QAOA

q \ k	2	3	4	5	6	7	8	9
1e+08	1.2	-4.1	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+07	4.8	-4.4	-1.9	-3.1	8.2	-29.1	-20.2	-11.4
1e+06	4.2	0.8	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e+05	-1.9	7.9	1.7	-2.7	7.5	-29.1	-20.2	-11.4
1e+04	2.3	0.5	-1.9	-3.2	7.1	-29.1	-20.2	-11.4
1e+03	7.7	5.3	-1.9	-3.1	7.5	-29.1	-20.2	-11.4
1e+02	1.7	-3.9	-1.9	-3.2	8.1	-29.1	-22.7	-11.4
1e+01	-3.0	6.0	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e+00	-1.5	-4.1	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e-01	-3.9	0.4	1.4	-3.1	7.6	-31.5	-22.6	-11.4
1e-02	6.8	-0.7	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e-03	-0.1	5.4	-1.9	-3.2	7.6	-29.1	-20.2	-11.4

q = 0e+00

q \ k	2	3	4	5	6	7	8	9
1e+08	5.1	7.9	-1.6	-2.7	7.6	-29.1	-20.2	-11.4
1e+07	-4.3	5.5	-1.9	-3.2	7.6	-31.4	-20.2	-11.4
1e+06	-1.8	7.8	-1.9	-3.1	8.1	-29.1	-20.2	-11.4
1e+05	1.4	5.1	1.3	-3.1	8.1	-29.1	-20.2	-11.4
1e+04	7.4	-4.9	-1.9	-3.1	7.6	-29.1	-22.6	-11.4
1e+03	-0.9	-3.9	-1.5	-2.7	8.1	-29.1	-20.2	-11.4
1e+02	2.0	1.0	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e+01	-4.9	5.3	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e+00	-2.1	5.3	-1.9	-3.2	8.1	-29.1	-20.2	-11.4
1e-01	-1.8	0.4	1.5	-2.7	7.6	-29.1	-22.7	-11.4
1e-02	-0.2	4.8	1.5	-3.2	7.5	-29.1	-20.2	-11.4
1e-03	4.7	-2.6	-2.8	-3.2	-1.8	-29.1	-20.2	-11.4

q = 1e-03

q \ k	2	3	4	5	6	7	8	9
1e+08	2.2	7.9	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+07	-3.1	4.6	1.3	-3.1	7.5	-29.1	-22.7	-11.4
1e+06	-0.7	-4.3	-1.9	-3.1	8.2	-29.1	-20.2	-11.4
1e+05	-1.0	0.4	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e+04	0.9	0.4	-1.9	-3.1	7.5	-29.1	-22.7	-11.4
1e+03	-2.4	-0.4	-1.9	-2.6	7.6	-29.1	-20.2	-13.7
1e+02	-1.5	5.3	-1.9	-3.2	7.1	-29.1	-22.7	-11.4
1e+01	-3.2	-0.7	-1.9	-2.7	7.5	-29.1	-20.2	-11.4
1e+00	6.5	-2.0	-1.9	-2.7	7.6	-29.1	-20.2	-11.4
1e-01	0.8	7.9	-1.9	-3.2	7.5	-29.1	-20.2	-11.4
1e-02	-3.6	-1.7	-2.7	-3.2	-4.0	-29.1	-22.7	-11.4
1e-03	-4.1	-0.3	-2.9	-5.0	-4.0	-29.1	-20.2	-11.4

q = 1e-02

q \ k	2	3	4	5	6	7	8	9
1e+08	-1.4	-4.1	-1.9	-3.1	7.5	-29.1	-20.2	-11.4
1e+07	7.9	5.1	-1.5	-3.2	7.5	-29.1	-20.2	-11.4
1e+06	3.4	-0.6	-1.9	-3.1	7.5	-29.1	-20.2	-11.4
1e+05	3.0	7.9	-1.6	7.2	8.1	-29.1	-20.2	-11.4
1e+04	1.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+03	0.2	-4.3	-1.9	-3.1	8.1	-29.1	-20.2	-13.7
1e+02	0.1	-3.9	-1.9	-2.7	7.5	-29.1	-20.2	-13.8
1e+01	-1.3	-0.7	-1.9	-3.2	8.1	-29.1	-20.2	-11.4
1e+00	3.3	5.3	-1.6	-2.5	7.6	-29.1	-20.2	-13.8
1e-01	-2.5	0.8	-2.7	-3.2	-1.8	-29.1	-20.2	-11.4
1e-02	-3.4	-3.6	-2.9	-4.5	3.4	-31.4	-20.2	-11.4
1e-03	-6.9	-4.9	-5.2	-6.9	-4.0	-33.2	-24.4	-15.5

q = 1e-01

q \ k	2	3	4	5	6	7	8	9
1e+08	-3.7	-1.4	1.3	-3.1	8.1	-31.5	-20.2	-11.4
1e+07	-1.1	0.5	1.3	-3.1	7.5	-29.1	-20.2	-11.4
1e+06	3.5	-0.4	-1.6	-3.2	7.6	-29.1	-20.2	-11.4
1e+05	7.3	7.8	1.7	-3.2	7.6	-29.1	-20.2	-11.4
1e+04	-2.6	0.5	1.3	-3.1	7.5	-29.1	-20.2	-11.4
1e+03	5.7	-4.6	1.3	-3.2	7.6	-29.1	-22.6	-11.4
1e+02	-2.7	0.4	-1.9	-3.2	7.6	-29.1	-22.7	-11.4
1e+01	0.3	5.3	-1.9	-3.2	8.1	-29.1	-20.2	-11.4
1e+00	-2.2	-4.3	-1.2	-2.5	-1.8	-29.1	-20.2	-11.4
1e-01	-0.4	-2.3	-2.7	-2.5	-8.1	-29.1	-20.2	-11.4
1e-02	-2.1	-6.5	-5.5	-6.9	-8.1	-31.4	-24.4	-15.5
1e-03	-25.4	-25.2	-33.4	-25.5	-12.9	-35.5	-29.1	-17.9

q = 1e+00

k

SamplerVQE

q \ k	2	3	4	5	6	7	8	9
1e+08	-3.0	-3.9	-1.9	-2.7	7.1	-29.1	-20.2	-11.4
1e+07	5.3	5.5	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+06	0.3	1.0	-1.9	-2.7	8.1	-29.1	-20.2	-11.4
1e+05	0.2	-4.1	-0.3	5.2	-2.3	-29.1	-20.2	-11.4
1e+04	0.6	-0.8	-1.9	7.2	-1.8	-31.4	-20.2	-11.4
1e+03	-2.1	-4.0	-1.6	-5.1	7.1	-29.1	-20.2	-11.4
1e+02	-3.0	-3.8	-1.9	-4.4	-1.8	-31.4	-20.2	-11.4
1e+01	0.3	0.4	1.3	-4.4	1.7	-29.1	-20.2	-11.4
1e+00	4.7	0.4	1.7	-2.7	8.4	-29.1	-20.2	-11.4
1e-01	3.6	-0.7	-1.9	-2.6	0.6	-29.1	-20.2	-11.4
1e-02	-0.4	-3.8	-1.9	-3.1	8.4	-29.1	-20.2	-11.4
1e-03	-2.2	5.1	-1.9	-3.2	7.1	-29.1	-20.2	-11.4

q \ k	2	3	4	5	6	7	8	9
1e+08	3.0	-1.2	-1.6	-3.2	-1.8	-29.1	-20.2	-11.4
1e+07	2.0	-0.6	-1.9	-2.7	5.8	-29.1	-20.2	-11.4
1e+06	-1.4	5.4	-1.9	-4.5	-1.8	-29.1	-20.2	-11.4
1e+05	-2.1	-2.0	-1.5	-2.7	-1.8	-29.1	-22.7	-11.4
1e+04	5.5	-4.1	-1.5	-2.7	8.4	-29.1	-20.2	-11.4
1e+03	-1.5	-1.1	1.3	7.2	1.7	-29.1	-20.2	-11.4
1e+02	-3.9	-4.0	-1.9	-2.7	-1.8	-29.1	-20.2	-11.4
1e+01	0.8	-3.9	1.3	-2.7	6.5	-29.1	-20.2	-11.4
1e+00	-1.6	-4.6	1.4	4.8	4.7	-29.1	-20.2	-11.4
1e-01	6.2	-4.0	1.4	-2.7	7.1	-29.1	-20.2	-11.4
1e-02	0.3	5.4	-1.9	-2.7	-1.8	-29.1	-20.2	-11.4
1e-03	-2.8	-4.4	-2.8	-2.5	-0.0	-29.1	-20.2	-11.4

q \ k	2	3	4	5	6	7	8	9
1e+08	0.2	-4.6	-1.6	7.2	5.8	-29.1	-20.2	-11.4
1e+07	8.6	-4.6	-2.7	2.9	8.4	-29.1	-20.2	-11.4
1e+06	-0.4	5.3	2.1	-2.6	7.5	-29.1	-20.2	-11.4
1e+05	2.0	-1.2	-1.9	-2.7	7.6	-29.1	-20.2	-11.4
1e+04	-1.2	-3.9	2.1	-2.7	8.1	-29.1	-20.2	-11.4
1e+03	0.1	-2.0	2.1	4.8	-2.3	-29.1	-20.2	-11.4
1e+02	-2.3	5.3	1.3	2.4	4.1	-31.4	-20.2	-11.4
1e+01	-0.3	4.6	1.3	-3.2	8.4	-31.4	-20.2	-11.4
1e+00	2.9	-3.7	2.1	-2.7	-4.0	-29.1	-22.7	-11.4
1e-01	0.7	0.2	-1.2	-4.4	7.1	-29.1	-20.2	-11.4
1e-02	-3.2	-0.9	1.5	7.2	-1.8	-29.1	-20.2	-11.4
1e-03	-3.3	-4.1	-2.7	-4.5	10.8	-29.1	-20.2	-11.4

q \ k	2	3	4	5	6	7	8	9
1e+08	-3.0	0.5	1.4	-4.4	6.4	-29.1	-20.2	-11.4
1e+07	-3.9	-4.3	-1.5	-3.2	-0.0	-29.1	-20.2	-11.4
1e+06	-2.8	-0.7	-1.6	-3.1	-0.0	-29.1	-20.2	-11.4
1e+05	1.3	5.3	-1.9	-2.7	10.7	-29.1	-20.2	-13.7
1e+04	0.5	7.9	-1.9	-2.7	-1.8	-29.1	-20.2	-11.4
1e+03	1.1	0.3	-2.9	-3.2	7.1	-29.1	-20.2	-13.8
1e+02	1.3	4.6	-1.9	-4.4	7.5	-29.1	-20.2	-11.4
1e+01	-1.3	4.6	-1.9	-2.7	-0.0	-31.5	-20.2	-11.4
1e+00	0.3	-4.1	1.4	-2.7	-1.8	-29.1	-20.2	-11.4
1e-01	-2.3	-4.1	2.1	-2.6	-2.3	-29.1	-20.2	-11.4
1e-02	-3.3	-3.3	-0.3	-5.1	-1.8	-29.1	-20.2	-11.4
1e-03	-4.6	-1.4	-1.0	-6.9	-10.5	-31.4	-24.4	-13.7

q \ k	2	3	4	5	6	7	8	9
1e+08	0.3	4.6	-1.9	9.4	-1.8	-29.1	-20.2	-11.4
1e+07	-0.5	-0.9	-1.5	-2.6	7.1	-29.1	-22.6	-11.4
1e+06	0.4	5.3	-1.2	-4.4	-2.3	-31.5	-20.2	-11.4
1e+05	1.0	-4.0	1.4	4.8	0.6	-29.1	-20.2	-13.7
1e+04	-2.9	0.4	-1.9	-2.7	-1.8	-29.1	-20.2	-11.4
1e+03	-0.4	-2.0	-1.6	9.4	-1.8	-29.1	-20.2	-11.4
1e+02	0.4	-2.0	-1.9	-2.6	4.7	-29.1	-20.2	-11.4
1e+01	0.9	-3.8	-1.9	-6.9	4.7	-29.1	-20.2	-11.4
1e+00	-4.1	-4.0	-2.8	-2.5	-1.8	-29.1	-20.2	-11.4
1e-01	-1.6	-4.1	1.3	6.6	-4.0	-29.1	-20.2	-11.4
1e-02	-7.6	-4.3	2.1	-6.8	1.1	-31.4	-24.4	-15.5
1e-03	-27.8	-32.2	-32.7	-29.8	-10.5	-38.0	-29.1	-20.2

k

classic

q \ k	2	3	4	5	6	7	8	9
1e+08	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+07	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+06	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+05	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+04	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+03	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+02	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+01	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+00	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e-01	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e-02	-3.8	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e-03	8.5	5.3	-1.9	-3.2	7.6	-29.1	-20.2	-11.4

q \ k	2	3	4	5	6	7	8	9
1e+08	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+07	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+06	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+05	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-22.7	-11.4
1e+04	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+03	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+02	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+01	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+00	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e-01	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e-02	-3.8	-4.0	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e-03	-3.8	-4.0	-2.7	-3.2	-1.8	-29.1	-20.2	-11.4

q \ k	2	3	4	5	6	7	8	9
1e+08	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+07	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+06	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+05	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+04	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+03	-2.9	5.3	-1.9	-3.1	7.6	-29.1	-20.2	-11.4
1e+02	-3.0	5.3	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e+01	-3.8	-4.0	-1.9	-3.2	7.6	-29.1	-20.2	-11.4
1e+00	-3.8	-4.0	-2.7	-3.2	-1.8	-29.1	-20.2	-11.4
1e-01	-4.0	-4.1	-2.7	-2.5	-4.0	-29.1	-20.2	-11.4
1e-02	-6.5	-6.5	-5.5	-6.9	-8.1	-31.4	-24.4	-15.5
1e-03	-25.6	-25.3	-33.4	-25.5	-12.9	-38.0	-29.1	-20.2

k