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**Simple waves of the two dimensional compressible Euler system for a class of pressure laws.**

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**Summary:** In this paper, we consider a two-dimensional compressible Euler system for a class of pressure laws Chen (*Arch Ration Mech Anal* 166:81–98, 2003), and use the characteristic decomposition to establish that any wave adjacent to a constant state must be a simple wave. These results are generalization of the well-known theorem on reducible equations in Courant and Friedrichs's monograph *Courant, and Friedrichs (Supersonic flow and shock waves, Interscience, New York, 1948)*.

**MSC:**

**35Q31** Euler equations

**35L65** Hyperbolic conservation laws

**Keywords:**

Riemann problem; characteristic decomposition; simple wave; Euler equations

**Full Text:** [DOI](#)

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