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Solution of equations describing thin layer flow of heavy viscous liquid on a curvilinear surface. (English. Russian original) [\[Zbl 0907.76021\]](#)

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The authors consider the system of differential equations

$$\frac{\partial u}{\partial t} + u \frac{\partial u}{\partial x} + v \frac{\partial u}{\partial y} = A(x) + \frac{\partial^2 u}{\partial y^2}, \quad \frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0$$

,

$$\frac{\partial u}{\partial y} = 0, \quad v = \frac{\partial h}{\partial t} + u \frac{\partial h}{\partial x} \text{ for } y = h(t, x), \quad v = 0 \text{ for } y = 0$$

which describes an non-stationary flow of a thin layer of heavy viscous liquid on a fixed impenetrable surface. The problem is reduced to the Cauchy problem for equations with a smaller number of variables.

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MSC:

[76D99](#) Incompressible viscous fluids

[35Q35](#) PDEs in connection with fluid mechanics

Keywords:

[Cauchy problem](#)