

*Solution, for all Values of the Time, of Initial Value Problems for the Wave Equation and for a System of Equations in Acoustics\**

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**1. Introduction.** If in Euler's equations of motion and continuity for two dimensional flow:

$$\frac{\partial u}{\partial t} + u \frac{\partial u}{\partial x} + v \frac{\partial u}{\partial y} = - \frac{1}{\rho} \frac{\partial p}{\partial x},$$

$$\frac{\partial v}{\partial t} + u \frac{\partial v}{\partial x} + v \frac{\partial v}{\partial y} = - \frac{1}{\rho} \frac{\partial p}{\partial y},$$

$$\frac{\partial \rho}{\partial t} + \frac{\partial \rho u}{\partial x} + \frac{\partial \rho v}{\partial y} = 0,$$

one makes the *acoustic approximation*

$$p = \text{const.} + c^2 \rho,$$

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