓展性

分类号

THE MEAN VALUE THEOREMS OF ONE CLASS ULTRAHYPERBOLIC EQUATIONS AND THEIR APPLICATIONS

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Abstract To the formal presentation about definite problems of ultra-hyperbolic equation. By the famous Asgeirsson Mean Value Theorem. Some definite problems can be solved and the oddness continuation of the solutions had been proved. Therefore, it is important to advance Asgeirsson Mean Value Theorem. The study of properties of variable coefficient mean value has not result. In point of some class of equations, some concept of genreral mean value is introduce, and the conclusions on the extensive mean value have been obtained. The results can satisfy some extensive E-P-D equation. The existence and the regulartiy of the solution of this E-P-D equation are proved. For the induable equations, the mean value theorem, the solution of the (Modular) hyperbolic equations and the oddness continuation of the solutions have been gotten. Some applications are presented.

Key words　 Riemann function　 induable function 　 extensive E-P-D equation 　 oddness continuation of the solutions

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