

$$\begin{array}{rcl}
 G_0 = \frac{\delta}{\delta u} \int \frac{1}{2} u dx & \begin{array}{l} \xrightarrow{P_1} \\ \xleftarrow{P_0} \end{array} & u_t = u_x \\
 \\
 G_1 = \frac{\delta}{\delta u} \int \frac{1}{2} u^2 dx & \begin{array}{l} \xrightarrow{P_1} \\ \xleftarrow{P_0} \end{array} & u_t = 6u u_x + u_{xxx} \\
 \\
 G_2 = \frac{\delta}{\delta u} \int \left(u^3 - \frac{1}{2} u_x^2 \right) dx & \begin{array}{l} \xrightarrow{P_1} \\ \xleftarrow{P_0} \end{array} & u_t = 30u^2 u_x + 20u_x u_{xx} + 10u_x u_{xxx} + u^{(5)} \\
 \\
 G_3 = \frac{\delta}{\delta u} \int \left(\frac{5}{2} u^4 - 5u u_x^2 + \frac{1}{2} u_{xx}^2 \right) dx & \xrightarrow{P_1} & \dots
 \end{array}$$

$$P_0 = \frac{\partial}{\partial x} \qquad P_1 = \frac{\partial^3}{\partial x^3} + 4u \frac{\partial}{\partial x} + 2u_x$$