

1073-35-268

David M. Ambrose* (ambrose@math.drexel.edu), Drexel University, and **J. Douglas Wright** (jdoug@math.drexel.edu), Drexel University. *Existence Theory for Some Equations with Degenerate Dispersion*

We consider the initial value problem for some equations with degenerate dispersion. One well-known equation with degenerate dispersion is the $K(2, 2)$ equation of Rosenau and Hyman, $u_t = (u^2)_{xxx} + (u^2)_x$. Existence theory for this and similar equations is difficult, owing to a lack of useful conserved quantities and a priori estimates. We show that for a certain family of equations with degenerate dispersion, short-time existence theory in Sobolev spaces is possible, and for certain members of this family, there are global solutions. Furthermore, for the equations which exhibit global solutions, there are also compactly supported traveling waves in the same function space. (Received August 09, 2011)