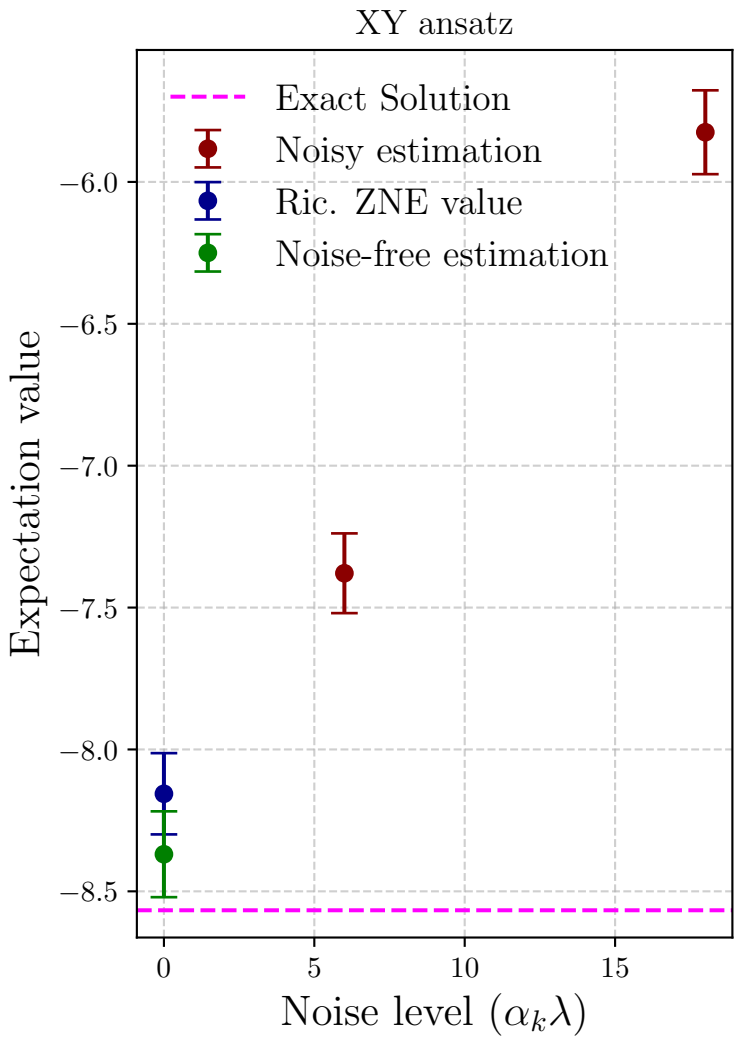
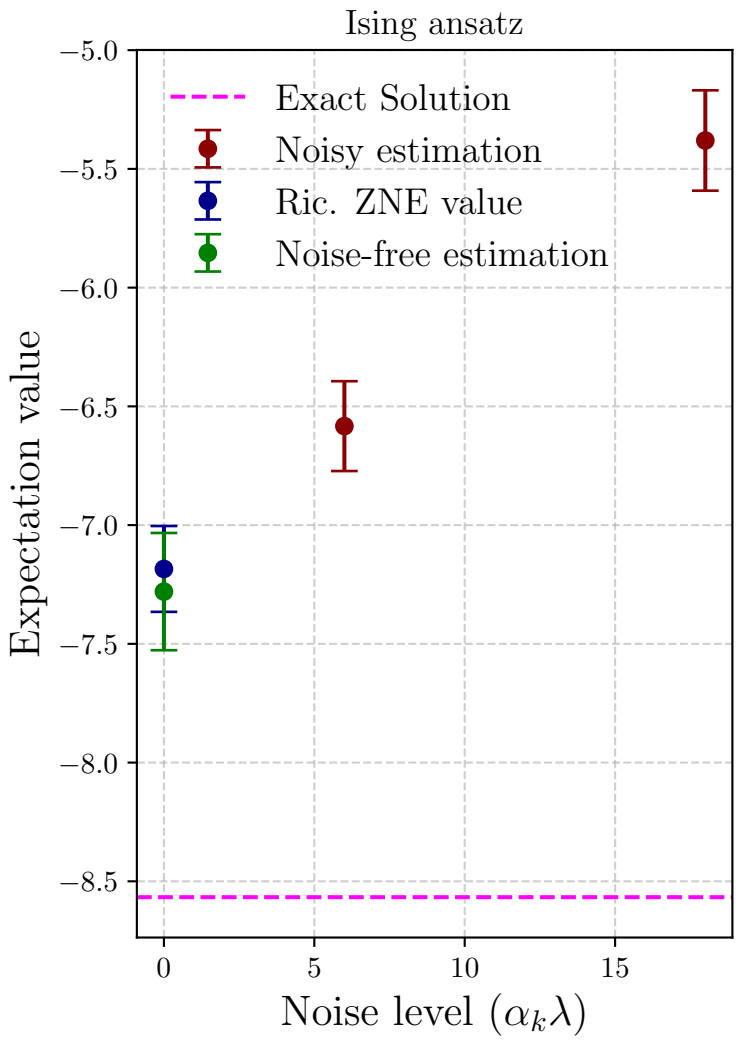
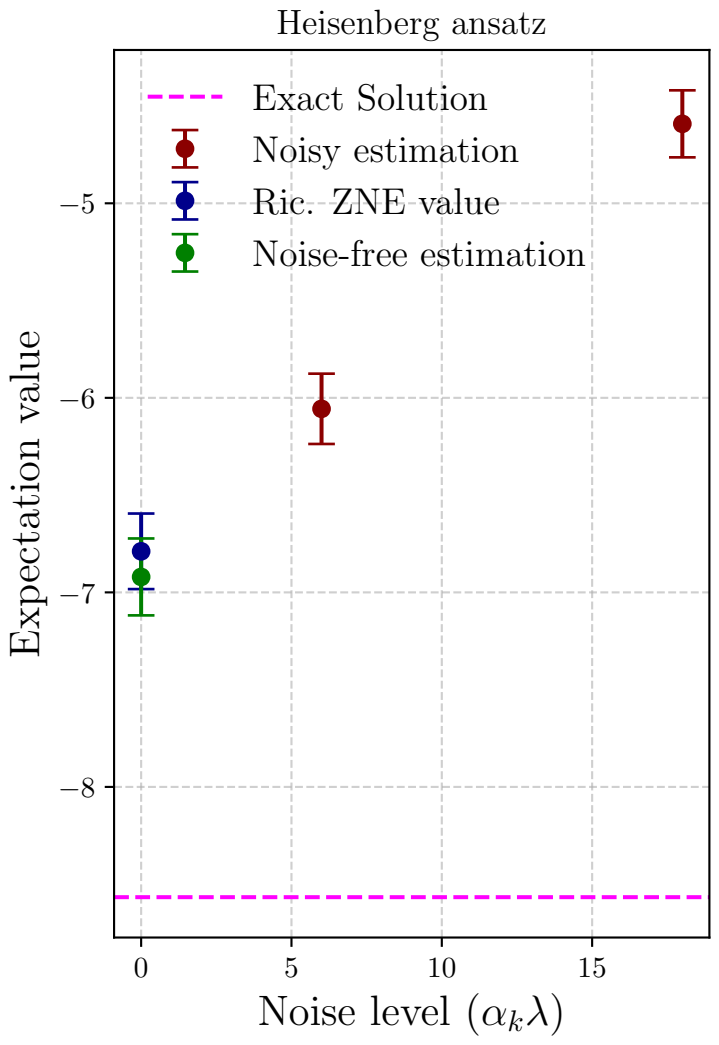
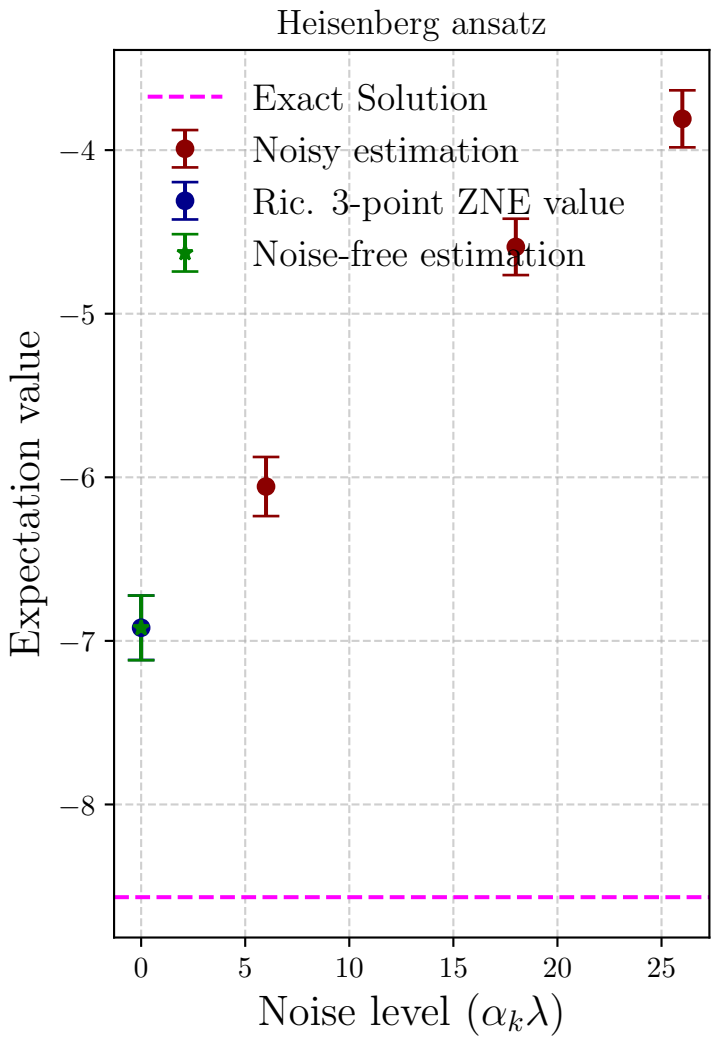
Anstze with noise-free time-evolution.
Noise: Depolarizing, [0.001,0.001,0,0]

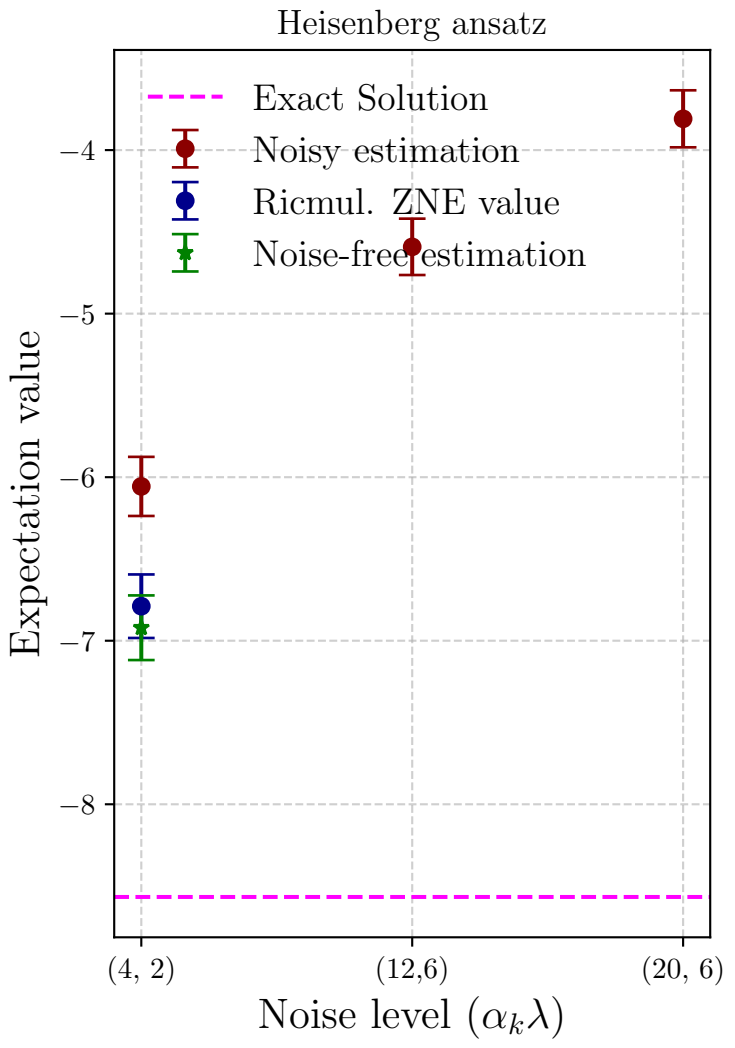
Title	Simulation	Mean	Std
xy	vqe	-7.379092083216174	0.14051949985579798
xy	redundant (noise=6)	-7.379092083216115	0.14051949985579046
xy	redundant (noise=18)	-5.824916251047478	0.1477491400189833
xy	zne	-8.156179999300434	0.14316522047529734
xy	noiseoff	-8.369342611101047	0.15124979844206457
ising	vqe	-6.583152545992618	0.18915423038578477
ising	redundant (noise=6)	-6.583152545992628	0.1891542303858077
ising	redundant (noise=18)	-5.380444453773971	0.2113251022452117
ising	zne	-7.184506592101956	0.18074166336647968
ising	noiseoff	-7.2800222505553736	0.24690963596051196
heisenberg	vqe	-6.056457299952753	0.1806957231807042
heisenberg	redundant (noise=6)	-6.056457299952717	0.18069572318071422
heisenberg	redundant (noise=18)	-4.591528569882986	0.17227869097031923
heisenberg	zne	-6.788921664987581	0.19421201884782338
heisenberg	noiseoff	-6.9205461139528435	0.19766791757742266
heisenberg-ric3	vqe	-6.056457299952753	0.1806957231807042
heisenberg-ric3	redundant (noise=6)	-6.056457299952717	0.18069572318071436
heisenberg-ric3	redundant (noise=18)	-4.591528569882987	0.17227869097031917
heisenberg-ric3	redundant (noise=26)	-3.80869593495965	0.17433124795481902
heisenberg-ric3	zne	-6.919727564945707	0.19696437844337153
heisenberg-ric3	noiseoff	-6.9205461139528435	0.19766791757742266
heisenberg-ricmul	vqe	-6.056457299952753	0.1806957231807042
heisenberg-ricmul	redundant (noise=(4, 2))	-6.056457299952716	0.1806957231807142
heisenberg-ricmul	redundant (noise=(12,6))	-4.591528569882987	0.17227869097031925
heisenberg-ricmul	redundant (noise=(20, 6))	-3.80869593495965	0.17433124795481897
heisenberg-ricmul	zne	-6.788921664987581	0.19421201884782324
heisenberg-ricmul	noiseoff	-6.9205461139528435	0.19766791757742266


XY ansatz
Exact Solution
Noisy estimation
Ric. ZNE value
Noise-free estimation
Expectation value
−6.0
−6.5
−7.0
−7.5
−8.0
−8.5
0
5
10
15
Noise level ($\alpha_k\lambda$)


Ising ansatz
Exact Solution
Noisy estimation
Ric. ZNE value
Noise-free estimation
Expectation value
Noise level ($\alpha_k\lambda$)
−5.0
−5.5
−6.0
−6.5
−7.0
−7.5
−8.0
−8.5
0
5
10
15


Heisenberg ansatz
Exact Solution
Noisy estimation
Ric. ZNE value
Noise-free estimation
Expectation value
−5
−6
−7
−8
0
5
10
15
Noise level ($\alpha_k\lambda$)


Heisenberg ansatz
Exact Solution
Noisy estimation
Ric. 3-point ZNE value
Noise-free estimation
Expectation value
−4
−5
−6
−7
−8
0
5
10
15
20
25
Noise level ($\alpha_k\lambda$)


Heisenberg ansatz
Exact Solution
Noisy estimation
Ricmul. ZNE value
Noise-free estimation
−4
−5
−6
−7
−8
Expectation value
(4, 2)
(12,6)
(20, 6)
Noise level ($\alpha_k\lambda$)

XY CONFIGURATION

Parameter	Value
run	vqe
nqubits	7
state	dmatrix
output.file_name_prefix	xy_noisefree_time_evo
output.draw.status	True
output.draw.fig_dpi	100
output.draw.type	png
observable.def	ising
observable.coefficients.cn	[0.5, 0.5, 0.5, 0.5, 0.5, 0.5]
observable.coefficients.bn	[1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0]
observable.coefficients.r	1
ansatz.layer	30
ansatz.gateset	1
ansatz.ugate.type	xy-iss
ansatz.ugate.coefficients.cn	[0.5, 0.5, 0.5, 0.5, 0.5, 0.5]
ansatz.ugate.coefficients.bn	[0, 0, 0, 0, 0, 0, 0]
ansatz.ugate.coefficients.r	0
ansatz.ugate.time.min	0.0
ansatz.ugate.time.max	10.0
vqe.iteration	10
vqe.optimization.status	True
vqe.optimization.algorithm	SLSQP
vqe.optimization.constraint	True
init_param.value	random
noise_profile.status	True
noise_profile.type	depolarizing
noise_profile.noise_prob	[0.001, 0.001, 0, 0]
noise_profile.noise_on_init_param.status	False
noise_profile.noise_on_init_param.value	0
redundant.identity_factors	[[0, 0, 0, 0], [1, 1, 0, 0]]
zne.method	richardson
zne.degree	1
zne.sampling	default
zne.data_points	

ISING CONFIGURATION

Parameter	Value
run	vqe
nqubits	7
state	dmatrix
output.file_name_prefix	ising_noisefree_time_evo
output.draw.status	True
output.draw.fig_dpi	100
output.draw.type	png
observable.def	ising
observable.coefficients.cn	[0.5, 0.5, 0.5, 0.5, 0.5, 0.5]
observable.coefficients.bn	[1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0]
observable.coefficients.r	1
ansatz.layer	30
ansatz.gateset	1
ansatz.ugate.type	ising
ansatz.ugate.coefficients.cn	[0.5, 0.5, 0.5, 0.5, 0.5, 0.5]
ansatz.ugate.coefficients.bn	[0, 0, 0, 0, 0, 0, 0]
ansatz.ugate.coefficients.r	0
ansatz.ugate.time.min	0.0
ansatz.ugate.time.max	10.0
vqe.iteration	10
vqe.optimization.status	True
vqe.optimization.algorithm	SLSQP
vqe.optimization.constraint	True
init_param.value	random
noise_profile.status	True
noise_profile.type	depolarizing
noise_profile.noise_prob	[0.001, 0.001, 0, 0]
noise_profile.noise_on_init_param.status	False
noise_profile.noise_on_init_param.value	0
redundant.identity_factors	[[0, 0, 0, 0], [1, 1, 0, 0]]
zne.method	richardson
zne.degree	1
zne.sampling	default
zne.data_points	

HEISENBERG CONFIGURATION

Parameter	Value
run	vqe
nqubits	7
state	dmatrix
output.file_name_prefix	heisenberg_noisefree_time_evo
output.draw.status	True
output.draw.fig_dpi	100
output.draw.type	png
observable.def	ising
observable.coefficients.cn	[0.5, 0.5, 0.5, 0.5, 0.5, 0.5]
observable.coefficients.bn	[1.0, 1.0, 1.0, 1.0, 1.0, 1.0, 1.0]
observable.coefficients.r	1
ansatz.layer	30
ansatz.gateset	1
ansatz.ugate.type	heisenberg
ansatz.ugate.coefficients.cn	[0.5, 0.5, 0.5, 0.5, 0.5, 0.5]
ansatz.ugate.coefficients.bn	[0, 0, 0, 0, 0, 0, 0]
ansatz.ugate.coefficients.r	0
ansatz.ugate.time.min	0.0
ansatz.ugate.time.max	10.0
vqe.iteration	10
vqe.optimization.status	True
vqe.optimization.algorithm	SLSQP
vqe.optimization.constraint	True
init_param.value	random
noise_profile.status	True
noise_profile.type	depolarizing
noise_profile.noise_prob	[0.001, 0.001, 0, 0]
noise_profile.noise_on_init_param.status	False
noise_profile.noise_on_init_param.value	0
redundant.identity_factors	[[0, 0, 0, 0], [1, 1, 0, 0]]
zne.method	richardson
zne.degree	1
zne.sampling	default
zne.data_points	