**Whole-Device Graphstate Procedure**

1. Choose quantum device
2. **OPTIMISATION**: Perform initial QREM measurements
3. Prepare the initial graphstate preparation circuit by forming cz gates over every physical edge
   1. **OPTIMISATION**: Minimize circuit depth by forming connections in parallel
4. Construct measurement circuits for quantum state tomography over each physical edge and corresponding adjacent qubits
   1. Option A: Perform full state tomography over all qubits in target edge and adjacent qubits
   2. Option B: Perform state tomography only over target edge and measure adjacent qubits in computational basis
   3. **OPTIMISATION**: Perform tomography over target edges in parallel (batches). [Possible cross-talk between qubits when performing tomography in parallel?]
5. Measure quantum state tomography circuits
   1. **OPTIMISATION**: Apply QREM results
6. Reconstruct density matrices from measurement results
   1. If option B: Bucket results for each Z-basis measurement combination of adjacent qubits
   2. Obtain Stoke’s parameter for each basis measurement combination
   3. Construct the density matrix by taking the linear combinations of each basis tensor products multiplied by their respective Stoke’s parameter
   4. Find the closest physical density matrix
   5. If option A: Project adjacent qubits onto different combinations in the Z-basis
7. Take the partial transpose of the resultant density matrix
8. Calculate the negativity by summing the absolute values of the negative eigenvalues
9. **EXTENSION**: Perform measurements with variable time delay and monitor negativity values over-time

**Test Comparisons**

1. Option A vs Option B Quantum state tomography
2. Batch tomography vs individual tomography
   1. Crosstalk between parallel tomography sub-circuits

**Further Research:**

1. Stoke’s parameter
2. Obtain closest physical density matrix (Smolin): https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.108.070502
3. What is negativity?
4. QREM