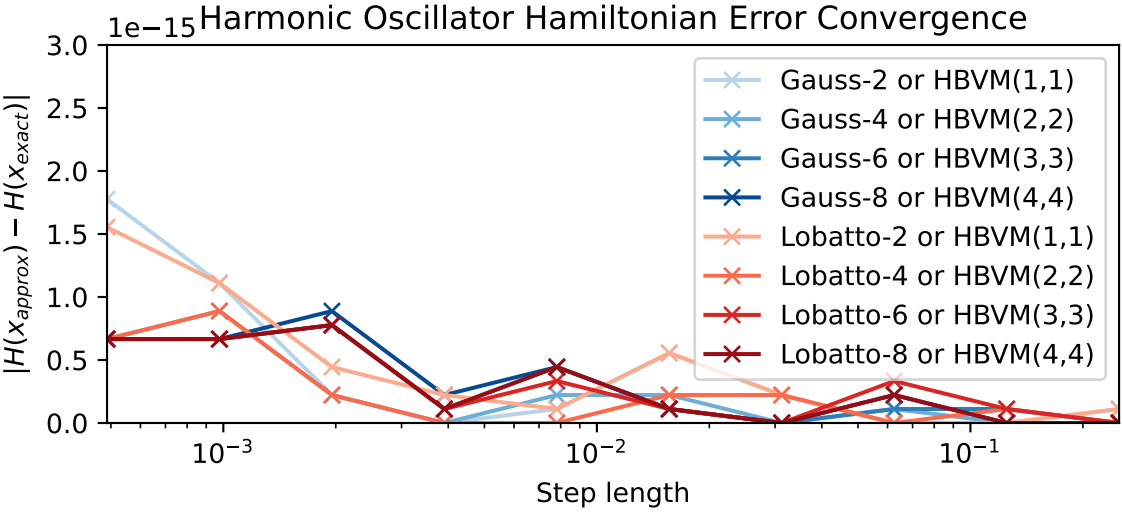
Harmonic Oscillator Hamiltonian Error Convergence
1e−15
3.0
2.5
2.0
1.5
1.0
0.5
0.0
$|H(x_{approx}) - H(x_{exact})|$
10^{-3}
10^{-2}
10^{-1}
Step length
Gauss-2 or HBVM(1,1)
Gauss-4 or HBVM(2,2)
Gauss-6 or HBVM(3,3)
Gauss-8 or HBVM(4,4)
Lobatto-2 or HBVM(1,1)
Lobatto-4 or HBVM(2,2)
Lobatto-6 or HBVM(3,3)
Lobatto-8 or HBVM(4,4)