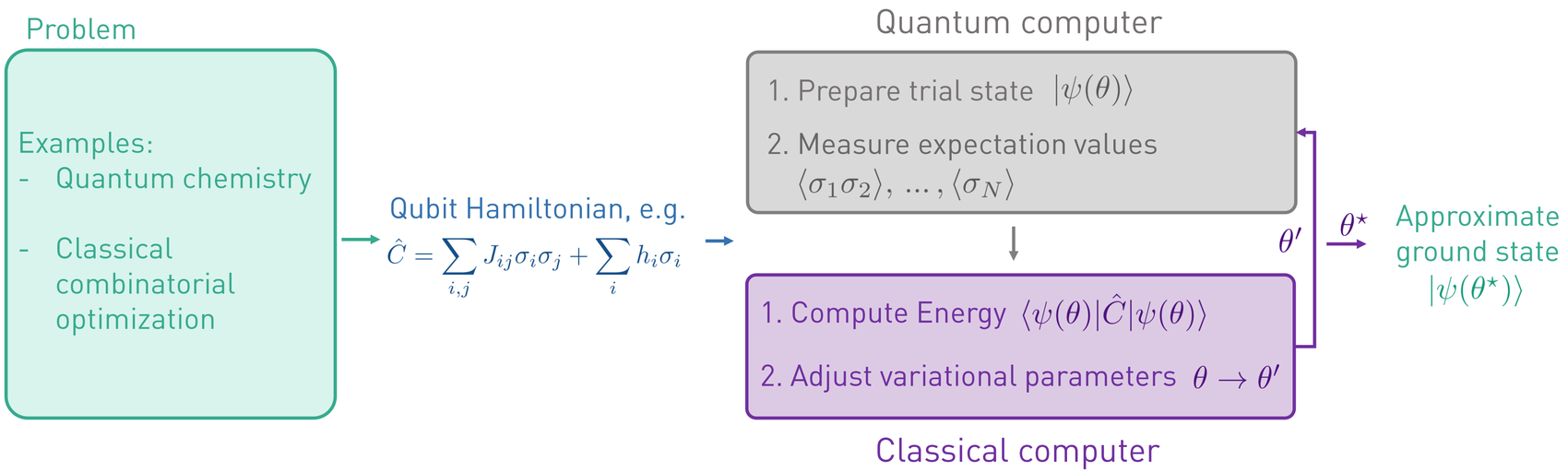
Problem
Examples:
- Quantum chemistry
- Classical combinatorial optimization
Qubit Hamiltonian, e.g.
$\hat{C} = \sum_{i,j} J_{ij}\sigma_i\sigma_j + \sum_i h_i\sigma_i$
Quantum computer
1. Prepare trial state $|\psi(\theta)\rangle$
2. Measure expectation values $\langle\sigma_1\sigma_2\rangle, \ldots, \langle\sigma_N\rangle$
1. Compute Energy $\langle\psi(\theta)|\hat{C}|\psi(\theta)\rangle$
2. Adjust variational parameters $\theta \to \theta'$
θ'
$\theta^\star$
Approximate ground state $|\psi(\theta^\star)\rangle$
Classical computer