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Sanjay Rai And C. C. A. Sastri

Abstract: The Burgers equation $u_1 = u_{xx} - uu_x$ (or a related form of it) occurs in a variety of fields. Another widely studied equation in the reaction-diffusion equation $u_1 = u_{xx} + f(u)$ in this paper, the symmetry properties of the equation $u_1 = u_{xx} + f(u, u_x)$, which is a generalization of both the above equations, are studied, and a group classification of this equation considered as a system is carried out. The classification is complete when f is a function of u_x alone but incomplete when f depends on both u and u_x . Once the classification is completed, invariant boundary conditions can be found corresponding to the differentforms of f . Examples are given to illustrate the point.

R. N. Ray, A. Samad And T. K. Chaudhury

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