PDE are as following:

$$\frac{\partial^2 u}{\partial x^2}+\frac{\partial w}{\partial x}\frac{\partial^2 w}{\partial x^2}=\frac{1}{C^2}\frac{\partial^2 u}{\partial t^2}$$

$$\frac{\kappa}{2(1+\nu)}\left(\frac{\partial \phi}{\partial x}+\frac{\partial^2 w}{\partial x^2}\right)+\frac{\partial^2 u}{\partial x^2}\frac{\partial w}{\partial x}+\frac{\partial u}{\partial x}\frac{\partial^2 w}{\partial x^2}+\frac{3}{2}\frac{\partial^2 w}{\partial x^2}\left(\frac{\partial w}{\partial x}\right)^2=\frac{1}{C^2}\frac{\partial^2 w}{\partial t^2}$$

$$\frac{\partial^2 \phi}{\partial x^2}-\frac{6\kappa}{(1+\nu)h^2}\left(\frac{\partial w}{\partial x}+\phi\right)=\frac{1}{C^2}\frac{\partial^2 \phi}{\partial t^2}$$

##

The above equations are subjected to the following natural and geometric boundary conditions at, $x = l$

$$\frac{\partial u}{\partial x}+\frac{1}{2}\left(\frac{\partial w}{\partial x}\right)^2-\frac{M}{Ebh}\left(g-\frac{\partial^2 u}{\partial t^2}-e\frac{\partial^2 \phi}{\partial t^2}\right)=0,$$

$$\frac{\partial \phi}{\partial x}-\frac{12Me}{Ebh^3}\left(g-\frac{\partial^2 u}{\partial t^2}-e\frac{\partial^2 \phi}{\partial t^2}\right)=0, \quad w=0$$

Where, x=l is (La) in maple code.this means for example $D_1(u)(La,t)=0$

##

And at, $x = 0$

$u = 0$, and $w = 0$, $\frac{\partial \phi}{\partial x}=0$

this means for example $D_1(u)(0,t)=0$

##

the initial conditions for Eqs
Are as following:

$$u(x,0) = \phi(x,0) = w(x,0) = 0$$

$$\frac{\partial \phi}{\partial t}(x,0) = \frac{\partial w}{\partial t}(x,0) = 0, \quad \frac{\partial^2}{\partial t^2}\phi(x,0) = 0, \quad \frac{\partial^2}{\partial t^2}w(x,0) = 0$$

At $x\epsilon[0,l]$,where l is La

##

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

At $x\epsilon[0,l)$ where l is La

##

$$\frac{\partial u}{\partial t}(l,0) = -V_0$$

, $\frac{\partial^2}{\partial t^2} u(l,0) = 9.8$

where l is La