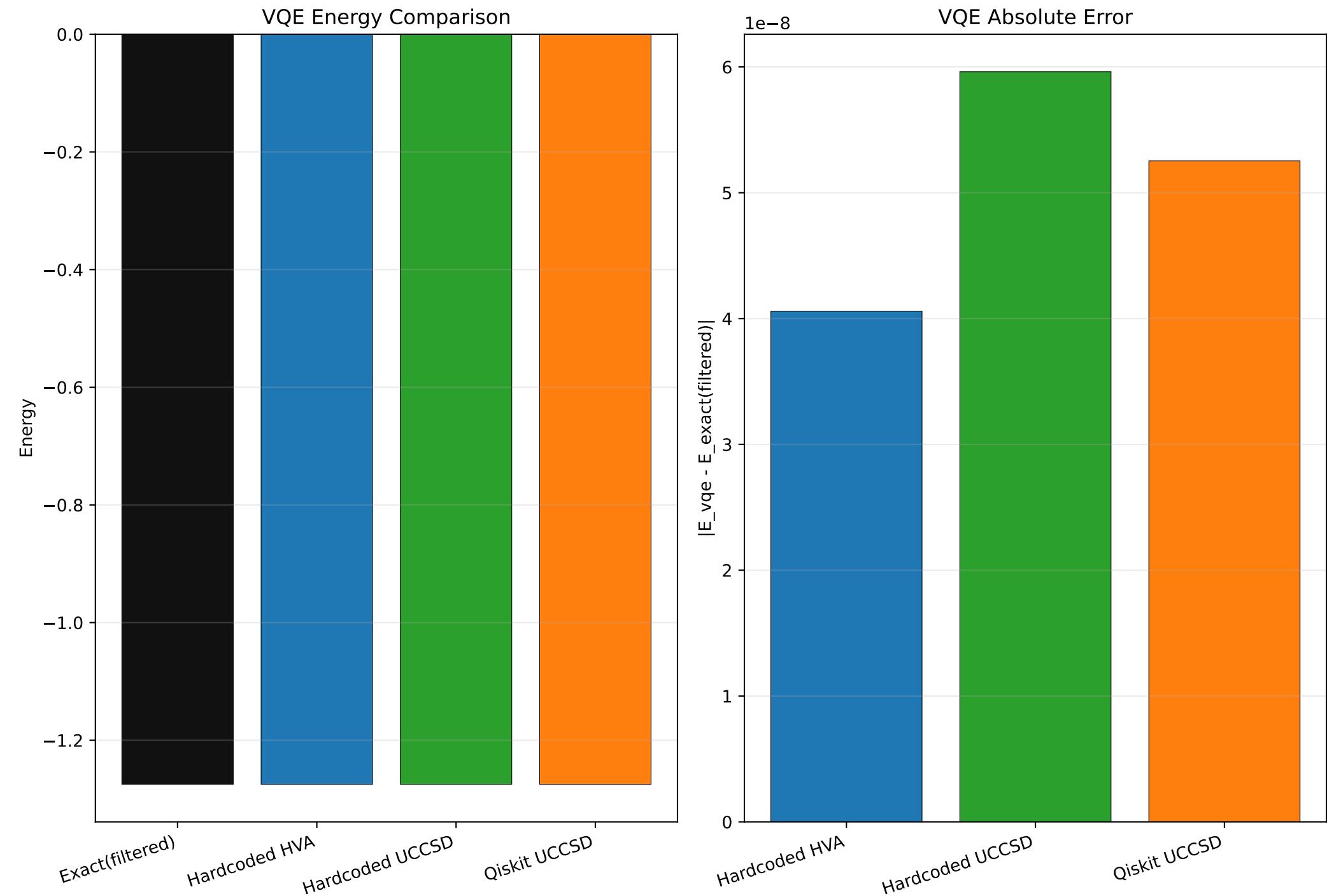


L=3 HVA vs UCCSD vs Qiskit-UCCSD

```
exact_filtered_energy=-1.2749172176353751
hva_vqe_energy=-1.2749171770448173
hardcoded_uccsd_vqe_energy=-1.2749171580200909
qiskit_uccsd_vqe_energy=-1.2749171651039366

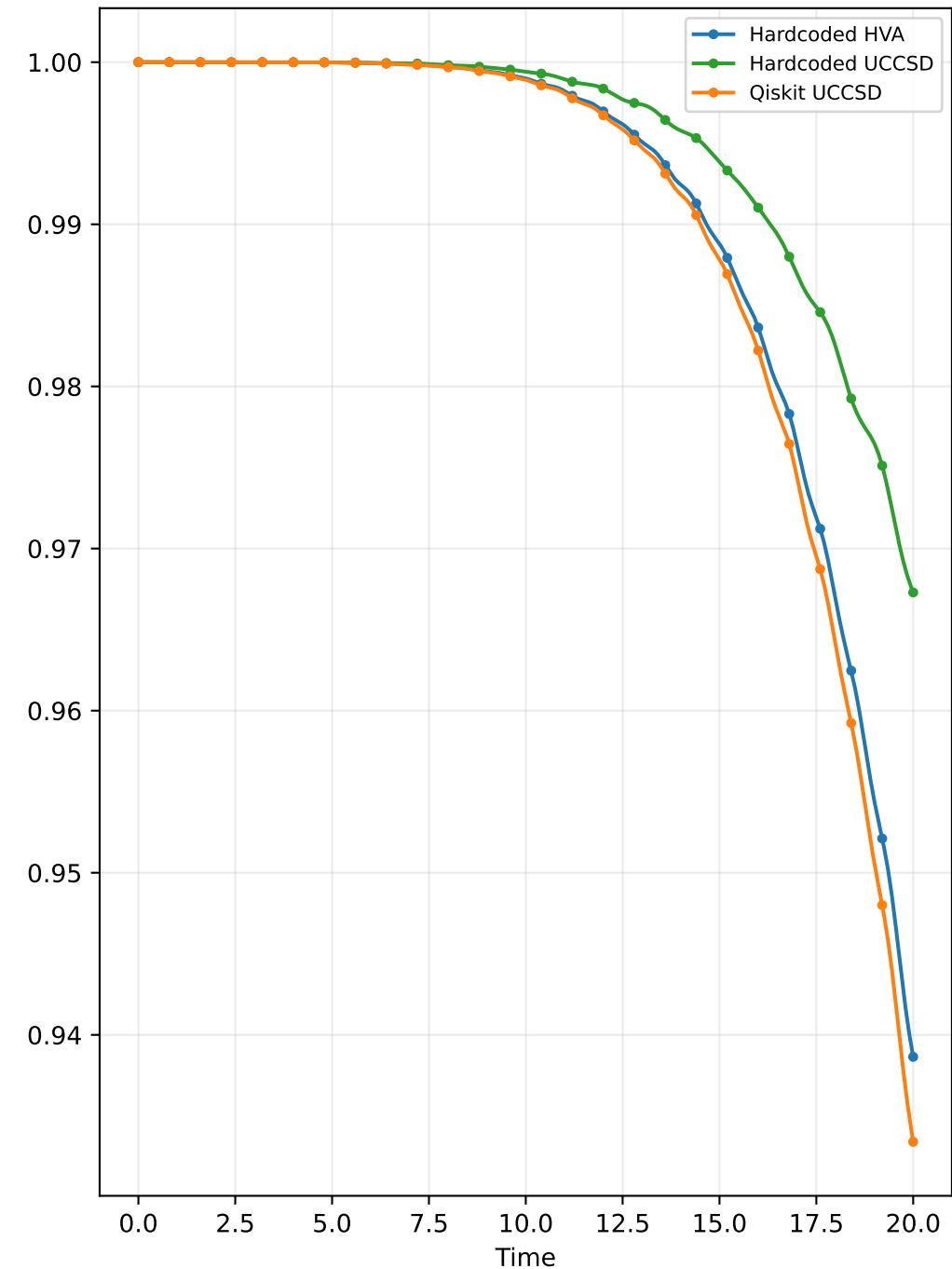
sanity:
exact_filtered_finite=True
vqe_energy_finite={'hva': True, 'hardcoded_uccsd': True, 'qiskit_uccsd': True}
vqe_energy_ge_exact_filtered_minus_1e-8={'hva': True, 'hardcoded_uccsd': True, 'qiskit_uccsd': True}
all_pass=True
```

L=3: Ground-State Comparison

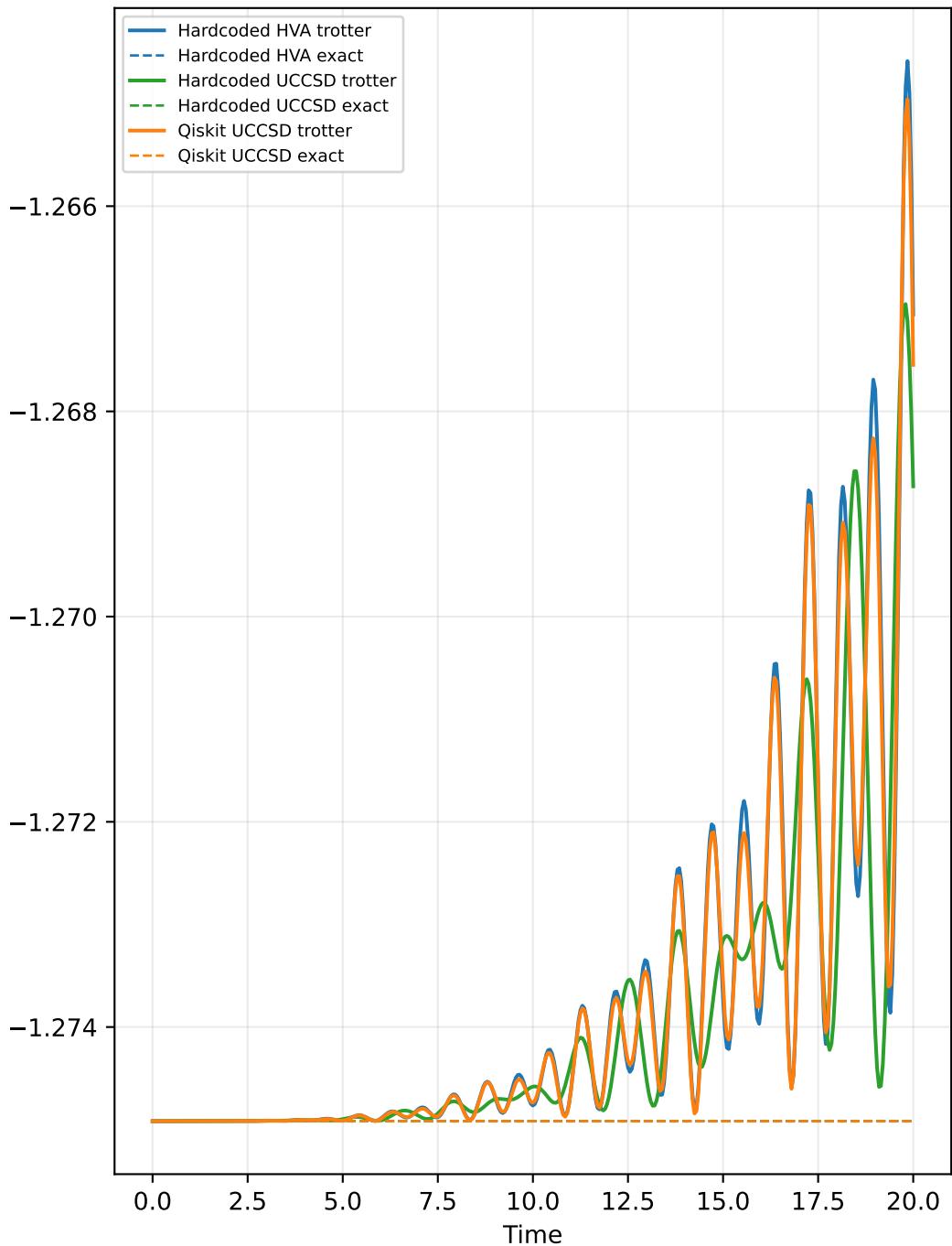


L=3: Dynamics Overview

Fidelity(t)

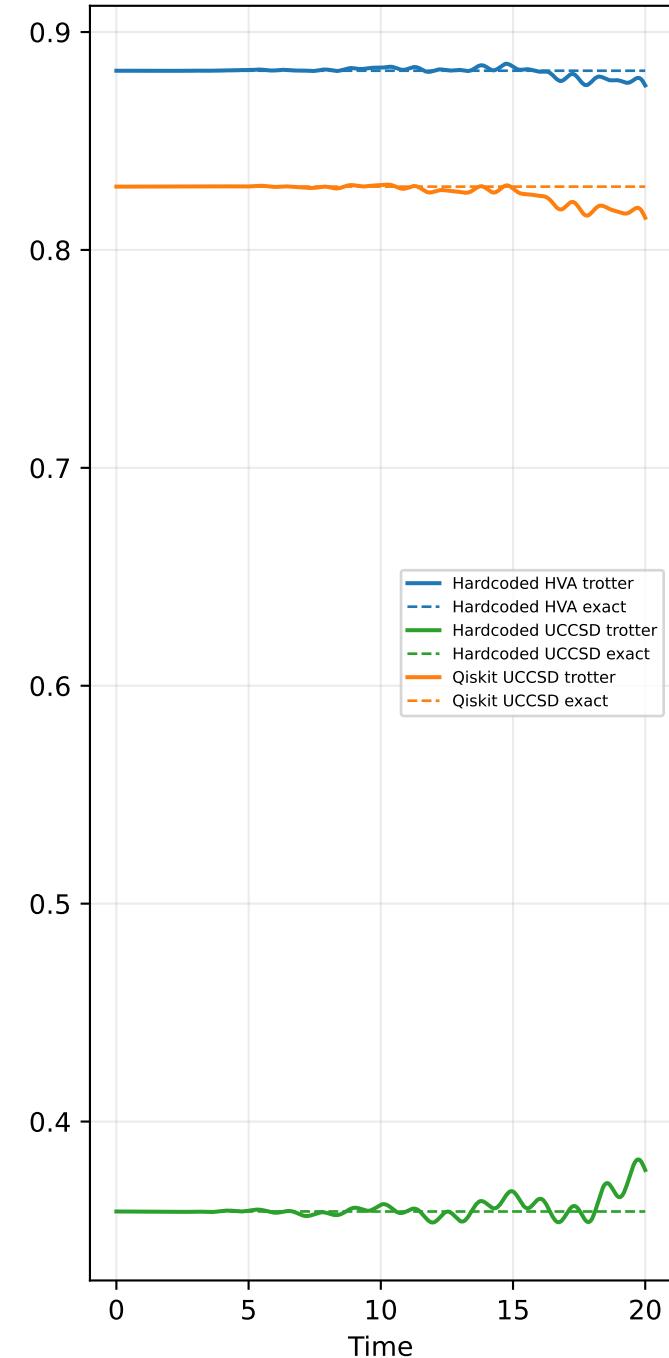


Energy(t): trotter + exact

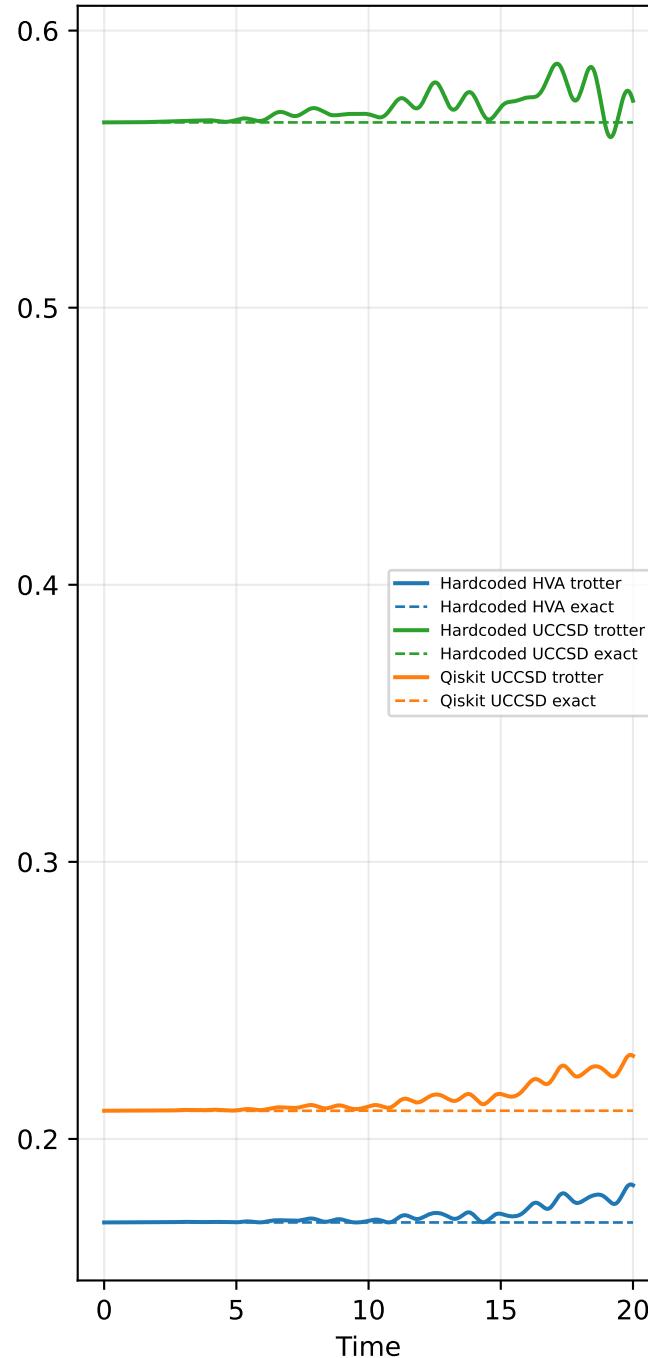


L=3: Occupations & Doublon (trotter vs exact)

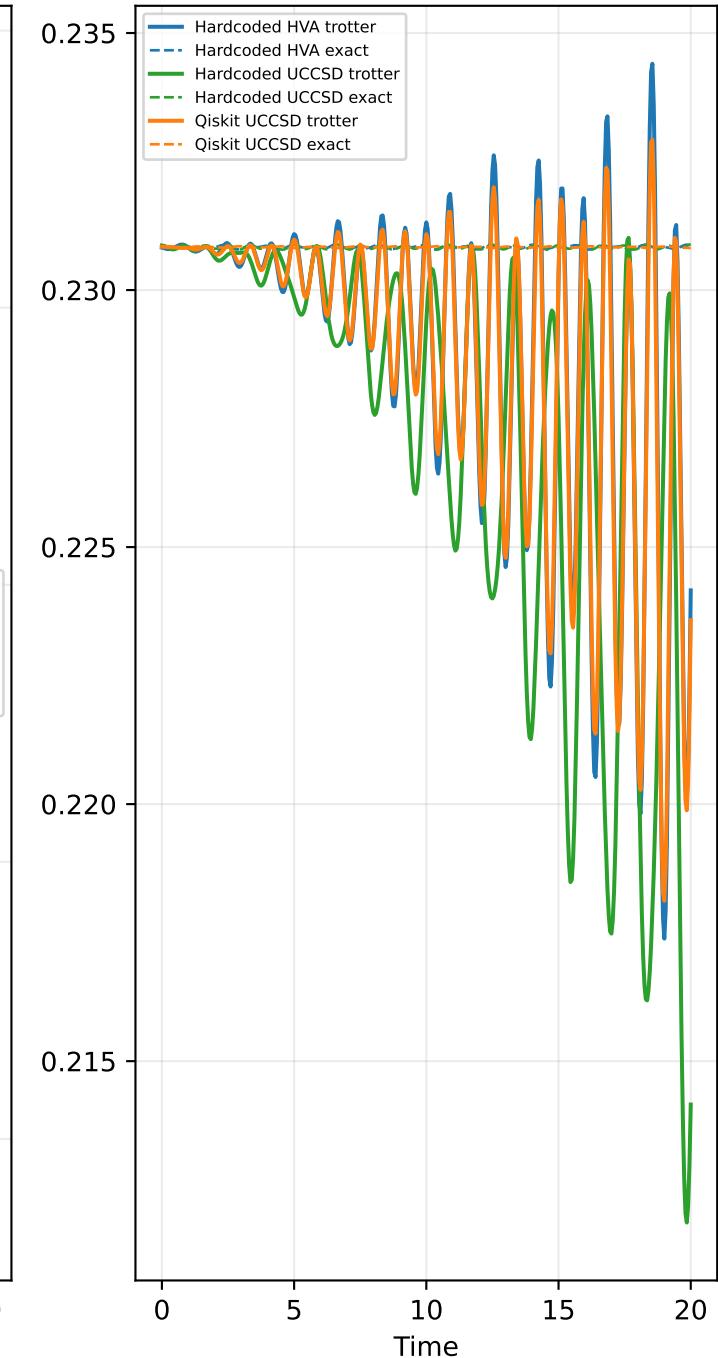
Site-0 n_up



Site-0 n_dn

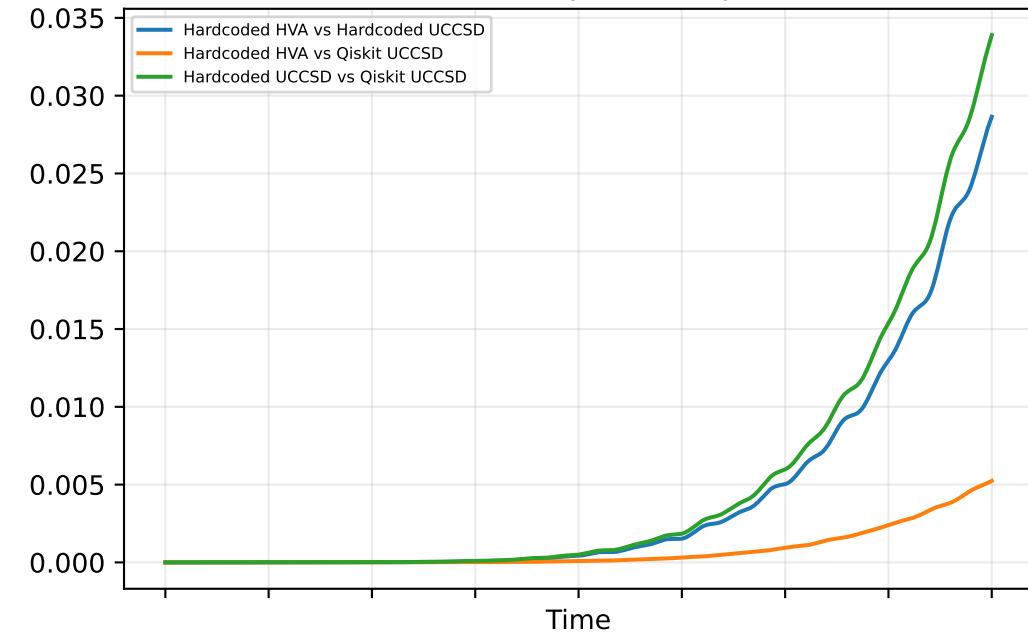


Doublon

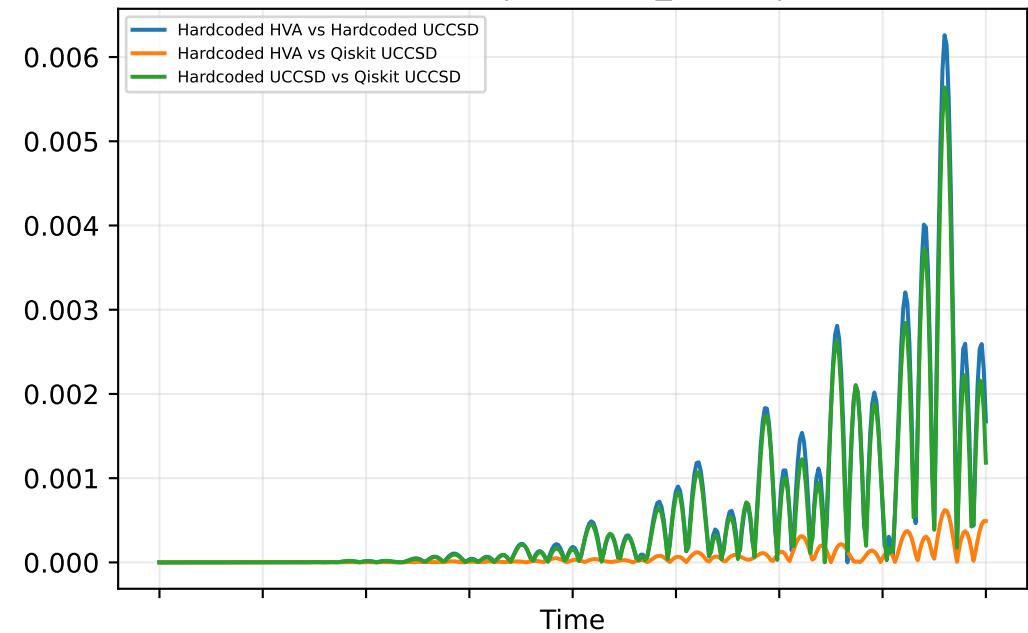


L=3: Pairwise Deltas

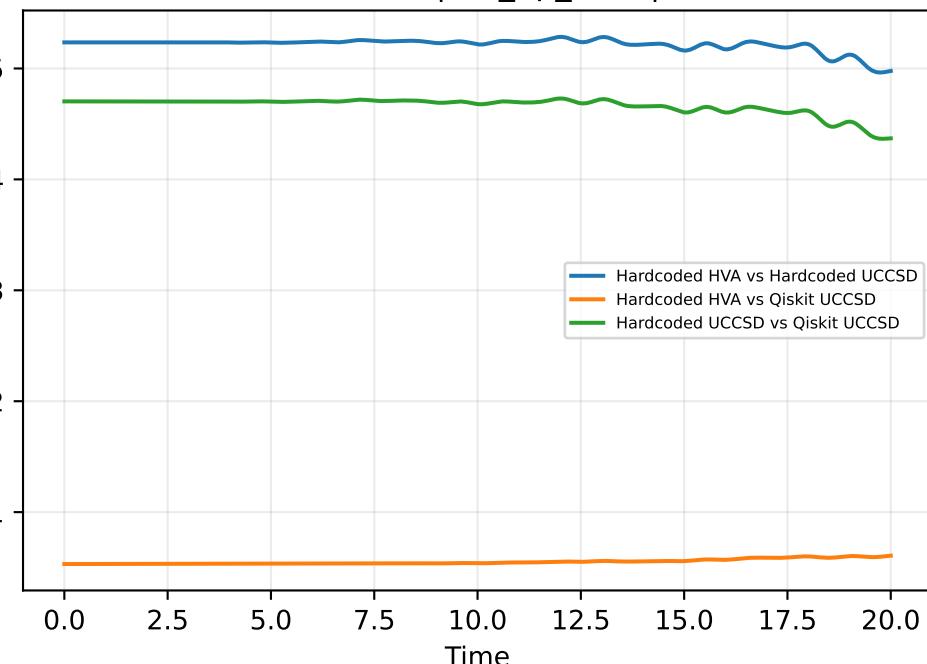
Pairwise $|\Delta \text{ fidelity}|$



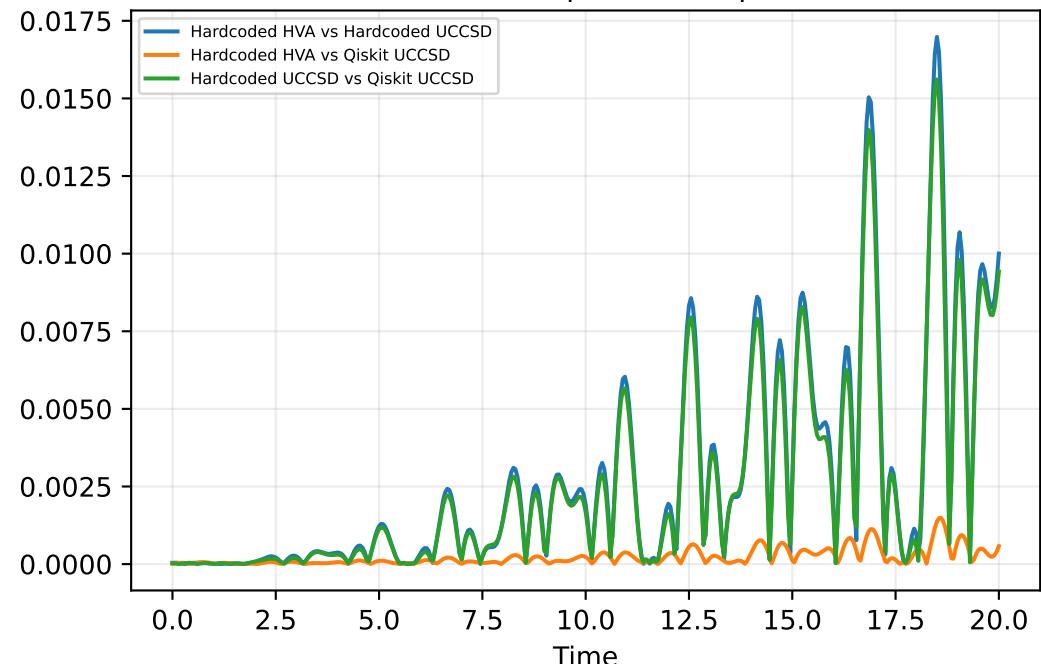
Pairwise $|\Delta \text{ energy_trotter}|$



Pairwise $|\Delta n_{\text{up_site}0}|$

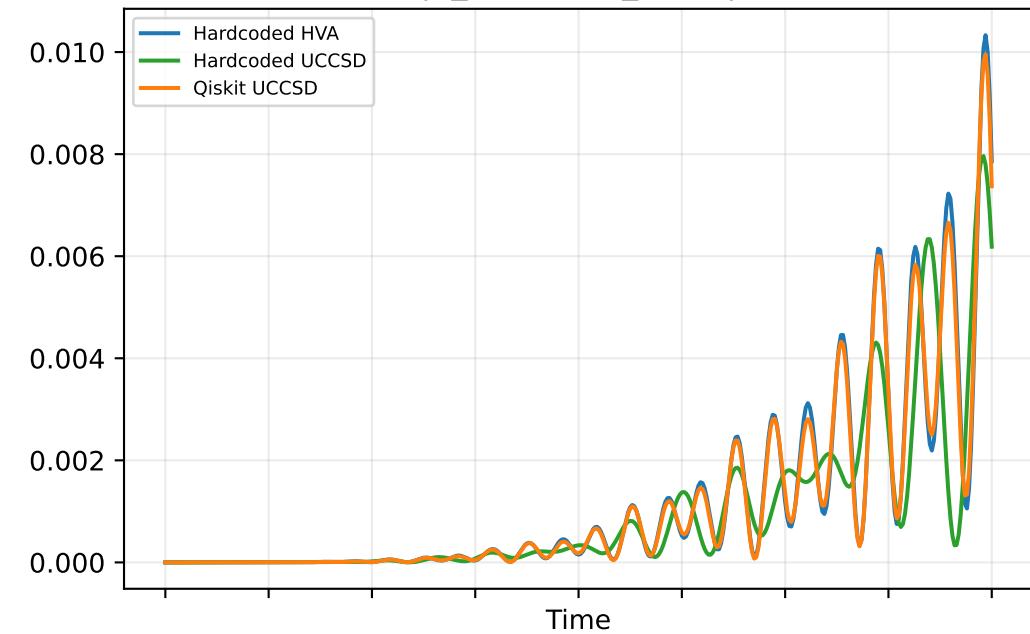


Pairwise $|\Delta \text{ doublon}|$

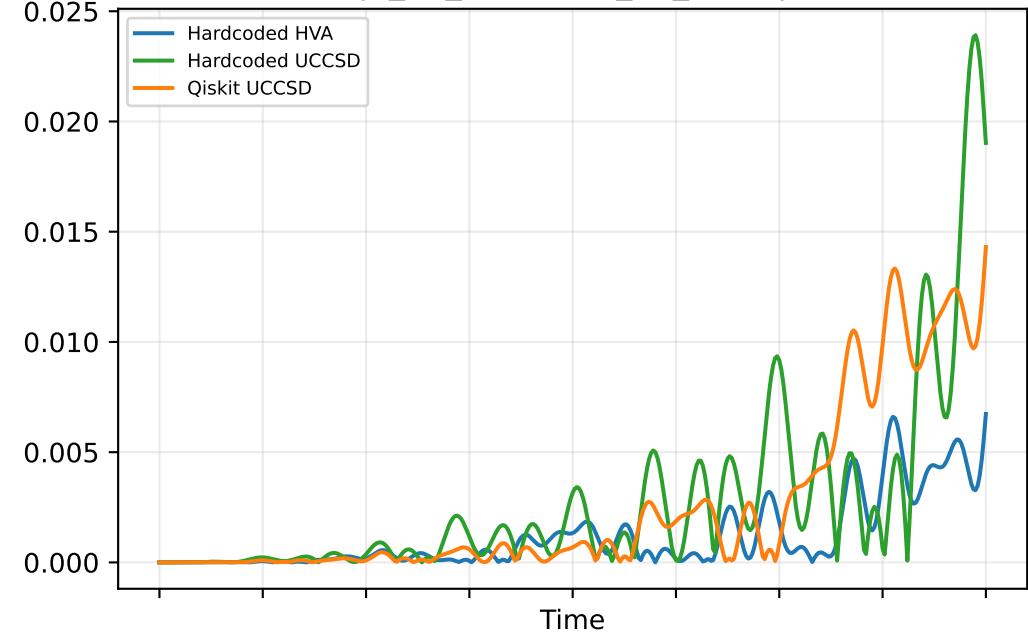


L=3: Per-Method Error vs Exact

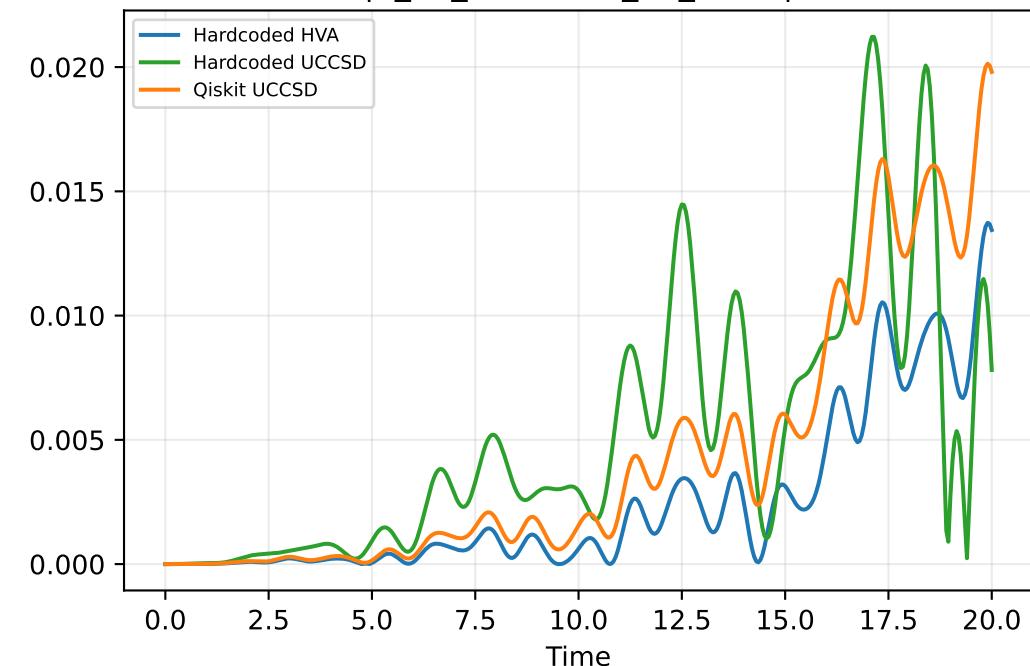
$|E_{\text{trotter}} - E_{\text{exact}}|$



$|n_{\text{up,trotter}} - n_{\text{up,exact}}|$



$|n_{\text{dn,trotter}} - n_{\text{dn,exact}}|$



$|doublon_{\text{trotter}} - doublon_{\text{exact}}|$

