

$$G(x_1, p_{x2}, y_1, p_{y2}, p_1) = H_0(x_1, p_{x2}, y_1, p_{y2}, p_1) + \frac{1}{2} \left(\frac{\partial H_0}{\partial x_1} \frac{\partial H_0}{\partial p_{x2}} + \frac{\partial H_0}{\partial y_1} \frac{\partial H_0}{\partial p_{y2}} \right),$$

where

$$H_0 = p_{x2} \Delta x_1 + p_{y2} \Delta y_1,$$

$$\Delta x_1 = x_1(a/3 + b)$$

$$\Delta y_1 = -y_1(a + b/3)$$

$$a = K1 \frac{x_1^2}{4p_1}$$

$$b = K1 \frac{y_1^2}{4p_1}.$$