1037-35-296 **Hongqiu Chen*** (hchen1@memphis.edu), Department of Mathematical Sciences, University of Memphis, Memphis, TN 38152, and **Jerry L Bona**. *Sharp Results of Well-posedness.*

Consider the initial-value problem

$$(**) \qquad \left.\begin{array}{l} u_t + u_x + g(u)_x + Lu_t = 0, \qquad x \in \mathbb{R}, \quad t > 0, \\ u(x,0) = u_0(x), \qquad x \in \mathbb{R}, \end{array}\right\}$$

where $u = u(x,t)$ is a real-valued function, L is a Fourier multiplier operator with real symbol $\alpha(\xi)$, that is $\widehat{Lv}(\xi) = \alpha(\xi)\widehat{v}(\xi)$, and g is a smooth, real-valued function of a real variable. Equations of this form arise as models of wave propagation in a variety of physical contexts. Here, fundamental issues of local and global well-posedness are established for L_p, H^s and bore-like or kink-like initial data. In the special case where $\alpha(\xi) = |\xi|^r$ wherein $r > 1$ and $g(u) = \frac{1}{2}u^2$, the initial value problem (**) is locally well-posed in H^s if r and s satisfy one of the following three conditions:

(a) $r \geq 1$ and $s > \frac{1}{2}$;

(b) $r > \frac{5}{4}$ and $s > \frac{1}{4}$;

(c) $r > \frac{3}{2}$ and $s \geq 0$.

In addition, if $r > 1$ and $s \geq 1 - \frac{r}{2}$, then the well-posedness is global. (Received February 04, 2008)