

## DESCRIPTION

BHS

*Lid-driven<sub>Gordon</sub> equation*

$$u \cdot \nabla u + \nabla p - \frac{1}{Re} \Delta u = 0$$

$$x \in [0, 1], y \in [0, 1]$$

$$\nabla \cdot u = 0$$

$$u(x, y) = (1, 0), \quad y = 1$$

$$u(x, y) = (0, 0), \quad x = 0, x = 1, y = 0$$

$$Re = 100$$

$$\mathbf{u}(\mathbf{x}, \mathbf{y}) = (u(x, y), v(x, y))$$

$$uu_x + vu_y + p_x - \frac{1}{Re}(u_{xx} + u_{yy}) = 0$$

$$uv_x + vv_y + p_y - \frac{1}{Re}(v_{xx} + v_{yy}) = 0$$

$$u_x + v_y = 0$$

## REFERENCES

- [1] Wang S, Teng Y, Perdikaris P. Understanding and mitigating gradient flow pathologies in physics-informed neural networks[J]. SIAM Journal on Scientific Computing, 2021, 43(5): A3055-A3081.