

# 1 Theory

$$\begin{aligned}\mathcal{L}u(x) &= \lambda u(x) \\ u(x_l) &= u(x_r) = u_b\end{aligned}$$

$$L = \frac{1}{M} \sum_{i=0}^{M-1} (\mathcal{L}u(x_i, \lambda) - \lambda u(x_i, \lambda))^2 + \alpha_{norm} L_{norm} + \alpha_{drive} L_{drive} \quad (1)$$

$$L_{norm} = \left( \sum_{i=0}^{M-1} u(x_i, \lambda)^2 - \frac{M}{x_r - x_l} \right)^2 \quad (2)$$

$$L_{drive} = e^{c-\lambda} \quad (3)$$

$$L = \frac{1}{M} \sum_{i=0}^{M-1} (\mathcal{L}u(x_i, \lambda) - \lambda u(x_i, \lambda))^2 + \alpha_{norm} L_{norm} + \alpha_{ortho} L_{ortho} \quad (4)$$

$$L_{ortho} = \sum_{i=0}^{M-1} u(x_i, \lambda) u_{prev}(x_i, \lambda_{prev}) \quad (5)$$

$$\begin{aligned}u(x, \lambda) &= u_b + g(x) NN(x, \lambda) \\ g(x) &= (1 - e^{-(x-x_l)^2})(1 - e^{-(x-x_r)^2})\end{aligned}$$