

Solutions of a system of forced Burgers equation

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Abstract: In the lecture we are going to construct solutions of a system of forced Burgers equations subject to some classes of bounded and compactly supported initial data and also subject to certain unbounded initial data. In a series of papers , Rao and Yadav obtained explicit solutions of a nonhomogeneous Burgers equation in one dimension subject to certain classes of bounded and unbounded initial data. Earlier Kloosterziel represented the solution of an initial value problem for the heat equation with initial data in $L^2(\mathbf{R}^n, e^{x^2/2})$ as a series of self-similar solutions of the heat equation in $\mathbf{R}^n$. Here we express the solutions of Cauchy problems for a system of forced Burgers equations in terms of self-similar solutions of some linear partial differential equations.