

**Asakura, Fumioki****Kinetic condition and the Gibbs function.** (English) Zbl 0951.35078

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Summary: We study the Cauchy problem for a  $3 \times 3$ -system of conservation laws describing the phase transition:  $u_t - v_x = 0$ ,  $v_t - \sigma(u)_x = 0$ ,  $(e + \frac{1}{2}v^2)_t - (\sigma v)_x = 0$ . A phase boundary is said to be admissible if it satisfies the Abeyaratne-Knowles kinetic condition. We give a physical account of the kinetic condition by means of the Gibbs function. We also obtain a useful description of the entropy function using the Gibbs function.

**MSC:**

- 35L65** Hyperbolic conservation laws
- 35L45** Initial value problems for first-order hyperbolic systems
- 35L67** Shocks and singularities for hyperbolic equations

Cited in 2 Documents**Keywords:**

phase transition; Abeyaratne-Knowles kinetic condition; entropy function

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