

Global Classical Solutions to the Cauchy Problem of Conservation Laws with Degenerate Diffusion

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Abstract:

In this talk we prove the existence of the unique global classical solution with small initial data to the Cauchy problem for a scalar conservation law with degenerate diffusion by establishing the uniform a priori decay estimates of solutions. In order to compensate the degeneracy in one direction by the diffusion in other directions, we introduce the method of frequency decomposition method to obtain the low frequency estimate and the high frequency estimate of solutions by the Green's function method and energy method, respectively (joint with J. Chen and W. Wang).