

$$\frac{\partial u}{\partial t} + u \frac{\partial u}{\partial x} + u \frac{\partial u}{\partial y} = \nu \frac{\partial^2 u}{\partial x^2} + \nu \frac{\partial^2 u}{\partial y^2}$$

$$\frac{u_{l+1,i,j} - u_{l,i,j}}{h_t} + u_{l,i} \left(\frac{u_{l,i+1,j} - u_{l,i-1,j}}{2h_x} + \frac{u_{l,i,j+1} - u_{l,i,j-1}}{2h_y} \right) = \nu \left(\frac{u_{l,i+1,j} - 2u_{l,i,j} + u_{l,i-1,j}}{h_x^2} + \frac{u_{l,i,j+1} - 2u_{l,i,j} + u_{l,i,j-1}}{h_y^2} \right)$$

$$u_{l+1,i,j} = u_{l,i,j} + h_t \left[\nu \left(\frac{u_{l,i+1,j} - 2u_{l,i,j} + u_{l,i-1,j}}{h_x^2} + \frac{u_{l,i,j+1} - 2u_{l,i,j} + u_{l,i,j-1}}{h_y^2} \right) + u_{l,i} \left(\frac{u_{l,i+1,j} - u_{l,i-1,j}}{2h_x} + \frac{u_{l,i,j+1} - u_{l,i,j-1}}{2h_y} \right) \right]$$