

1064-35-169

Temam M Roger* (temam@indiana.edu), 831 East Third St, Rawles Hall, Bloomington, IN 47405. *The Zakharov-Kuznetsov (KZ) equation.*

The Zakharov-Kuznetsov equation is an n-dimensional extension of the Korteweg-de Vries (KdV) equation, appearing in the propagation of waves in a plasma under some conditions.

In a joint work with Jean-Claude Saut, we proved the existence and regularity of solutions in space dimension two and three, and the uniqueness in space dimension two. The proofs dealing with a nonlinear hyperbolic initial and boundary value problem require an involved analysis of the associated linear semi-group, and specific techniques for the nonlinear case.

The stochastic version of this equation is currently under investigation as well as some control problems, the later in collaboration with Gustavo Perla Menzala and Lionel Rosier. (Received September 07, 2010)