

$$\left\{ \begin{array}{ll} \partial_{tt}u - \Delta u + q(x)u = 0 & \text{in } (0, T) \times \Omega \\ u(0, x) = 0 & \text{in } \Omega \\ \partial_t u(0, x) = 0 & \text{in } \Omega \\ \frac{\partial u}{\partial \mathbf{n}} = g(t, \sigma) & \text{on } (0, T) \times \partial\Omega. \end{array} \right.$$

$$\left\{ \begin{array}{ll} \partial_{tt}u - \Delta u + q(x)u = 0 & \text{in } (0, T) \times \Omega \\ -\Delta v = q(x)\partial_t u & \text{in } \Omega \end{array} \right.$$