In this talk, coupled systems

\begin{align*}
    u_t + u_{xxx} + P(u, v)_x &= 0, \\
    v_t + v_{xxx} + Q(u, v)_x &= 0,
\end{align*}

of KdV-type are considered, where \( u = u(x, t), v = v(x, t) \) and \( x, t \in \mathbb{R} \). Here, subscripts connote partial differentiation and \( P \) and \( Q \) are quadratic polynomials in the variables \( u \) and \( v \). Attention is given to the pure initial-value problem in which \( u(x, t) \) and \( v(x, t) \) are both specified at \( t = 0 \), viz.

\[ u(x, 0) = u_0(x) \text{ and } v(x, 0) = v_0(x) \]

for \( x \in \mathbb{R} \). Under suitable conditions on \( P \) and \( Q \), global well posedness of this problem is established for initial data in the \( L^2 \)-based Sobolev spaces \( H^s(\mathbb{R}) \times H^s(\mathbb{R}) \) for any \( s > -\frac{3}{4} \). (Received September 21, 2011)