

应用数学与基础数学

$K(n, -n, 2n)$ 方程的行波解

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摘要 利用动力系统分支理论和定性理论研究了 $K(n, -n, 2n)$ 方程的行波解及其动力学性质. 结合可积系统的特点, 得到系统的孤立行波解, 不可数无穷多光滑周期行波解和不光滑行波解; 并根据行波解与相轨线间关系, 揭示了不同类型行波解间转变与参数变化的关系.

关键词 [行波解](#) [孤立波](#) [周期波](#) [尖波](#) [光滑波](#)

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Traveling wave solutions of equation $K(n, -n, 2n)$ (Chinese)

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Abstract

The traveling wave solutions and the dynamical properties of Equation $K(n, -n, 2n)$ were studied in terms of the bifurcation theory of dynamic systems and of the qualitative theory. Based on the characters of an integrable system, the solitary traveling wave solutions, uncountably infinite many smooth periodic wave solutions and non-smooth periodic traveling wave solutions of the system were obtained. According to the relationship between traveling waves and phase orbits, that changes of parameters led to the transitions of traveling wave solutions of different types were revealed.

Key words [traveling wave](#) [solitary wave](#) [periodic wave](#) [cusp wave](#) [smooth wave](#)

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