

Craig, W.; Kappeler, T.; Strauss, W.

Infinite gain of regularity for dispersive evolution equations. (English) [Zbl 0767.35076](#)

Microlocal analysis and nonlinear waves, Proc. Workshop, IMA Program Nonlinear Waves, Minneapolis/MN (USA) 1988-89, IMA Vol. Math. Appl. 30, 47-50 (1991).

[For the entire collection see [Zbl 0758.00007](#).]

We divorce the question of regularity from the question of global existence. We succeed in proving the infinite gain of regularity within the existence interval for a general class of dispersive equations without any growth conditions on the nonlinear terms. We use a generalization of Kato's original method, together with ideas of *W. Craig* and *J. Goodman* [J. Differ. Equations 87, No. 1, 38-61(1990; [Zbl 0709.35090](#))].

MSC:

[35Q53](#) KdV equations (Korteweg-de Vries equations)

[35B65](#) Smoothness and regularity of solutions to PDEs

Cited in **3** Documents

Keywords:

Schrödinger type equations; nonlinear equations of KdV type