

## DESCRIPTION

BHS

$$\begin{aligned} & \textit{Klein - Gordon equation} \\ & u_{tt} + \alpha u_{xx} + \beta u + \gamma u^k = f(x, t) \\ & x \in [0, 1], t \in [0, 1] \\ & u(x, 0) = x \\ & u_t(x, 0) = 0 \\ & u(x, t) = h(x, t) \end{aligned}$$

$$u(x, t) = x \cos(5\pi t) + (xt)^3$$

## 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.