Electronic Supplementary Material (ESI) for Molecular BioSystems.

Supplementary Information for

Differential Simulated Annealing: a robust and efficient global optimization algorithm for parameter estimation of biological networks

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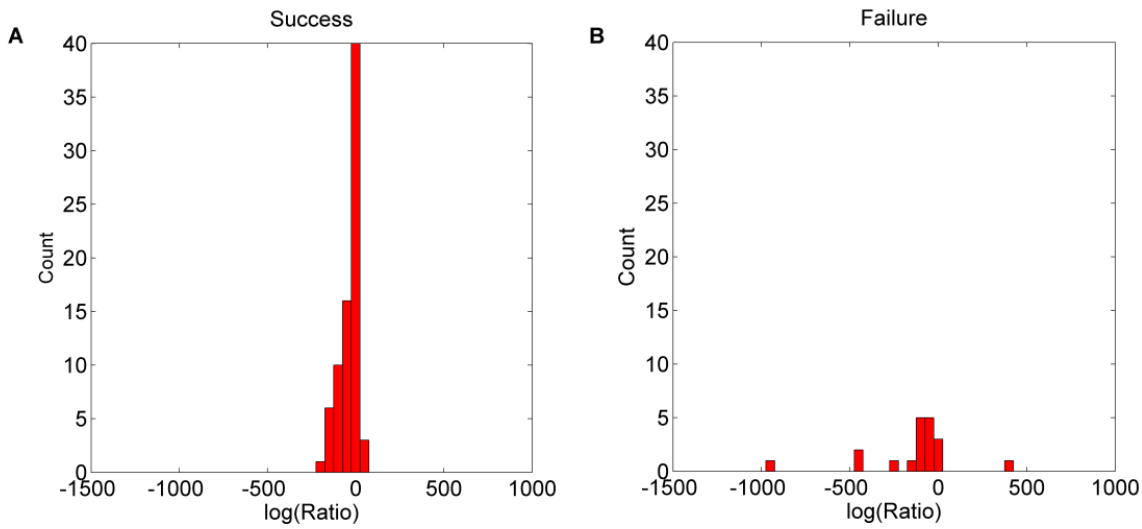

Figure S1. Distribution of well fitting ellipsoid ratio among succeeded and failed models of DSA. a) Distribution among succeeded models. b) Distribution among failed models.

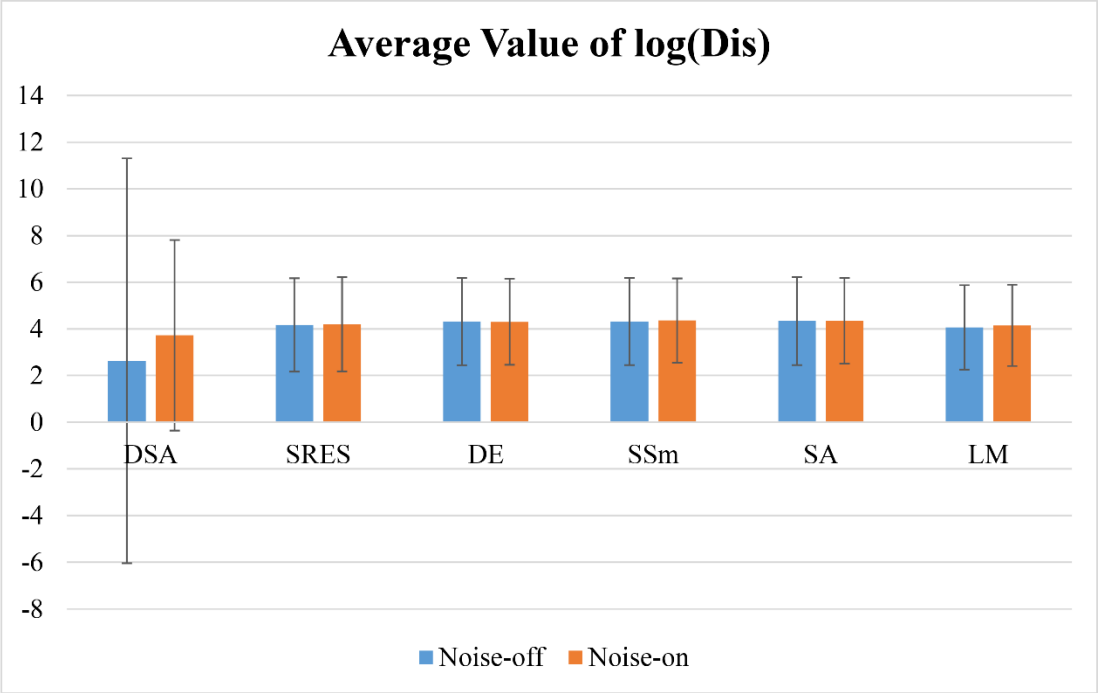

Figure S2. Average value of the logarithm of the Euclidean distance between the estimated parameter vector and the 'real' parameter vector. The lengths of error bars denote the standard deviations.

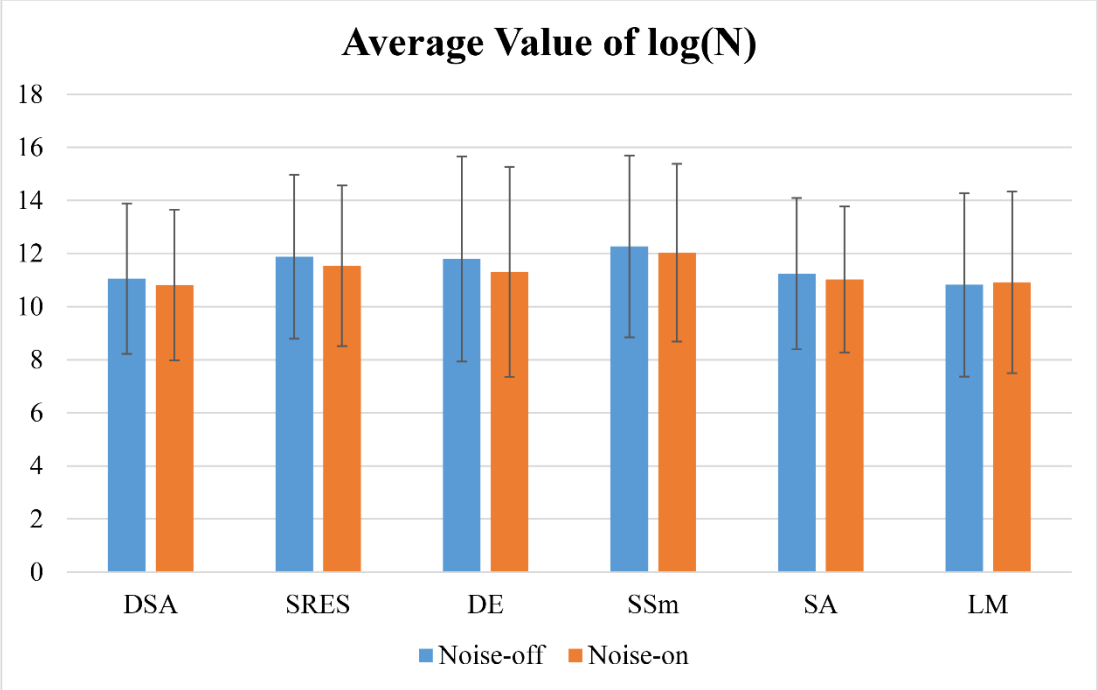

Figure S3. Average value of the logarithm of the number of objective function evaluation for the six algorithms compared. The lengths of error bars denote the standard deviations.

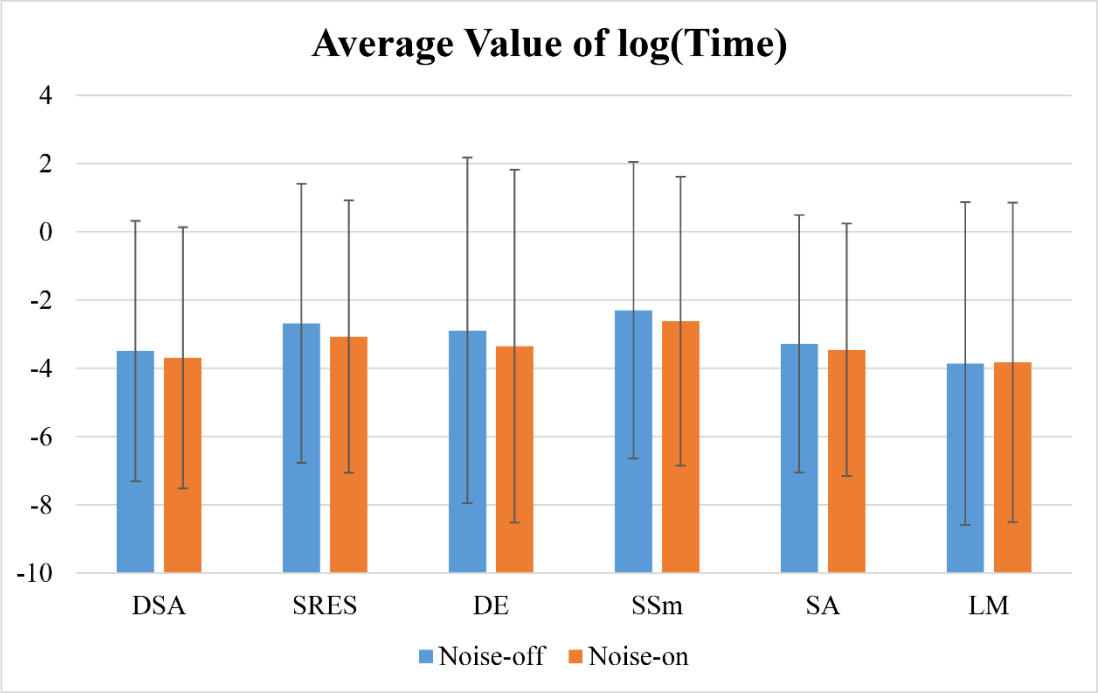

Figure S4. Average value of the logarithm of the computational time (h) for the six algorithms compared. The lengths of error bars denote the standard deviations. Zero values in computational time (it means that the time cost is shorter than one clock in the CPU time $t_{min} = 1/(3.6 \times 10^9)$s) were all changed to t_{min} to calculate this average.

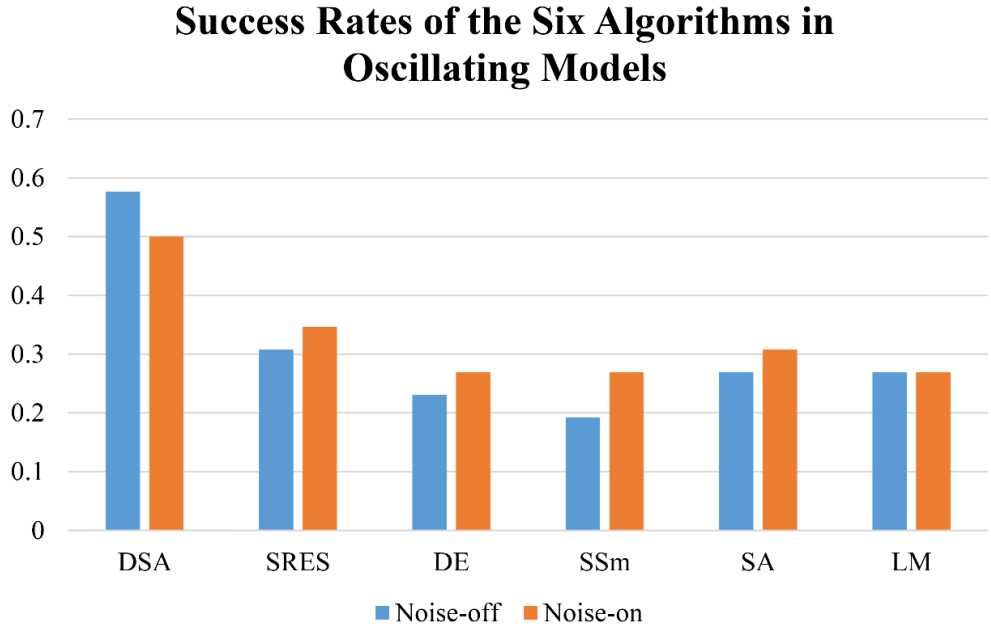

Figure S5. Success rate of the six algorithms in the 26 oscillating models under noise-off and noise-on conditions.

Selection of models

432 models written in SBML format downloaded from the BioModels Database [1] were first translated to C++ codes by SBML translator in Systems Biology Workbench (SBW) [2]. Since the SBML translator cannot translator models written in SBML with rules correctly to C++ codes, all models with rules were excluded. After translation to C++ codes the models were simulated with their published values of kinetic parameters to form artificial experimental curves for parameter estimation. In this step the ODE solver we used to simulate the models aborted or returned unreasonable solutions in some models because of stiffness of the ODEs themselves. These models were also excluded because we cannot get usable artificial experimental curves from them. After these two steps 95 models were left and they were used as benchmark problems in following comparison of the six algorithms.

Information about the models

Information about the models, including number of species, number of kinetic parameters, time of simulation and kinetic pattern (oscillate or not) and their ID in the BioModels Database are listed in **Table S1**.

Table S1. Information of the 95 models

Model ID	Number of species	Number of parameters	Time of simulation	Kinetic pattern
10	5	22	2400	oscillation
11	15	30	300	
14	78	38	300	
17	8	71	100	
22	10	53	48	oscillation
23	5	50	100	
26	8	16	30	
27	2	9	30	
28	13	27	30	
29	3	15	30	
30	15	32	30	
31	2	9	30	
32	13	27	30	
33	13	48	100	
35	7	15	50	oscillation
36	2	9	30	oscillation
37	8	12	20	
39	3	11	20	oscillation
41	7	25	10	
42	15	25	3600	oscillation
43	3	13	50	oscillation
45	3	14	50	oscillation
46	10	15	10000	oscillation
48	17	50	120	
49	76	234	60	
52	8	11	40	
61	20	62	100	oscillation
66	7	45	100	
82	6	10	100	
84	4	18	40	

Model ID	Number of species	Number of parameters	Time of simulation	Kinetic pattern
92	2	4	100	
93	27	3	10000	
94	27	2	10000	
98	2	13	4	oscillation
100	4	30	4	oscillation
102	13	41	4800	
103	17	49	4800	
105	29	17	15000	
106	19	54	60	
116	6	20	100	
123	11	22	3000	
143	18	24	4000	oscillation
151	52	105	36000	
154	2	7	30	oscillation
156	3	7	30	oscillation
157	3	8	30	oscillation
159	3	7	30	
160	19	47	48	oscillation
184	3	14	400	oscillation
191	2	15	50	
192	7	16	20	
203	5	32	100	
204	5	32	100	
206	9	18	0.5	oscillation
209	6	49	300	
210	6	46	300	
213	5	38	10	
218	9	58	100	
219	9	62	100	
221	8	45	100	
222	8	45	100	
224	3	11	100	oscillation
228	9	40	1000	
229	7	14	30	oscillation
230	23	64	30	oscillation
231	4	9	500	
233	2	4	100	
239	42	128	1000	oscillation
243	20	17	360	
258	2	9	100	

Model ID	Number of species	Number of parameters	Time of simulation	Kinetic pattern
259	16	1	25	
260	16	1	25	
261	16	1	25	
282	3	4	20	
319	3	7	1000	oscillation
325	5	15	1200	
328	17	30	600	
332	62	113	100	
333	42	75	100	
334	59	110	500	
354	5	20	200	oscillation
355	8	22	200	oscillation
357	7	12	900	
361	5	2	15	
363	3	1	900	
364	12	22	900	
365	26	9	600	
394	9	38	100	
395	11	25	100	
396	16	56	100	
397	29	56	100	
398	11	37	100	
413	4	10	500	
427	10	54	60	
431	21	3	1000	

Complete results of comparison

Complete computational results are listed in the following tables. The results include computational time, Euclidean distance from the 'real' parameter vector, number of objective function evaluations and optimum value of objective function achieved by the six algorithms compared, under both noise-off and noise-on conditions.

Table S2. Optimum value of objective function achieved by the six algorithms under noise-off condition.

Model ID	DSA	SRES	DE	SSm	SA	LM
10	8.57E-05	4.72E-05	4.09E-02	4.62E-04	3.02E-01	5.43E-01
11	2.09E-06	9.22E-06	2.87E-03	2.96E-04	6.41E-06	2.16E-06
14	8.78E-05	1.00E+08	1.19E-02	7.57E-06	5.01E-05	1.96E-04
17	3.45E-11	3.45E-11	1.69E-05	5.95E-05	1.98E-07	6.22E-07
22	9.61E-05	7.43E-02	4.07E-02	6.10E-02	1.61E-01	2.68E-02
23	2.35E-06	1.00E-04	9.21E-05	6.85E-06	2.95E-05	7.57E-05
26	8.40E-12	8.29E-05	3.26E-08	7.92E-08	7.51E-05	6.57E-05
27	6.26E-05	2.06E-06	1.32E-05	2.22E-07	2.53E-05	8.11E-05
28	2.55E-05	6.58E-06	9.14E-06	7.20E-04	6.66E-06	1.54E-06
29	7.93E-07	2.04E-07	8.40E-05	8.12E-05	2.02E-06	4.76E-08
30	9.71E-06	4.86E-06	9.65E-03	4.00E-04	1.24E-05	4.61E-06
31	2.52E-05	5.58E-07	2.17E-07	2.09E-07	5.04E-05	5.80E-07
32	9.90E-05	2.27E-02	2.59E-01	2.01E-01	2.00E-01	5.38E-01
33	6.23E-06	1.41E-03	1.56E-03	1.59E-03	8.16E-04	8.53E-04
35	9.14E-05	1.00E-04	1.22E-02	2.40E-03	1.61E-01	6.90E-01
36	6.55E-07	7.91E-05	3.43E-05	3.71E-06	1.24E-05	4.74E-06
37	7.00E-15	1.07E-15	2.06E-15	2.01E-15	5.72E-15	1.64E-15
39	4.28E-02	5.76E-02	3.73E-02	5.92E-02	5.42E-02	3.98E-02
41	8.53E-06	6.55E-07	9.99E-05	9.35E-05	5.89E-05	2.12E-05
42	6.90E-02	1.30E-01	1.33E-01	2.22E-01	1.31E-01	1.30E-01
43	9.94E-02	9.95E-02	9.95E-02	1.00E-01	9.97E-02	1.00E-01
45	5.80E-01	5.72E-01	7.46E-01	1.14E+00	1.79E+00	1.03E+00
46	2.99E+00	2.42E+00	2.10E+00	9.39E+00	3.73E+00	7.84E+00
48	2.82E-06	6.03E-06	6.12E-03	2.28E-07	8.18E-05	4.79E-06

Model ID	DSA	SRES	DE	SSm	SA	LM
49	2.17E-04	5.82E-03	5.23E-01	1.25E-01	1.00E-01	8.05E-01
52	3.08E-30	4.52E-30	2.10E-30	1.74E-30	3.47E-30	1.95E-30
61	1.82E-03	2.85E-03	4.86E-02	2.86E-01	1.93E-01	4.64E-01
66	4.29E-06	9.80E-05	1.39E-05	4.88E-05	4.23E-05	8.05E-05
82	5.69E-32	2.02E-15	9.22E-28	7.81E-28	2.43E-27	6.25E-31
84	1.75E-05	7.77E-05	1.25E-06	1.09E-08	1.11E-07	1.52E-05
92	6.17E-32	1.80E-31	5.91E-32	6.75E-32	7.32E-32	1.35E-31
93	1.88E-05	4.43E-05	5.06E-05	5.07E-05	1.37E-03	1.35E-01
94	8.91E-05	2.26E-05	4.02E-06	2.14E-06	1.39E-05	1.07E-03
98	9.39E-05	1.55E-01	1.05E-02	1.78E-01	1.98E-03	4.67E-03
100	6.01E-04	1.12E-03	4.45E-03	4.81E-02	6.37E-02	4.70E-02
102	4.26E-06	5.09E-05	1.19E-02	5.64E-02	1.20E-05	1.35E-03
103	2.95E-03	8.27E-04	4.07E-02	1.19E-02	3.56E-02	5.49E-04
105	6.74E-05	9.95E-05	7.08E-05	4.13E-01	8.77E-04	1.33E-02
106	8.62E-05	1.59E-04	2.46E-01	1.29E-02	1.58E-01	6.55E-01
116	1.35E-11	7.97E-12	6.20E-12	1.59E-01	8.55E-12	4.64E-12
123	3.95E-07	9.34E-06	1.00E-05	1.05E-02	9.55E-07	1.99E-05
143	8.75E-05	2.21E-02	8.36E-04	1.42E+00	2.38E-02	2.38E-01
151	1.83E-01	1.19E-03	3.70E-01	5.69E-01	2.43E-01	2.19E+00
154	4.92E-10	5.04E-14	3.07E-13	7.51E-09	4.19E-14	4.46E-09
156	7.35E-29	1.41E-28	6.61E-28	5.20E-01	3.14E-28	1.72E-28
157	8.56E-05	6.50E-08	6.46E-06	8.54E-05	3.56E-05	4.59E-06
159	1.39E-16	2.07E-16	1.64E-17	1.17E-16	9.13E-17	5.73E-17
160	9.57E-05	2.19E-03	2.06E-01	2.72E-01	2.68E-02	1.60E-02
184	9.52E-01	8.49E-01	8.64E-02	1.14E+00	2.59E-01	9.74E-01
191	6.03E-05	9.98E-05	9.20E-05	5.16E-05	6.71E-06	7.43E-05
192	3.67E-05	8.82E-05	2.13E-05	8.21E-05	3.72E-05	5.97E-08
203	3.52E-05	9.12E-05	3.10E-06	3.33E-06	1.51E-05	1.05E-06
204	9.15E-05	7.49E-06	7.46E-05	3.10E-05	3.49E-05	4.50E-05
206	9.56E-05	3.45E-02	1.51E-02	1.92E-02	2.95E-04	3.25E-02
209	5.05E-06	9.93E-05	2.15E-03	7.18E-04	1.82E-04	5.14E-05
210	2.16E-07	4.48E-05	6.17E-06	1.07E-03	7.65E-07	1.56E-05
213	5.35E-14	2.44E-09	7.87E-14	2.98E-07	7.97E-10	4.84E-14
218	5.88E-05	9.24E-05	8.55E-04	1.53E-03	4.23E-04	9.13E-06
219	7.35E-05	9.99E-05	4.57E-03	4.66E-01	2.98E-03	1.02E-03
221	1.47E-07	4.56E-04	1.73E-03	1.27E-03	1.28E-04	6.29E-05
222	2.88E-05	9.87E-05	1.53E-04	6.26E-05	7.20E-06	3.16E-03
224	5.96E-05	9.45E-04	1.18E-02	5.45E-03	4.15E-01	2.96E-01
228	1.68E-02	3.10E-02	3.22E-02	2.33E-02	3.01E-01	2.51E-02
229	1.59E-15	1.29E-15	1.23E-04	5.79E-02	1.55E-15	1.47E-11
230	6.55E-06	7.19E-07	4.84E-09	7.15E-11	5.51E-09	2.57E-08

Model ID	DSA	SRES	DE	SSm	SA	LM
231	8.15E-10	1.34E-05	7.28E-11	3.14E-06	8.37E-08	3.49E-10
233	4.65E-13	2.86E-15	9.58E-16	1.03E-14	1.24E-15	4.65E-13
239	7.71E-02	7.29E-02	1.29E-01	4.53E-01	8.58E-02	1.74E+00
243	3.65E-06	3.62E-05	5.91E-05	1.44E-04	4.30E-06	5.68E-06
258	9.26E-06	5.63E-03	3.02E-04	5.60E-03	9.19E-06	7.69E-06
259	3.91E-13	3.91E-13	1.63E-06	1.63E-06	1.63E-06	3.91E-13
260	3.09E-26	1.99E-26	8.87E-26	2.87E-06	2.87E-06	7.74E-26
261	3.70E-29	1.89E-29	1.12E-29	2.33E-06	3.14E-30	9.15E-30
282	5.89E-27	9.07E-19	1.37E-23	8.45E-18	1.55E-26	6.84E-25
319	4.19E-06	1.75E-05	1.65E-05	1.33E-06	5.34E-05	3.39E-06
325	3.03E-08	1.31E-07	1.62E-03	5.28E-10	2.12E-10	7.30E-08
328	6.45E-05	1.00E-04	3.09E-04	7.65E-03	9.77E-05	1.34E-04
332	9.38E-01	1.57E-02	1.77E+00	2.95E+00	7.68E-01	6.38E+00
333	1.32E-04	2.99E-02	2.99E-01	3.98E-03	2.07E-01	1.45E+00
334	4.63E+00	3.93E-02	1.18E+00	5.72E+00	1.94E+00	6.33E+00
354	3.64E-02	4.58E-01	1.14E-01	5.18E-01	1.66E-01	4.66E-02
355	7.45E-03	6.57E-03	7.06E-02	2.19E-01	1.43E-02	6.30E-02
357	5.21E-11	3.82E-10	3.79E-10	3.23E-09	3.07E-10	2.80E-10
361	3.95E-27	4.95E-27	1.68E-27	2.48E-27	2.24E-27	3.46E-28
363	1.18E-28	0.00E+00	1.18E-28	1.58E-05	3.55E-29	1.18E-28
364	9.52E-11	2.90E-10	5.91E-11	1.07E-09	7.87E-08	7.42E-11
365	1.11E-10	1.38E-10	1.98E-10	1.39E-10	1.23E-10	1.35E-10
394	8.05E-07	9.84E-05	1.43E-04	9.65E-05	5.48E-05	3.00E-05
395	2.04E-06	1.91E-06	7.57E-06	8.59E-07	2.17E-10	8.24E-07
396	9.93E-05	6.34E-05	7.60E-05	1.26E-03	7.45E-04	2.03E-04
397	3.04E-28	7.65E-04	8.50E-04	2.33E-03	2.22E-02	3.46E-28
398	8.56E-05	9.34E-07	1.97E-05	2.36E-06	2.08E-08	8.68E-05
413	1.08E-05	4.53E-06	4.24E-06	1.80E-06	5.43E-07	1.01E-06
427	2.81E-04	1.06E-04	3.26E-03	1.39E-03	1.02E-03	2.65E+00
431	4.70E-06	2.32E-07	9.77E-05	1.86E-13	7.17E-09	3.99E-09

Table S3. Optimum value of objective function achieved by the six algorithms under noise-on condition. The column 'Real' means the value of objective function yielded by the published value of the parameters.

Model ID	DSA	SRES	DE	SSm	SA	LM	Real
10	3.94E-03	3.01E-01	2.39E-02	1.13E-02	2.18E-01	5.46E-01	4.31E-03
11	2.72E-03	2.71E-03	2.71E-03	6.28E-03	2.71E-03	2.71E-03	2.82E-03
14	3.05E-03	3.31E-03	3.55E-03	2.75E-01	2.02E-02	6.19E-02	3.03E-03
17	2.53E-03	2.51E-03	2.49E-03	1.17E-02	2.52E-03	2.47E-03	2.54E-03
22	3.90E-03	2.99E-02	3.87E-02	3.71E-02	1.93E-01	2.47E-02	3.97E-03
23	2.47E-03	2.46E-03	2.45E-03	2.59E-03	2.28E-03	2.28E-03	2.58E-03
26	2.91E-03	2.97E-03	2.91E-03	2.91E-03	2.91E-03	2.91E-03	2.99E-03
27	2.33E-03	2.31E-03	2.31E-03	2.31E-03	2.41E-03	2.31E-03	2.44E-03
28	3.45E-03	3.46E-03	3.49E-03	4.53E-03	3.32E-03	3.32E-03	3.50E-03
29	2.78E-03	2.83E-03	2.87E-03	2.97E-03	2.81E-03	2.78E-03	2.96E-03
30	3.23E-03	1.75E-02	9.12E-03	3.54E-02	3.16E-03	3.13E-03	3.26E-03
31	2.42E-03	2.42E-03	2.42E-03	2.42E-03	2.55E-03	2.40E-03	2.54E-03
32	4.47E-02	7.30E-02	3.08E-01	3.43E-02	1.73E-01	7.48E-01	5.11E-02
33	3.80E-02	3.79E-02	3.83E-02	3.93E-02	3.83E-02	3.96E-02	3.80E-02
35	7.43E-03	7.49E-03	1.32E-02	7.31E-03	8.86E-02	6.34E-01	7.43E-03
36	1.10E-02	1.50E-02	1.62E-02	1.40E-02	7.20E-03	6.68E-03	1.69E-02
37	6.64E-03	6.64E-03	6.64E-03	6.64E-03	6.64E-03	6.64E-03	7.08E-03
39	5.44E-02	6.00E-02	4.65E-02	6.21E-02	4.30E-02	4.28E-02	2.43E-03
41	3.39E-03	3.43E-03	3.39E-03	3.34E-03	3.42E-03	3.33E-03	3.41E-03
42	5.65E-02	1.29E-01	1.04E-01	7.76E+00	1.30E-01	1.30E-01	2.64E-03
43	9.98E-02	9.97E-02	1.00E-01	9.98E-02	1.01E-01	9.97E-02	2.87E-03
45	1.27E+00	9.30E-01	9.63E-01	1.64E+00	1.77E+00	1.36E+00	5.81E-03
46	3.80E+00	2.40E+00	2.41E+00	2.31E+00	2.99E+00	7.61E+00	1.57E-02
48	8.99E-03	9.15E-03	1.02E-02	9.15E-03	9.14E-03	9.64E-03	9.06E-03
49	3.85E-03	7.56E-03	4.59E-01	9.32E-01	1.84E-01	2.21E-01	3.81E-03
52	3.53E-03	3.53E-03	3.53E-03	3.53E-03	3.53E-03	3.53E-03	3.63E-03
61	2.80E-03	5.67E-03	4.52E-02	3.35E-01	6.61E-02	4.33E-01	2.62E-03
66	3.53E-03	3.76E-03	3.63E-03	3.50E-03	3.47E-03	3.44E-03	3.73E-03
82	2.87E-03	2.87E-03	2.87E-03	2.87E-03	2.87E-03	2.87E-03	2.92E-03
84	1.26E-02	1.24E-02	1.26E-02	1.28E-02	1.25E-02	1.24E-02	1.27E-02
92	2.38E-03	2.38E-03	2.38E-03	2.38E-03	2.38E-03	2.38E-03	2.48E-03
93	5.53E-03	5.57E-03	5.56E-03	5.54E-03	8.68E-03	2.36E-01	5.52E-03
94	4.77E-03	4.76E-03	4.76E-03	4.77E-03	4.88E-03	5.73E-03	4.76E-03
98	1.31E-02	9.83E-02	1.07E-02	1.59E-01	7.21E-03	9.98E-03	3.22E-03
100	3.35E-03	4.38E-03	9.28E-02	1.65E-01	2.32E-01	7.74E-02	3.32E-03
102	5.31E-03	4.95E-03	5.22E-03	1.89E-01	7.24E-03	6.17E-03	6.90E-03

Model ID	DSA	SRES	DE	SSm	SA	LM	Real
103	9.61E-03	2.61E-02	4.65E-02	1.80E-02	7.80E-03	1.03E-02	4.26E-03
105	5.23E-03	3.63E-03	3.67E-03	3.64E-03	6.09E-03	4.78E-03	3.64E-03
106	1.12E-02	1.22E-02	1.13E-01	7.54E-02	2.50E-01	4.19E-01	1.21E-02
116	2.72E-03	2.69E-03	2.73E-03	1.60E-01	2.72E-03	2.69E-03	2.75E-03
123	6.03E-03	1.38E-02	6.45E-03	1.34E-02	6.47E-03	6.04E-03	7.00E-03
143	3.34E-03	3.44E-03	7.21E-02	3.26E-03	3.43E-03	4.06E-01	3.43E-03
151	3.93E-02	2.12E-02	4.24E-01	3.63E-01	1.56E-02	1.19E+00	1.47E-02
154	2.23E-03	2.29E-03	2.23E-03	2.26E-03	2.23E-03	2.23E-03	2.33E-03
156	3.64E-03	3.64E-03	3.64E-03	5.12E-01	3.64E-03	3.64E-03	3.82E-03
157	3.87E-03	3.65E-03	3.65E-03	3.94E-03	3.69E-03	3.64E-03	3.99E-03
159	2.89E-03	2.89E-03	2.89E-03	2.89E-03	2.89E-03	2.89E-03	2.98E-03
160	3.50E-03	5.82E-03	2.71E-01	2.30E-01	6.65E-02	2.18E-02	3.48E-03
184	8.64E-01	8.64E-01	7.89E-02	1.69E-01	2.62E-01	2.32E-01	3.83E-03
191	2.68E-03	2.56E-03	2.60E-03	2.62E-03	2.67E-03	2.54E-03	2.69E-03
192	2.97E-03	3.08E-03	2.99E-03	3.05E-03	2.94E-03	2.94E-03	3.05E-03
203	2.81E-03	2.81E-03	2.78E-03	2.88E-03	2.77E-03	2.76E-03	2.86E-03
204	2.77E-03	2.77E-03	2.83E-03	2.88E-03	2.77E-03	2.75E-03	2.85E-03
206	2.67E-03	3.57E-02	3.75E-02	1.54E-01	3.46E-02	3.45E-02	2.68E-03
209	3.22E-03	4.38E-03	4.67E-03	4.04E-03	3.40E-03	3.19E-03	4.34E-03
210	3.04E-03	2.86E-03	2.84E-03	9.78E-03	3.14E-03	2.80E-03	3.14E-03
213	2.67E-03	2.67E-03	2.67E-03	2.67E-03	2.68E-03	2.65E-03	2.71E-03
218	1.63E-02	1.64E-02	1.70E-02	1.69E-02	2.27E-02	1.62E-02	1.63E-02
219	1.26E-02	1.54E-02	1.57E-02	1.32E-02	4.43E-02	1.50E-02	1.53E-02
221	9.25E-03	1.04E-02	1.14E-02	1.10E-02	1.04E-02	1.29E-01	1.04E-02
222	5.29E-03	5.29E-03	8.73E-03	5.21E-03	1.86E-02	7.52E-03	5.24E-03
224	7.12E-02	3.89E-01	1.04E-02	5.25E-03	3.73E-01	1.04E-01	2.66E-03
228	2.18E-02	2.15E-02	4.62E-02	2.88E-02	5.90E-02	1.58E-02	3.74E-03
229	2.70E-03	2.72E-03	2.72E-03	5.88E-02	2.70E-03	2.70E-03	2.78E-03
230	2.59E-03	2.57E-03	2.58E-03	2.57E-03	2.65E-03	2.57E-03	2.64E-03
231	2.76E-03	2.72E-03	2.72E-03	6.49E-03	2.72E-03	2.72E-03	2.76E-03
233	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03	5.59E-03	4.63E-02
239	1.58E-01	7.65E-02	1.35E-01	4.30E-01	1.01E-01	1.83E+00	3.37E-03
243	2.27E-02	2.27E-02	2.28E-02	2.31E-02	2.27E-02	2.27E-02	2.29E-02
258	1.53E-03	1.54E-03	1.53E-03	7.95E-03	2.75E-03	1.53E-03	5.80E-03
259	3.34E-03	3.34E-03	3.34E-03	3.42E-03	3.42E-03	3.34E-03	3.40E-03
260	4.08E-03	4.08E-03	4.08E-03	4.10E-03	4.10E-03	4.08E-03	4.09E-03
261	3.71E-03	3.71E-03	3.71E-03	3.73E-03	3.71E-03	3.71E-03	3.72E-03
282	2.90E-03	2.90E-03	2.90E-03	2.90E-03	2.90E-03	2.90E-03	2.94E-03
319	3.13E-03	3.11E-03	3.14E-03	3.16E-03	3.34E-03	3.11E-03	3.33E-03
325	3.59E-03	3.61E-03	3.60E-03	3.63E-03	3.61E-03	3.59E-03	3.78E-03
328	3.71E-03	3.78E-03	4.28E-03	3.71E-03	3.99E-03	3.76E-03	3.68E-03

Model ID	DSA	SRES	DE	SSm	SA	LM	Real
332	1.14E-01	3.49E-01	1.83E+00	4.28E+00	1.01E+00	6.65E+00	2.05E-02
333	1.19E-02	1.65E-02	3.39E-01	1.55E+00	1.55E-01	1.42E+00	1.19E-02
334	5.55E-01	1.90E-02	1.26E+00	1.65E+00	1.65E+00	6.31E+00	1.61E-02
354	9.70E-02	1.14E-01	4.05E-01	4.64E-01	2.84E-01	1.15E-01	4.34E-03
355	2.60E-02	1.42E-02	6.82E-02	2.39E-01	6.51E-02	5.77E-02	3.60E-03
357	4.51E-03	4.82E-03	4.51E-03	4.51E-03	4.51E-03	4.51E-03	4.89E-03
361	1.02E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02
363	3.15E-03	3.15E-03	3.15E-03	3.16E-03	3.15E-03	3.15E-03	3.15E-03
364	4.67E-03	4.67E-03	4.67E-03	4.67E-03	4.67E-03	4.67E-03	4.81E-03
365	3.34E-01	3.34E-01	3.34E-01	3.34E-01	3.34E-01	3.34E-01	3.49E-01
394	4.49E-03	5.87E-03	5.50E-03	4.16E-03	4.33E-03	3.75E-03	6.54E-03
395	2.60E-03	5.37E-03	2.60E-03	3.82E-03	2.59E-03	2.59E-03	5.39E-03
396	3.12E-03	3.37E-03	3.26E-03	3.33E-03	4.55E-03	3.61E-03	3.12E-03
397	9.40E-03	7.49E-03	7.73E-03	8.48E-02	5.90E-03	5.84E-03	9.98E-03
398	2.55E-03	2.54E-03	2.66E-03	2.53E-03	2.59E-03	2.53E-03	2.59E-03
413	2.93E-03	2.85E-03	2.85E-03	2.89E-03	2.93E-03	2.84E-03	3.09E-03
427	1.49E-02	2.50E-02	1.86E-02	2.99E-02	2.86E-02	2.68E+00	3.25E-02
431	1.03E-02	1.01E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02	1.02E-02

Table S4. Euclidean distance between the estimated parameter vector and the 'real' parameter vector under noise-off condition.

Model ID	DSA	SRES	DE	SSm	SA	LM
10	3.68E+01	4.28E+01	6.06E+01	4.29E+01	6.79E+01	1.17E+02
11	2.17E+01	4.16E+01	3.01E+01	3.34E+01	5.34E+01	4.14E+01
14	3.30E+01	7.48E+01	6.38E+01	4.50E+01	7.59E+01	4.41E+01
17	4.29E+02	1.07E+03	1.33E+03	6.65E+02	7.61E+02	6.32E+02
22	3.48E+01	1.43E+02	1.03E+02	7.52E+01	1.40E+02	8.17E+01
23	1.86E+02	2.16E+02	1.96E+02	8.31E+01	1.86E+02	1.75E+02
26	2.08E+01	2.49E+01	3.44E+01	5.82E+01	2.42E+01	3.44E+01
27	9.15E+01	8.19E+01	4.03E+01	3.37E+01	3.83E+01	7.72E+01
28	4.65E+01	3.04E+01	6.32E+01	4.61E+01	4.39E+01	2.60E+01
29	1.37E+02	6.31E+01	7.15E+01	1.72E+02	6.74E+01	7.76E+01
30	4.66E+01	5.90E+01	6.03E+01	6.23E+01	4.06E+01	6.04E+01
31	5.52E+01	6.33E+01	5.02E+01	7.33E+01	4.25E+01	8.22E+01
32	2.44E+02	1.96E+02	1.99E+02	1.79E+02	1.15E+02	1.32E+02
33	8.66E+02	5.79E+02	5.95E+02	1.30E+03	5.16E+02	7.39E+02
35	3.08E+01	8.75E+01	1.65E+02	2.90E+01	4.32E+01	2.65E+01
36	5.06E+02	5.58E+02	4.66E+02	4.64E+03	5.48E+02	4.86E+02
37	2.59E+01	1.55E+01	5.12E+01	4.86E+01	2.84E+01	2.39E+01
39	3.61E+01	8.83E+01	4.12E+01	2.54E+02	1.64E+02	8.77E+01
41	7.43E+01	8.77E+01	1.15E+02	1.82E+02	9.13E+01	7.55E+01
42	1.14E+02	9.28E+01	2.47E+02	7.80E+01	9.13E+01	8.79E+01
43	5.49E+01	9.96E+01	1.51E+02	4.37E+01	3.49E+01	6.66E+01
45	3.93E+01	7.06E+01	3.47E+01	1.84E+01	2.07E+01	3.42E+01
46	3.12E+02	9.68E+01	5.62E+01	1.16E+02	1.18E+02	5.46E+01
48	8.04E+02	4.97E+02	6.39E+02	2.09E+02	8.18E+02	1.56E+02
49	2.73E+03	2.64E+03	2.78E+03	1.24E+03	1.14E+03	1.19E+03
52	1.29E+01	3.73E+01	3.35E+01	1.19E+01	2.34E+01	1.66E+01
61	5.32E+02	4.79E+02	6.00E+02	4.88E+02	5.66E+02	3.51E+02
66	2.75E+02	2.27E+02	2.87E+02	1.60E+02	2.68E+02	2.03E+02
82	3.55E+02	2.14E+02	4.91E+02	2.41E+02	3.83E+02	2.60E+02
84	2.96E+01	1.57E+01	2.24E+01	1.25E+01	1.61E+01	1.33E+01
92	3.15E+01	1.13E+02	4.64E+01	4.02E+01	3.90E+01	3.90E+01
93	1.46E+00	6.27E-01	1.19E+00	6.94E+00	3.99E+02	1.60E+01
94	6.95E-02	1.03E-01	2.73E+00	2.72E+00	2.49E+02	3.33E+00
98	5.69E+01	7.32E+01	1.95E+02	1.83E+02	7.50E+01	7.96E+01
100	4.28E+02	7.09E+01	1.90E+02	1.66E+02	2.55E+02	1.18E+02
102	3.24E+01	3.95E+01	4.54E+01	6.06E+01	5.16E+01	9.50E+01
103	3.89E+02	4.32E+02	2.05E+02	1.02E+02	2.17E+02	1.87E+02
105	1.52E+02	1.22E+02	9.78E+01	1.03E+02	7.43E+01	6.18E+01

Model ID	DSA	SRES	DE	SSm	SA	LM
106	6.14E+02	4.41E+02	5.66E+02	4.90E+02	6.28E+02	5.67E+02
116	4.70E+01	8.61E+01	6.52E+01	3.64E+01	3.16E+01	3.68E+01
123	2.60E+02	5.51E+01	1.99E+02	1.13E+02	1.55E+02	1.10E+02
143	8.05E+01	1.22E+02	2.33E+02	2.73E+02	1.18E+02	1.01E+02
151	4.31E+02	2.01E+03	8.09E+02	5.31E+02	4.68E+02	4.86E+02
154	9.73E+00	2.99E+01	8.62E+00	6.66E+00	2.13E+01	8.41E+00
156	3.25E+00	2.63E+00	2.25E+00	3.05E+01	5.50E-01	4.43E-01
157	1.05E+01	1.79E+01	2.25E+01	1.08E+01	1.09E+01	2.32E+01
159	7.28E+00	2.43E+00	1.20E+01	4.91E+00	5.39E+00	5.01E+00
160	6.90E+01	2.12E+02	1.79E+02	2.59E+02	3.91E+02	1.48E+02
184	1.35E+02	1.37E+02	3.05E+01	2.87E+02	1.63E+02	3.17E+01
191	9.60E+01	4.19E+01	9.10E+01	8.15E+01	3.65E+01	3.95E+01
192	1.08E+02	6.60E+01	5.55E+01	4.47E+01	3.36E+02	5.64E+01
203	1.43E+02	1.52E+02	1.79E+02	2.12E+02	1.95E+02	2.01E+02
204	1.57E+02	1.46E+02	1.25E+02	2.92E+02	2.42E+02	2.26E+02
206	4.40E+01	3.80E+01	9.17E+01	7.65E+01	3.24E+01	4.65E+01
209	3.51E+02	2.37E+02	4.10E+02	2.13E+02	2.54E+02	3.59E+02
210	3.04E+02	9.50E+01	2.24E+02	1.80E+02	1.98E+02	2.04E+02
213	3.15E+02	2.49E+02	4.83E+02	2.81E+02	3.21E+02	2.55E+02
218	2.91E+02	3.71E+02	2.98E+02	1.73E+02	2.42E+02	1.72E+02
219	2.94E+02	3.51E+02	2.65E+02	2.49E+02	2.92E+02	2.02E+02
221	2.88E+02	4.65E+02	2.89E+02	3.17E+02	1.52E+02	1.47E+02
222	2.59E+02	3.58E+02	2.39E+02	1.58E+02	8.73E+01	1.73E+02
224	3.89E+01	5.18E+01	1.73E+01	1.55E+01	6.26E+01	2.89E+01
228	2.31E+02	1.32E+02	2.03E+02	1.90E+02	3.19E+02	1.62E+02
229	3.15E+00	4.04E+00	1.43E+01	4.86E+01	2.24E+01	6.05E+00
230	4.56E+02	4.29E+02	1.96E+02	1.93E+02	5.80E+02	1.81E+02
231	6.59E+01	3.80E+01	6.50E+00	2.95E+01	1.41E+01	1.90E+01
233	2.16E+00	8.47E-01	8.47E-01	5.91E-01	8.47E-01	8.47E-01
239	3.99E+03	1.77E+03	2.26E+03	2.01E+03	6.38E+03	2.65E+03
243	9.12E+01	5.14E+01	3.73E+01	4.74E+01	6.56E+01	6.69E+01
258	1.91E+01	1.41E+01	1.84E+01	1.72E+01	1.76E+01	2.26E+01
259	2.60E-17	5.55E-01	5.53E-01	5.53E-01	5.53E-01	5.55E-01
260	5.79E-16	1.86E-01	1.86E-01	1.86E-01	1.86E-01	1.86E-01
261	4.41E-18	2.89E-01	2.89E-01	2.88E-01	2.89E-01	2.89E-01
282	1.54E+00	7.38E+00	9.67E+00	3.74E+00	1.07E+01	2.75E+00
319	4.05E+02	6.93E+01	8.78E+01	7.50E+01	7.75E+01	6.25E+01
325	6.56E+01	6.39E+01	2.41E+02	8.35E+01	7.34E+01	5.61E+01
328	6.42E+02	3.15E+02	6.26E+02	2.94E+02	9.38E+02	3.72E+02
332	4.22E+02	4.63E+02	6.69E+02	1.54E+03	8.36E+02	5.72E+02
333	2.85E+02	2.54E+02	3.59E+02	6.90E+02	5.85E+02	3.50E+02

Model ID	DSA	SRES	DE	SSm	SA	LM
334	4.12E+02	4.15E+02	4.67E+02	1.45E+03	6.46E+02	4.26E+02
354	7.42E+01	4.74E+01	3.72E+01	8.88E+01	4.91E+01	4.62E+01
355	7.92E+01	4.44E+01	8.02E+01	1.33E+02	5.58E+01	5.87E+01
357	1.04E+02	1.09E+02	8.80E+01	3.57E+02	6.98E+01	1.30E+02
361	6.79E-01	6.79E-01	1.52E+00	1.52E+00	1.52E+00	1.52E+00
363	7.52E-17	2.12E+01	2.12E+01	2.12E+01	2.12E+01	2.12E+01
364	5.00E+02	7.36E+02	3.24E+02	4.99E+02	1.30E+03	4.77E+02
365	6.39E+02	2.03E+02	1.26E+02	1.47E+02	1.25E+02	2.47E+02
394	6.76E+01	4.01E+01	6.40E+01	7.01E+01	6.27E+01	4.67E+01
395	4.63E+01	3.32E+01	4.07E+01	2.80E+01	9.33E+00	7.35E+00
396	1.05E+02	9.67E+01	3.33E+02	8.72E+01	1.33E+02	4.73E+01
397	4.25E+01	7.71E+01	8.19E+01	4.49E+01	5.33E+01	2.21E+01
398	4.97E+01	4.91E+01	7.16E+01	4.50E+01	2.31E+01	2.85E+01
413	5.03E+01	6.34E+01	2.25E+01	1.01E+02	1.89E+01	2.63E+01
427	1.02E+03	7.79E+02	1.16E+03	1.38E+03	1.36E+03	9.38E+02
431	2.40E+00	1.65E+00	1.02E+01	8.45E+00	6.47E+00	9.38E+00

Table S5. Euclidean distance between the estimated parameter vector and the 'real' parameter vector under noise-on condition.

Model ID	DSA	SRES	DE	SSm	SA	LM
10	3.65E+01	6.93E+01	3.53E+01	4.37E+01	7.57E+01	6.34E+01
11	4.53E+01	5.08E+01	2.23E+01	7.43E+01	7.05E+01	3.61E+01
14	3.01E+01	9.41E+01	2.88E+01	5.69E+01	1.10E+02	7.20E+01
17	5.68E+02	1.25E+03	1.01E+03	5.81E+02	9.75E+02	6.23E+02
22	5.05E+01	1.43E+02	1.65E+02	7.67E+01	1.03E+02	6.27E+01
23	1.51E+02	1.99E+02	1.77E+02	1.29E+02	1.79E+02	1.48E+02
26	2.71E+01	2.40E+01	3.26E+01	6.00E+01	2.45E+01	4.22E+01
27	4.85E+01	6.08E+01	4.16E+01	3.96E+01	4.60E+01	7.80E+01
28	3.44E+01	2.92E+01	6.03E+01	4.66E+01	5.70E+01	3.48E+01
29	1.48E+02	7.25E+01	4.90E+01	1.94E+02	4.75E+01	8.19E+01
30	4.37E+01	4.91E+01	6.98E+01	7.80E+01	4.79E+01	6.20E+01
31	5.89E+01	9.95E+01	4.22E+01	7.30E+01	5.11E+01	8.27E+01
32	2.28E+02	1.76E+02	1.63E+02	1.26E+02	1.40E+02	1.54E+02
33	1.02E+03	5.58E+02	5.49E+02	1.26E+03	4.81E+02	8.78E+02
35	2.46E+01	6.33E+01	1.44E+02	4.77E+01	3.78E+01	1.84E+01
36	5.18E+02	5.01E+02	3.92E+02	4.76E+03	6.09E+02	4.87E+02
37	2.30E+01	9.73E+00	5.68E+01	4.85E+01	2.82E+01	2.38E+01
39	8.56E+01	4.83E+01	8.47E+01	3.02E+02	1.34E+02	6.62E+01
41	7.43E+01	1.08E+02	9.15E+01	1.62E+02	7.26E+01	6.43E+01
42	9.73E+01	8.94E+01	2.26E+02	1.42E+02	6.15E+01	1.07E+02
43	2.98E+01	8.88E+01	1.75E+02	5.03E+01	2.16E+01	7.61E+01
45	5.51E+01	5.70E+01	3.86E+01	1.15E+01	1.82E+01	4.14E+01
46	4.27E+02	6.31E+01	5.25E+01	6.10E+01	1.16E+02	7.65E+01
48	7.75E+02	5.63E+02	6.95E+02	2.17E+02	9.25E+02	1.80E+02
49	2.70E+03	2.39E+03	2.86E+03	1.68E+03	1.10E+03	1.18E+03
52	2.07E+01	3.74E+01	4.59E+01	1.85E+01	2.56E+01	2.04E+01
61	4.52E+02	4.43E+02	3.96E+02	3.49E+02	6.21E+02	3.84E+02
66	2.79E+02	2.49E+02	2.19E+02	1.86E+02	2.97E+02	2.23E+02
82	3.52E+02	2.54E+02	4.86E+02	2.54E+02	3.80E+02	2.75E+02
84	2.82E+01	2.18E+01	5.34E+01	2.49E+01	2.97E+01	1.62E+01
92	3.02E+01	1.04E+02	4.69E+01	4.02E+01	3.43E+01	3.43E+01
93	1.47E+00	6.24E-01	1.08E+00	6.84E+00	4.07E+02	6.36E+00
94	9.23E-02	9.07E-02	2.70E+00	2.69E+00	2.51E+02	3.28E+00
98	9.03E+01	1.88E+02	1.33E+02	1.13E+02	6.08E+01	9.08E+01
100	4.26E+02	9.89E+01	2.14E+02	1.29E+02	2.43E+02	2.73E+02
102	3.97E+01	6.04E+01	5.73E+01	5.85E+01	5.01E+01	6.35E+01
103	4.07E+02	4.85E+02	1.95E+02	1.10E+02	1.53E+02	1.56E+02
105	1.55E+02	1.02E+02	9.16E+01	7.19E+01	8.26E+01	6.79E+01

Model ID	DSA	SRES	DE	SSm	SA	LM
106	6.66E+02	4.62E+02	5.38E+02	5.00E+02	6.23E+02	5.80E+02
116	6.84E+01	8.41E+01	3.97E+01	4.16E+01	5.41E+01	3.97E+01
123	2.77E+02	1.28E+02	2.11E+02	9.18E+01	1.37E+02	1.18E+02
143	1.21E+02	1.19E+02	2.18E+02	1.58E+02	1.11E+02	6.57E+01
151	3.92E+02	2.00E+03	8.20E+02	5.27E+02	5.15E+02	5.41E+02
154	1.48E+01	3.32E+01	1.26E+01	6.37E+00	2.27E+01	8.93E+00
156	4.94E+00	3.74E-01	2.24E+00	3.65E+01	5.77E-01	2.75E+00
157	1.03E+01	2.41E+01	1.83E+01	1.01E+01	1.06E+01	2.62E+01
159	5.35E+00	2.46E+00	1.21E+01	7.30E+00	5.12E+00	5.22E+00
160	1.30E+02	2.94E+02	3.96E+02	3.29E+02	2.73E+02	2.05E+02
184	1.45E+02	1.60E+02	1.43E+02	1.38E+02	8.30E+01	3.65E+01
191	9.22E+01	6.29E+01	2.98E+01	6.41E+01	4.44E+01	7.46E+01
192	7.38E+01	4.19E+01	5.08E+01	8.55E+01	2.29E+02	5.63E+01
203	2.63E+02	1.25E+02	1.90E+02	2.81E+02	2.69E+02	2.48E+02
204	1.22E+02	2.05E+02	1.41E+02	2.53E+02	2.49E+02	2.04E+02
206	5.27E+01	4.29E+01	9.29E+01	8.22E+01	1.02E+02	5.97E+01
209	2.85E+02	3.31E+02	3.80E+02	1.49E+02	2.00E+02	3.67E+02
210	3.84E+02	1.69E+02	1.77E+02	1.11E+02	1.89E+02	1.91E+02
213	3.91E+02	1.92E+02	4.30E+02	2.66E+02	3.48E+02	2.70E+02
218	3.42E+02	4.33E+02	2.95E+02	1.49E+02	2.08E+02	1.45E+02
219	3.57E+02	3.43E+02	2.57E+02	3.04E+02	2.46E+02	1.92E+02
221	3.05E+02	4.03E+02	3.29E+02	2.31E+02	1.95E+02	2.21E+02
222	2.97E+02	2.64E+02	1.97E+02	1.93E+02	1.70E+02	1.44E+02
224	6.97E+01	5.78E+01	2.05E+01	1.66E+01	2.38E+01	3.40E+01
228	2.36E+02	1.09E+02	1.91E+02	1.90E+02	3.21E+02	1.20E+02
229	3.81E+00	6.17E+00	7.07E+00	2.99E+01	2.28E+01	6.61E+00
230	4.96E+02	4.49E+02	2.23E+02	2.18E+02	4.00E+02	2.02E+02
231	1.17E+02	1.55E+01	1.93E+01	7.27E+01	1.57E+01	1.89E+01
233	5.75E+00	2.00E+00	2.00E+00	2.22E+00	2.00E+00	2.00E+00
239	4.56E+03	1.72E+03	2.21E+03	2.04E+03	6.60E+03	2.54E+03
243	8.56E+01	4.73E+01	3.56E+01	4.80E+01	6.31E+01	6.69E+01
258	3.37E+01	1.60E+01	1.40E+01	1.46E+01	2.11E+01	2.67E+01
259	4.10E-05	5.64E-01	5.64E-01	5.53E-01	5.53E-01	5.64E-01
260	2.00E-06	1.88E-01	1.88E-01	1.86E-01	1.86E-01	1.88E-01
261	6.54E-06	2.92E-01	2.92E-01	2.88E-01	2.92E-01	2.94E-01
282	1.67E+00	7.33E+00	9.67E+00	4.17E+00	1.21E+01	2.74E+00
319	3.63E+02	7.00E+01	8.90E+01	7.16E+01	7.46E+01	6.31E+01
325	6.68E+01	6.52E+01	1.93E+02	7.42E+01	9.53E+01	6.47E+01
328	6.27E+02	3.15E+02	5.93E+02	3.83E+02	8.93E+02	3.21E+02
332	4.42E+02	5.44E+02	6.53E+02	1.52E+03	7.20E+02	5.44E+02
333	2.69E+02	3.35E+02	3.98E+02	9.41E+02	4.57E+02	3.57E+02

Model ID	DSA	SRES	DE	SSm	SA	LM
334	3.31E+02	4.33E+02	6.10E+02	1.29E+03	6.03E+02	5.21E+02
354	7.76E+01	5.70E+01	6.56E+01	1.23E+02	2.15E+01	3.66E+01
355	9.63E+01	2.38E+01	6.87E+01	1.06E+02	4.43E+01	8.12E+01
357	4.63E+01	8.90E+01	3.84E+01	4.01E+02	1.19E+02	5.31E+01
361	7.04E-01	6.81E-01	1.56E+00	1.56E+00	1.56E+00	1.56E+00
363	7.39E-09	2.12E+01	2.12E+01	2.12E+01	2.12E+01	2.12E+01
364	4.48E+02	6.90E+02	3.12E+02	4.73E+02	1.25E+03	5.47E+02
365	6.28E+02	2.06E+02	1.39E+02	1.62E+02	1.37E+02	2.69E+02
394	6.93E+01	5.02E+01	9.02E+01	6.53E+01	6.10E+01	4.69E+01
395	6.00E+01	2.94E+01	1.20E+01	3.59E+01	2.88E+01	2.10E+01
396	7.46E+01	8.44E+01	3.40E+02	8.65E+01	8.69E+01	1.00E+02
397	4.93E+01	4.90E+01	5.71E+01	8.58E+01	2.75E+01	4.49E+01
398	4.83E+01	4.04E+01	6.13E+01	5.70E+01	4.40E+01	6.35E+01
413	9.88E+01	1.00E+02	4.97E+01	1.07E+02	2.03E+01	5.54E+01
427	1.05E+03	8.51E+02	1.07E+03	1.47E+03	1.37E+03	9.15E+02
431	1.50E+00	9.27E+00	1.03E+01	7.66E+00	7.43E+00	9.27E+00

Table S6. Number of objective function evaluations under noise-off condition.

Model ID	DSA	SRES	DE	SSm	SA	LM
10	275140	1247001	2200108	2200975	274048	351451
11	154421	34874	3000135	3000750	8298	167440
14	714501	655452	3800272	2408199	715554	2496878
17	94862	77210	53979	644166	185867	8327
22	1012527	5300191	5300386	5307405	5300294	4875162
23	756138	2016122	43510	44089	465771	242383
26	9571	17556	1920	6809	2913	1697
27	7693	9288	8732	3338	20470	2265
28	240885	30468	16089	2700267	262709	11704
29	3276	16643	41663	2999	12004	1623
30	208869	872257	3200218	3201079	194244	54497
31	2345	4135	2217	3216	2652	2500
32	1629958	4700569	4700445	4712588	622611	2376251
33	473834	4800141	4800284	4805058	4800115	3178605
35	370748	491290	1500041	1500173	355770	326906
36	181562	11750	9181	6735	203533	5298
37	3415	12378	549	2198	4686	1159
39	204012	1100040	1100000	1100113	214051	402384
41	46369	35688	245063	51512	6368	2022
42	573258	2500322	2500108	2500925	582340	826020
43	268169	1300122	1300077	1300240	205302	206627
45	291408	1400128	1400099	1400068	246259	884386
46	169689	1500174	1500070	1500535	172628	224431
48	302337	2437398	5000390	265264	326486	386756
49	7746956	14899415	7227904	21257979	4969053	11227030
52	1317	11996	829	2530	14129	1216
61	1007479	6200579	6200338	6203833	792660	1036897
66	94675	1310122	22137	781112	248663	13473
82	4590	13566	1677	2993	4835	4233
84	28659	20536	5550	23454	10971	12080
92	541	951	351	1321	545	419
93	40507	2007	2890	3179	46285	8917
94	2262	796	303	3767	36701	4167
98	316698	1300105	1300060	1300245	262873	787291
100	928798	3000221	3000260	3000731	795291	3408614
102	557832	215096	4100257	4101615	558442	4708121
103	3552875	4901159	4900343	4904218	4900296	7527417
105	293796	99663	1287831	1700769	375053	310622

Model ID	DSA	SRES	DE	SSm	SA	LM
106	1212684	5400190	5400389	5402770	1342748	5595344
116	10196	22704	84622	2001070	33448	6289
123	60836	135357	28370	2200539	191268	2033
143	408077	2400144	2400232	2400392	393567	1297546
151	10500682	10501149	10500477	10523345	10500484	16301344
154	2065	3913	534	1792	832	560
156	26975	7176	853	700017	6656	488
157	8178	8312	351256	151303	56164	4023
159	789	7199	386	1521	854	621
160	943311	4700368	4700001	4703543	959623	5917625
184	205191	1400145	1400133	1400043	255455	528777
191	2409	186897	1124157	284393	2528	5423
192	29444	23108	48247	66063	10398	4217
203	639084	58130	198262	817436	239740	25230
204	761473	45592	18324	99695	762642	276001
206	420847	1800148	1800145	1800533	388332	283484
209	438190	2414853	4900418	4905576	4900018	3518005
210	542744	646238	3292876	4604950	147003	1627655
213	7917	40512	5019	1393239	22676	3834
218	763478	467779	5800523	5800169	1018294	601548
219	881939	466705	6200552	6201060	931599	6998082
221	492274	4501985	4500234	4502499	654508	1320271
222	591218	254097	4500147	2760003	547757	2040444
224	316131	1100107	1100052	1100182	236269	312817
228	1718549	4000105	4000265	4003366	1174847	3080546
229	2617	62222	1400030	1400126	9722	6718
230	71030	79404	14261	31844	266803	16174
231	8549	10806	25197	12810	6614	5883
233	601	5214	560	1642	673	525
239	2755205	12800311	12800026	12842129	12800411	2580018
243	48370	28281	161555	1700442	10229	1805
258	8105	900085	900029	900002	109300	2895
259	122	89	79	103	108	91
260	171	85	85	103	107	64
261	120	211	37	103	114	109
282	585	1665	240	1405	3276	333
319	3698	4816	378	3208	3983	723
325	10919	198736	1500118	5205	17947	5527
328	336327	2220449	3000296	3000270	562426	2967769
332	1224752	11301205	9639394	11320284	1293696	5712488
333	1669706	7500173	7500383	7509528	985079	2058153

Model ID	DSA	SRES	DE	SSm	SA	LM
334	1283606	6729365	10731817	11031908	585988	983714
354	613901	2000035	2000103	2000401	608502	1451003
355	671766	2200192	2200172	2200988	454993	974003
357	6532	14126	2309	6336	14763	3126
361	194	597	67	1261	191	122
363	114	221	31	103	114	62
364	28860	25338	3217	7783	71739	7766
365	1881	11588	10191	13012	2816	28399
394	174281	431903	3800031	1025315	352670	51863
395	5120	26582	1260941	9031	4076	26185
396	595688	2270409	2282550	5606763	719935	2713000
397	299322	5600537	5600235	5608807	478979	16970
398	20161	88217	33490	10204	7274	9480
413	4116	11142	1140	14245	4282	1422
427	1312174	5400389	5400243	5403326	5416524	889693
431	2773	2120	125	1030	13530	1264

Table S7. Number of objective function evaluations under noise-on condition.

Model ID	DSA	SRES	DE	SSm	SA	LM
10	248676	2200105	2200066	2200331	314850	353870
11	76188	66116	23783	3001221	4849	135177
14	663938	3800238	3800067	3800433	740199	2513536
17	84986	74050	128007	7101975	594706	7118
22	1122943	5301198	5300317	5300415	5300034	4643741
23	148708	116197	20902	354303	284550	20750
26	5095	18784	1127	3275	7221	1869
27	4797	9369	5672	5721	2659	1769
28	117730	83667	135223	2700210	69989	113294
29	19066	10471	1140	13217	8331	3032
30	214915	3200333	3200291	3202664	235672	404602
31	4661	5537	2212	3366	8694	2471
32	443057	4700079	4700141	2561696	573178	2299115
33	522317	266111	2528833	4801539	183176	3233456
35	361615	83253	1500100	230111	355725	362965
36	7256	5917	9158	4307	44293	7033
37	2410	12346	39909	2429	2076	1281
39	274812	1100023	1100087	1100140	215577	424171
41	23025	47734	11527	6090	44974	1534
42	580264	2500285	2500074	2500716	569713	814252
43	305461	1300080	1300086	1300802	191747	215165
45	264365	1400107	1400033	1400507	271188	902706
46	267712	1500156	1500065	1500844	189003	224293
48	298443	612409	5000106	501015	414901	5190366
49	2093228	16133079	12632060	16165128	2166988	11090301
52	1868	11850	952	2076	5040	1262
61	997262	6200515	6200392	6202970	806390	1048171
66	13865	150837	54080	18429	14974	10658
82	941	12000	797	3726	3929	3579
84	72099	19290	129635	13445	17981	15165
92	546	1679	371	1364	579	327
93	43224	2779	6999	7893	38436	8084
94	261	813	267	3189	34708	4113
98	285589	1300274	1300098	1300611	260163	810558
100	793096	3000260	3000285	3001162	724726	3355007
102	541229	44406	2735487	4104668	634087	820272
103	4900284	4902008	4900282	4902467	4900311	7513564
105	371092	104297	1129420	93395	323247	309022

Model ID	DSA	SRES	DE	SSm	SA	LM
106	1137347	2360524	5400284	5407838	1354900	5705211
116	7524	34624	13400	2001119	13203	3632
123	174097	2200215	812897	2201051	79298	21416
143	362773	55276	2400184	374487	364596	1277395
151	1170137	10500341	10500322	10504819	10500545	15910301
154	772	5133	402	1707	802	666
156	852	7260	522	700067	5124	24841
157	59343	11290	4871	68045	15655	2722
159	791	7066	339	1526	735	512
160	875110	4700298	4700362	4704301	887134	5802668
184	451010	1400170	1400032	1400274	244803	532806
191	7577	14518	2617	45027	3515	4079
192	1584	32478	1445	19157	5716	43810
203	166917	43566	111446	43407	713124	2991783
204	18730	50010	216107	2215284	140566	15178
206	382346	1800291	1800154	1800259	278816	274065
209	247117	132146	4900464	253246	209864	955803
210	149222	156992	282351	4604731	279713	167790
213	5884	51752	4307	98321	28615	4445
218	843597	1028632	5800464	5806848	987287	3634704
219	759308	477803	6200399	732397	970223	1267982
221	505367	143353	4500268	4504701	458403	1832343
222	531348	126034	4500029	337372	721697	2102064
224	300110	1100054	1100103	1100167	219455	309374
228	1368290	4000953	4000031	4002606	1133588	3281603
229	23792	35994	1102	1400154	19131	2493
230	72347	90680	9695	25676	216374	16192
231	1431	11874	2252	900085	2682	3349
233	518	3525	578	1783	866	475
239	1838077	12800167	12800822	12845032	12800441	2478281
243	4694	25374	91036	59791	69992	5641
258	3125	10608	1775	900004	4500	1680
259	118	63	39	103	107	84
260	136	102	42	103	107	63
261	122	121	37	103	114	130
282	409	1950	149	1310	4266	269
319	2341	5510	259	5333	4492	738
325	57173	411527	1300708	4319	29153	3991
328	380729	3000420	3000277	960831	549523	2869161
332	1123957	11112886	10120788	8848194	1359495	5623287
333	933402	7500370	7500567	7510113	962695	2072746

Model ID	DSA	SRES	DE	SSm	SA	LM
334	2783842	9258762	9458031	11008591	843475	967560
354	745488	2000204	2000022	2000424	669513	1474084
355	493592	2200045	2200050	2200387	398075	977132
357	12739	17302	2507	15243	6442	4072
361	194	523	71	1122	191	133
363	114	103	31	103	114	62
364	71860	31382	3944	7265	70208	63232
365	31773	9438	3811	12131	5570	31979
394	207566	50131	585648	65524	28891	55677
395	22087	37763	3005	35062	52153	2494
396	580357	5601299	5600059	5603523	938284	2762957
397	223010	231927	12744	5603306	135791	18536
398	42244	41004	3700317	11230	8765	12030
413	6906	9628	617	4005	5546	2638
427	589570	112821	659638	2708162	515940	953632
431	533	1216	442	1577	3188	1585

Table S8. Computational time in hours of the six algorithms under noise-off condition.

Model ID	DSA	SRES	DE	SSm	SA	LM
10	1.43E-01	8.21E-01	1.25E+00	1.19E+00	1.28E-01	2.36E-01
11	3.02E-02	1.24E-02	1.05E+00	9.02E-01	3.09E-03	5.72E-02
14	8.33E+00	7.84E+00	4.71E+01	2.58E+01	8.82E+00	4.11E+01
17	1.20E-01	4.59E-02	4.06E-02	3.89E-01	2.33E-01	9.89E-03
22	8.12E-01	4.45E+00	3.34E+00	2.78E+00	4.52E+00	7.10E+00
23	2.44E-01	6.30E-01	1.30E-02	1.29E-02	1.56E-01	7.65E-02
26	2.38E-03	4.67E-03	5.03E-04	1.78E-03	7.56E-04	5.75E-04
27	7.67E-04	8.33E-04	9.33E-04	2.75E-04	1.89E-03	3.25E-04
28	1.71E-01	1.78E-02	1.08E-02	1.48E+00	1.82E-01	7.67E-03
29	6.47E-04	2.78E-03	7.21E-03	4.86E-04	2.50E-03	3.44E-04
30	1.57E-01	6.42E-01	2.38E+00	2.32E+00	1.53E-01	4.01E-02
31	3.00E-04	3.83E-04	2.11E-04	2.44E-04	4.11E-04	2.50E-04
32	6.41E+00	3.00E+01	1.76E+01	2.05E+01	2.09E+00	7.90E+00
33	1.04E+00	9.87E+00	9.45E+00	1.10E+01	1.12E+01	7.31E+00
35	2.76E-01	6.51E-01	1.94E+00	1.43E+00	2.55E-01	2.60E-01
36	1.21E-02	1.16E-03	8.31E-04	6.36E-04	1.45E-02	3.47E-04
37	5.46E-03	3.99E-03	2.22E-04	1.17E-03	3.02E-03	5.42E-04
39	3.86E-02	1.26E-01	1.34E-01	9.29E-02	2.08E-02	3.95E-02
41	3.07E-02	2.12E-02	1.46E-01	4.06E-02	3.89E-03	1.24E-03
42	2.15E+00	1.50E+00	4.45E+00	2.33E+01	7.28E-01	1.11E+00
43	4.64E-02	1.44E-01	1.90E-01	1.73E-01	3.61E-02	7.37E-02
45	4.70E-02	5.52E-01	2.46E-01	1.73E-01	2.13E-02	9.34E-02
46	3.92E-02	1.20E+00	7.27E-01	2.32E-01	4.67E-02	5.01E-02
48	2.92E-01	1.98E+00	4.45E+00	4.09E-01	3.09E-01	4.16E-01
49	9.21E+01	2.00E+02	2.00E+02	2.03E+02	7.13E+01	1.57E+02
52	2.47E-04	2.50E-03	1.58E-04	4.47E-04	3.39E-03	2.64E-04
61	3.08E+00	8.16E+00	1.41E+01	1.29E+01	2.71E+00	3.58E+00
66	4.18E-02	4.99E-01	8.14E-03	2.29E-01	1.14E-01	4.82E-03
82	1.25E-04	3.36E-04	4.70E-05	1.17E-04	1.20E-03	1.19E-04
84	3.88E-03	2.42E-03	7.50E-04	5.41E-03	1.64E-03	1.32E-03
92	8.00E-06	1.40E-05	6.00E-06	2.50E-05	1.10E-05	6.00E-06
93	4.10E-02	2.44E-03	3.57E-03	5.89E-03	4.34E-02	8.82E-03
94	4.00E-03	1.16E-03	3.89E-04	7.56E-03	6.55E-02	7.30E-03
98	4.71E-02	2.40E-01	1.90E-01	1.11E-01	3.40E-02	1.09E-01
100	3.49E-01	1.96E+00	8.24E-01	6.74E-01	2.46E-01	1.04E+00
102	3.97E-01	1.39E-01	2.84E+00	2.31E+00	4.21E-01	3.64E+00
103	3.34E+00	3.77E+00	4.61E+00	3.57E+00	4.50E+00	8.75E+00
105	7.16E-01	3.13E-01	3.58E+00	4.54E+00	9.46E-01	7.52E-01

Model ID	DSA	SRES	DE	SSm	SA	LM
106	1.48E+00	7.87E+00	1.18E+01	9.64E+00	1.80E+00	6.68E+00
116	3.16E-03	4.73E-03	2.93E-02	9.22E-01	1.29E-02	1.61E-03
123	1.14E-02	2.44E-02	6.90E-03	5.29E-01	3.62E-02	4.64E-04
143	1.02E+00	4.17E+01	1.02E+01	1.51E+01	1.08E+00	2.69E+00
151	1.05E+02	1.17E+02	1.45E+02	9.97E+01	1.34E+02	9.32E+01
154	1.83E-04	2.11E-04	3.10E-05	1.39E-04	8.90E-05	3.90E-05
156	3.67E-03	1.13E-03	9.40E-05	7.39E-02	7.06E-04	5.60E-05
157	2.13E-03	1.94E-03	8.25E-02	6.69E-02	1.52E-02	7.97E-04
159	1.03E-04	1.13E-03	4.20E-05	2.64E-04	1.14E-04	7.50E-05
160	1.24E+00	1.09E+01	4.31E+00	3.79E+00	1.30E+00	8.01E+00
184	3.01E-02	6.95E-01	4.41E-01	2.15E-01	5.88E-02	8.59E-02
191	6.08E-04	7.34E-02	2.69E-01	5.87E-02	5.75E-04	1.30E-03
192	2.93E-03	6.88E-03	8.57E-03	1.51E-02	2.29E-03	7.86E-04
203	1.10E-01	1.28E-02	3.06E-02	1.16E-01	4.62E-02	4.35E-03
204	1.34E-01	1.01E-02	3.00E-03	1.44E-02	1.33E-01	4.47E-02
206	1.54E-01	5.20E-01	6.18E-01	5.48E-01	1.61E-01	1.08E-01
209	1.31E-01	4.15E-01	1.30E+00	1.02E+00	1.02E+00	1.12E+00
210	1.67E-01	1.18E-01	8.36E-01	7.27E-01	8.72E-02	3.70E-01
213	2.40E-03	8.43E-03	1.27E-03	4.06E-01	6.05E-03	1.23E-03
218	5.26E-01	2.79E-01	3.67E+00	3.26E+00	7.02E-01	5.09E-01
219	6.11E-01	2.78E-01	3.88E+00	4.30E+00	6.70E-01	7.20E+00
221	2.91E-01	1.72E+00	2.26E+00	3.57E+00	3.62E-01	8.06E-01
222	3.33E-01	1.10E-01	2.15E+00	1.91E+01	3.07E-01	1.24E+00
224	7.92E-02	5.08E-01	2.71E-01	3.43E-01	3.96E-02	4.71E-02
228	1.09E+00	2.33E+00	2.61E+00	1.30E+00	8.59E-01	2.91E+00
229	2.32E-03	9.65E-03	4.22E-01	2.51E-01	7.60E-03	2.31E-03
230	6.10E-02	2.42E-02	5.91E-03	9.09E-03	2.05E-01	6.94E-03
231	6.92E-04	8.00E-04	1.92E-03	1.01E-03	6.50E-04	4.89E-04
233	4.40E-05	3.53E-04	3.30E-05	1.19E-04	5.00E-05	3.10E-05
239	2.94E+01	4.15E+01	8.73E+01	5.60E+01	6.22E+01	4.62E+01
243	5.73E-02	3.19E-02	2.06E-01	1.94E+01	1.45E-02	2.04E-03
258	6.08E-04	5.14E-02	5.96E-02	6.63E-02	8.04E-03	2.17E-04
259	5.30E-05	4.70E-05	4.70E-05	6.90E-05	5.30E-05	4.40E-05
260	8.10E-05	4.20E-05	5.00E-05	6.90E-05	4.70E-05	2.80E-05
261	4.70E-05	1.06E-04	2.50E-05	7.20E-05	5.80E-05	5.30E-05
282	1.28E-04	4.31E-04	3.30E-05	3.14E-04	1.88E-03	6.40E-05
319	6.92E-04	1.50E-03	7.80E-05	5.47E-04	7.89E-04	1.50E-04
325	2.06E-03	2.90E-02	2.36E-01	7.22E-04	3.05E-03	8.67E-04
328	3.44E-01	3.28E+00	2.87E+00	2.87E+00	5.50E-01	3.11E+00
332	2.13E+01	1.57E+02	2.00E+02	2.00E+02	2.15E+01	9.88E+01
333	1.25E+01	5.53E+01	6.24E+01	4.89E+01	7.90E+00	1.82E+01

Model ID	DSA	SRES	DE	SSm	SA	LM
334	1.79E+01	2.01E+02	2.00E+02	1.41E+02	8.37E+00	1.35E+01
354	1.23E-01	8.90E-01	3.00E-01	2.46E-01	9.82E-02	2.32E-01
355	3.54E-01	1.78E+00	5.83E-01	8.56E-01	1.57E-01	2.57E-01
357	7.44E-04	2.10E-03	3.33E-04	9.64E-04	1.30E-03	5.00E-04
361	3.10E-05	6.40E-05	6.00E-06	1.72E-04	2.50E-05	1.10E-05
363	5.56E-06	5.56E-06	0.00E+00	2.78E-06	2.78E-06	0.00E+00
364	6.24E-03	6.80E-03	9.78E-04	1.38E-03	1.10E-02	1.69E-03
365	2.83E-04	1.54E-03	1.34E-03	1.65E-03	1.39E-03	4.28E-03
394	1.01E-01	2.09E-01	2.19E+00	5.59E-01	1.96E-01	3.01E-02
395	1.96E-03	9.99E-03	4.70E-01	3.09E-03	1.50E-03	1.03E-02
396	6.10E-01	2.06E+00	2.13E+00	5.12E+00	7.54E-01	2.89E+00
397	5.10E-01	8.91E+00	8.77E+00	1.00E+01	8.10E-01	2.80E-02
398	9.85E-03	5.44E-02	1.47E-02	3.98E-03	3.45E-03	4.39E-03
413	9.72E-04	1.62E-03	1.81E-04	3.53E-03	1.27E-03	2.50E-04
427	3.75E+00	2.48E+01	1.45E+01	1.42E+01	2.39E+01	2.56E+00
431	3.81E-03	4.31E-03	2.50E-04	3.53E-03	2.05E-02	2.79E-03

Table S9. Computational time in hours of the six algorithms under noise-on condition.

Model ID	DSA	SRES	DE	SSm	SA	LM
10	1.26E-01	1.08E+00	1.22E+00	1.28E+00	1.89E-01	1.63E-01
11	1.57E-02	2.36E-02	7.23E-03	9.52E-01	1.63E-03	4.68E-02
14	8.13E+00	4.69E+01	5.38E+01	5.74E+01	9.18E+00	3.09E+01
17	1.07E-01	4.56E-02	9.77E-02	4.45E+00	7.71E-01	6.95E-03
22	8.60E-01	2.44E+00	2.57E+00	2.39E+00	2.01E+00	4.82E+00
23	5.18E-02	3.59E-02	5.94E-03	1.11E-01	9.65E-02	6.09E-03
26	1.24E-03	4.96E-03	2.92E-04	8.39E-04	1.88E-03	4.53E-04
27	5.36E-04	8.47E-04	6.19E-04	4.92E-04	3.92E-04	2.00E-04
28	8.65E-02	4.81E-02	8.47E-02	1.39E+00	5.32E-02	7.33E-02
29	3.70E-03	1.76E-03	1.83E-04	1.99E-03	2.10E-03	5.19E-04
30	1.59E-01	2.17E+00	2.40E+00	2.39E+00	1.90E-01	2.89E-01
31	5.86E-04	5.14E-04	2.19E-04	2.11E-04	1.58E-03	2.42E-04
32	1.46E+00	1.90E+01	1.90E+01	1.16E+01	1.93E+00	7.62E+00
33	1.19E+00	6.45E-01	5.38E+00	8.98E+00	3.90E-01	7.62E+00
35	2.64E-01	1.18E-01	1.90E+00	3.12E-01	2.47E-01	3.01E-01
36	7.75E-04	5.28E-04	8.19E-04	3.44E-04	4.25E-03	5.39E-04
37	3.78E-03	4.03E-03	1.26E-02	8.50E-04	1.42E-03	5.72E-04
39	3.29E-02	1.81E-01	1.16E-01	9.84E-02	2.22E-02	4.16E-02
41	1.52E-02	2.87E-02	7.07E-03	3.50E-03	2.86E-02	1.03E-03
42	4.10E+00	1.97E+00	9.79E+00	1.99E+00	9.53E-01	7.30E-01
43	4.72E-02	1.49E-01	1.40E-01	1.77E-01	3.63E-02	4.73E-02
45	3.06E-02	3.94E-01	2.48E-01	1.17E-01	2.57E-02	9.64E-02
46	2.03E-01	1.27E+00	6.49E-01	1.19E+00	4.96E-02	5.10E-02
48	2.80E-01	5.48E-01	5.12E+00	5.23E-01	3.98E-01	4.47E+00
49	3.15E+01	2.00E+02	2.00E+02	2.00E+02	3.91E+01	1.55E+02
52	3.86E-04	2.43E-03	1.94E-04	3.28E-04	1.16E-03	2.89E-04
61	4.49E+00	9.33E+00	1.40E+01	1.70E+01	2.77E+00	3.52E+00
66	5.35E-03	4.64E-02	1.92E-02	6.32E-03	8.48E-03	3.92E-03
82	3.90E-05	2.94E-04	1.70E-05	9.40E-05	2.25E-03	1.03E-04
84	1.07E-02	2.45E-03	1.62E-02	2.22E-03	2.05E-03	1.57E-03
92	1.40E-05	2.80E-05	3.00E-06	1.90E-05	6.00E-06	3.00E-06
93	4.48E-02	3.29E-03	8.46E-03	9.39E-03	3.49E-02	7.60E-03
94	4.47E-04	2.00E-03	3.53E-04	4.16E-03	5.79E-02	7.05E-03
98	3.35E-02	3.18E-01	2.10E-01	1.06E-01	3.25E-02	1.10E-01
100	2.45E-01	1.97E+00	6.52E-01	6.11E-01	1.80E-01	1.01E+00
102	3.92E-01	2.80E-02	1.97E+00	2.29E+00	4.54E-01	5.50E-01
103	4.50E+00	4.48E+00	4.70E+00	3.64E+00	4.20E+00	8.64E+00
105	8.93E-01	2.75E-01	3.11E+00	2.37E-01	7.83E-01	7.47E-01

Model ID	DSA	SRES	DE	SSm	SA	LM
106	1.36E+00	3.44E+00	9.98E+00	1.06E+01	1.83E+00	6.54E+00
116	2.43E-03	9.23E-03	5.73E-03	2.52E+00	5.21E-03	1.01E-03
123	3.32E-02	4.06E-01	2.83E-01	3.44E-01	1.48E-02	4.50E-03
143	8.01E-01	2.44E-01	1.38E+01	9.11E-01	7.59E-01	2.72E+00
151	1.05E+01	1.29E+02	1.70E+02	1.14E+02	1.67E+02	8.19E+01
154	9.40E-05	2.58E-04	2.50E-05	1.36E-04	1.19E-04	4.40E-05
156	9.40E-05	1.15E-03	6.10E-05	6.89E-02	1.15E-03	1.88E-03
157	1.89E-02	2.36E-03	1.03E-03	2.39E-02	8.39E-03	4.44E-04
159	1.06E-04	8.28E-04	3.60E-05	4.06E-04	1.03E-04	5.80E-05
160	1.10E+00	7.19E+00	4.24E+00	3.75E+00	1.15E+00	7.71E+00
184	9.72E-02	6.29E-01	3.75E-01	4.98E-01	5.43E-02	8.73E-02
191	1.70E-03	3.08E-03	6.11E-04	9.68E-03	8.31E-04	1.03E-03
192	2.17E-04	6.59E-03	2.22E-04	2.50E-03	1.41E-03	8.30E-03
203	3.15E-02	6.46E-03	1.81E-02	6.45E-03	1.25E-01	4.68E-01
204	6.29E-03	6.72E-03	3.63E-02	3.38E-01	2.79E-02	2.61E-03
206	1.58E-01	4.21E-01	6.39E-01	5.17E-01	1.08E-01	1.04E-01
209	9.24E-02	2.43E-02	1.08E+00	4.90E-02	8.23E-02	1.86E-01
210	5.65E-02	3.11E-02	6.15E-02	7.29E-01	1.34E-01	3.02E-02
213	1.68E-03	8.88E-03	1.17E-03	4.00E-02	8.51E-03	1.03E-03
218	5.83E-01	5.01E-01	3.52E+00	3.36E+00	6.93E-01	2.56E+00
219	5.37E-01	2.99E-01	4.01E+00	5.49E-01	6.77E-01	8.65E-01
221	2.93E-01	6.28E-02	2.36E+00	1.85E+00	2.76E-01	1.14E+00
222	3.04E-01	5.57E-02	2.13E+00	1.74E-01	3.87E-01	1.28E+00
224	7.93E-02	5.53E-01	2.90E-01	3.29E-01	3.44E-02	4.66E-02
228	9.41E-01	1.59E+00	1.89E+00	1.29E+00	8.39E-01	2.92E+00
229	2.36E-02	6.63E-03	8.83E-04	2.56E-01	1.28E-02	1.25E-03
230	5.10E-02	2.74E-02	6.98E-03	6.53E-03	2.12E-01	6.47E-03
231	1.22E-04	9.61E-04	1.97E-04	6.57E-02	2.53E-04	3.00E-04
233	3.60E-05	2.28E-04	3.30E-05	2.00E-04	5.80E-05	3.90E-05
239	2.70E+01	5.48E+01	7.39E+01	8.84E+01	6.96E+01	3.60E+01
243	6.60E-03	2.70E-02	1.14E-01	7.49E-02	8.62E-02	6.53E-03
258	2.31E-04	6.83E-04	1.28E-04	9.54E-02	5.86E-04	1.33E-04
259	5.00E-05	2.80E-05	3.10E-05	4.70E-05	5.00E-05	4.20E-05
260	6.70E-05	5.00E-05	3.30E-05	4.70E-05	5.00E-05	2.80E-05
261	5.60E-05	6.10E-05	1.70E-05	5.00E-05	5.80E-05	6.40E-05
282	1.17E-04	4.44E-04	4.20E-05	1.72E-04	6.49E-03	6.10E-05
319	4.47E-04	1.10E-03	5.60E-05	1.17E-03	9.97E-04	1.53E-04
325	1.08E-02	6.20E-02	2.02E-01	8.56E-04	5.44E-03	7.08E-04
328	3.80E-01	2.91E+00	3.09E+00	1.36E+00	6.05E-01	3.02E+00
332	2.02E+01	2.01E+02	2.00E+02	2.01E+02	2.69E+01	9.60E+01
333	7.77E+00	5.37E+01	6.08E+01	4.68E+01	7.79E+00	1.82E+01

Model ID	DSA	SRES	DE	SSm	SA	LM
334	4.46E+01	2.03E+02	2.00E+02	1.37E+02	1.35E+01	1.31E+01
354	1.92E-01	1.16E+00	2.92E-01	2.98E-01	1.19E-01	2.34E-01
355	1.81E-01	1.91E+00	8.20E-01	9.85E-01	1.72E-01	2.64E-01
357	1.96E-03	2.78E-03	4.06E-04	2.29E-03	7.42E-04	6.53E-04
361	1.40E-05	5.80E-05	8.00E-06	1.53E-04	1.70E-05	1.10E-05
363	3.00E-06	2.78E-06	0.00E+00	2.78E-06	2.78E-06	0.00E+00
364	1.33E-02	8.93E-03	1.20E-03	1.34E-03	1.26E-02	1.49E-02
365	4.14E-03	1.21E-03	5.22E-04	1.51E-03	1.43E-03	4.81E-03
394	1.19E-01	2.73E-02	3.35E-01	4.11E-02	1.68E-02	3.12E-02
395	8.17E-03	1.47E-02	1.17E-03	1.36E-02	2.03E-02	8.97E-04
396	5.89E-01	5.24E+00	5.44E+00	4.72E+00	9.16E-01	2.94E+00
397	3.76E-01	3.83E-01	2.16E-02	1.24E+01	2.38E-01	2.94E-02
398	1.94E-02	1.68E-02	1.63E+00	4.56E-03	3.99E-03	5.76E-03
413	1.73E-03	1.53E-03	1.03E-04	1.32E-03	1.70E-03	4.64E-04
427	1.63E+00	3.51E-01	2.53E+00	5.68E+00	1.48E+00	2.80E+00
431	8.39E-04	2.38E-03	8.72E-04	3.30E-03	4.22E-03	3.53E-03

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