论文

# 非凸单个守恒律初边值问题的整体弱熵解的构造

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摘要　　本文研究具有两段常数的初始值和常数边界值的非凸单个守恒律的初边

值问题. 在流函数具有一个拐点的条件下, 由相应的初始值问题弱熵解

的结构和Bardos-Leroux-Nedelec提出的边界熵条件,

给出初边值问题整体弱熵解的一个构造方法, 澄清弱熵解在边界附近的结构.

与严格凸的单个守恒律初边值问题相比, 非

凸单个守恒律初边值问题的弱熵解中包括下列新的相互作用类型:

一个接触或非接触激波碰到边界, 边界弹回一个非接触激波.

关键词　　非凸单个守恒律　初边值问题　边界熵条件

分类号

# CONSTRUCTION OF GLOBAL WEAK ENTROPY SOLUTION OF INITIAL-BOUNDARY VALUE PROBLEM FOR NONCONVEX SCALAR CONSERVATION LAWS

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**Abstract**  This paper is concerned with an initial-boundary problem of nonconvex scalar conservation laws with two pieces of constant initial data and constant boundary data. Under the condition that the flux function has one inflection point, by the structure of weak entropy solution of the corresponding initial value problem and the boundary entropy condition developed by Bardos-Leroux-Nedelec, we give a construction method for the global weak entropy solution of the initial-boundary value problem and clarify the solution structure nearby the boundary. In contrast to the initial-boundary value problem for strictly convex scalar conservation laws, the weak entropy solution of the initial-boundary value problem for nonconvex scalar conservation laws includes the following new interaction type: a contact or non-contact shock collides with the boundary and a new non-contact shock wave rebounds from the boundary.

**Key words**　Nonconvex scalar conservation laws　initial-boundary problem　boundary entropy condition　global weak

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