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Lie symmetry analysis, nonlinear self-adjointness and conservation laws of the modified Broer-Kaup-Kupershmidt (mBKK) equations. (Chinese. English summary) Zbl 07448872

Summary: Using the method of Lie analysis, the Lie symmetry of the modified Broer-Kaup-Kupershmidt (mBKK) equation is obtained. According to Ibragimov theorem, the mBKK equation has the feature of nonlinear self-adjointness, thus we can further reach to infinite number of the conservation laws corresponding to the symmetry of the equation.

MSC:
37K06 General theory of infinite-dimensional Hamiltonian and Lagrangian systems, Hamiltonian and Lagrangian structures, symmetries, conservation laws
35Q53 KdV equations (Korteweg-de Vries equations)

Keywords:
modified Broer-Kaup-Kupershmidt equations; Lie symmetry; nonlinear self-adjointness; conservation laws

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