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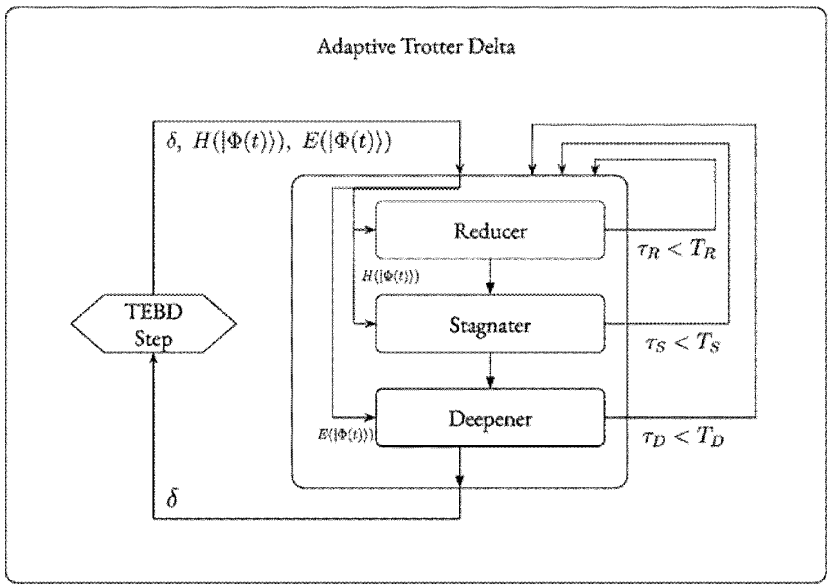


FIG. 3

(57) Abstract: A system and method for minimizing an objective function with constraints using an optimal tensor network configuration with symmetries are provided. The system comprises a non-transitory computer-readable memory and a processor in communication with the memory storing program instructions. The program instructions, when executed by a processor, causes the processor to: receive an objective function and one or more constraints for optimization; generate a time evolution block decimation (TEBD) process based on the objective function without the one or more constraints: generate a tensor network based on the objective function with symmetries to satisfy the one or more constraints; and find the optimal tensor network that optimizes the objective function using the TEBD process. Generating the tensor network may include applying the symmetries to transform the objective function into an unconstrained quadratic unconstrained binary optimization (QUBO) model.

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