Functional Separable Solutions to Nonlinear Diffusion Equations by Group Foliation Method

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Abstract: We consider the functional separation of variables to the nonlinear diffusion equation with source and convection term: $u_t=(A(x)D(u)u_x)_x+B(x)Q(u)$, $A_x\neq0$. The functional separation of variables to this equation is studied by using the group foliation method. A classification is carried out for the equations which admit the function separable solutions. As a consequence, some solutions to the resulting equations are obtained.

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