ICM 1998, Berlin, Aug. 18–27

Abstracts of Short Communications and Posters

Section:

10. Partial Differential Equations

1991 MS Classification: 35
Komech, Alexander, Moscow State University, Russia

Attractors for Hamiltonian Nonlinear Wave Equations

We consider the long time asymptotics of finite energy solutions to Hamiltonian nonlinear wave equations in the whole space. The solutions converge to stationary states in long-time limits, $t \to \pm\infty$. The convergence holds in the Fréchet topology defined by local energy seminorms. The convergence is established for general 1D nonlinear wave equations with nonlinear term concentrated at a finite segment, for 3D scalar wave equation coupled to a particle and for 3D Maxwell-Lorentz system with a charge. We establish the soliton-like asymptotics for finite energy solutions to the translation-invariant 3D scalar wave equation coupled to a particle.
References: 1. A. I. Komech, H. Spohn, M. Kunze, *Comm. Partial Diff. Equs.* **22** (1997), no.1/2, 307–335. 2. A. I. Komech, H. Spohn, *Nonlin. Analysis* **33** (1998), no.1, 13-24. 3. A. I. Komech, *Phys. Lett. A* **241** (1998), 311–320.