

Lie Symmetries of the Equation

$$u_t(x, t) + g(u)u_x(x, t) = 0$$

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Abstract. In this paper the invariance criterion is applied for the nonlinear equation

$$\frac{\partial}{\partial t}u(x, t) + g(u)\frac{\partial}{\partial x}u(x, t) = 0, \quad (1)$$

where $g(u)$ is a smooth function on u . Some particular set of Lie generators are given. In the case of inviscid Burger's equation [1]

$$\frac{\partial}{\partial t}u(x, t) + u(x, t)\frac{\partial}{\partial x}u(x, t) = 0; \quad (2)$$

the Lie projectable symmetry algebra is determined, and the inviscid Burger's equation will be connected to some order differential equations. The obtained differential equations are solved and some exact solutions of (2) are found.

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