Entangled Basis Finite Element Method PDE solver for Quantum Computer

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1. FINITE ELEMENT METHOD (FEM)

2. TENSOR NETWORK (TN)

3. TARGET EQUATION

In this work, we will focus on a class of partial differential equation (PDE) of a function of time and space, $u(t,)$, that is linear in time, i.e., the PDE can be written in the form

$$\frac{\partial}{\partial t} \tag{3.1}$$

4. FEM REPRESENTATION OF LTS-PDE

5. TENSOR OPTIMIZATION

6. MATRIX PRODUCT STATE (MPS) REPRESENTATION

7. IMPLEMENTATION