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Description of a shock formation in p -systems. (Description de la formation d'un choc dans le p -système.) (French) [Zbl 0832.35092](#)

J. Math. Pures Appl., IX. Sér. 73, No. 6, 523-565 (1994).

The aim of the paper is to derive a weak entropic shock-suited solution to the p -system with smooth initial Cauchy data. We first describe the singularities of the shock curve and of the weak entropic solution of a scalar conservation law and the p -system is transformed with a change of variables in the space of its Riemann invariants. The transformed system is then solved in the case of a simple wave by an iterative scheme. The scheme is initialized on the one hand by a constant function for one of the Riemann invariants and on the other hand by the weak entropic solution of the scalar conservation law, worked out beforehand, for the other. The sequence of the functions thus built is shown to uniformly converge to the solution of the p -system, the singularities of which are exhibited in the vicinity of the shock curve.

Reviewer: M.-P.Lebaud (Rennes)

MSC:

[35L65](#) Hyperbolic conservation laws

[35L67](#) Shocks and singularities for hyperbolic equations

Cited in **2** Reviews
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Keywords:

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