

**Rauch, J.; Reed, M.**

**Bounded, stratified and striated solutions of hyperbolic systems.** (English) [Zbl 0695.35124](#)  
Nonlinear partial differential equations and their applications, Lect. Coll. de France Semin., Vol. IX, Paris/Fr. 1985-86, Pitman Res. Notes Math. Ser. 181, 334-351 (1988).

Summary: [For the entire collection see [Zbl 0653.00012](#).]

Stratified solutions are those whose derivatives tangent to a foliation by regular characteristic hypersurfaces all lie in  $L^2$ . Striated solutions of two speed systems are differentiable tangent to a codimension two foliation, the transverse intersection of two characteristic foliations. Our main results are local existence and continuous dependence theorems for bounded, stratified and striated solutions. If  $L^2$  is replaced by  $H^2$  with  $s > N/2$  these results are known or follows easily from known results using standard techniques. Bounded, stratified solutions are important for the study of the semilinear analogue of the oscillating solutions of *P. D. Lax* [*Duke Math. J.* 24, 627-646 (1957; [Zbl 0083.318](#))]. For pairwise interactions of oscillations in two speed systems, the striated category is appropriate.

**MSC:**

- [35L60](#) First-order nonlinear hyperbolic equations
- [35A07](#) Local existence and uniqueness theorems (PDE) (MSC2000)
- [35B30](#) Dependence of solutions to PDEs on initial and/or boundary data and/or on parameters of PDEs

Cited in **1** Review  
Cited in **4** Documents

**Keywords:**

[Stratified solutions](#); [Striated solutions](#); [continuous dependence](#)