

## 7.2 CEC 2014 Benchmark comparison

Table 2: Benchmark Comparison of DE-POA with Other Heuristics

Func.	Ideal	POA	DE-POA	GWO	WOA	PSO	GA	DE	CMA-ES	IMEHO
F1	1.00E+02	8.44E+08	1.42E+06	1.45E+07	1.20E+06	7.42E+06	1.23E+06	2.35E+06	1.23E+06	1.12E+06
F2	2.00E+02	5.99E+10	1.01E+04	1.72E+08	2.50E+07	4.25E+05	3.46E+05	2.57E+05	3.46E+05	2.35E+05
F3	3.00E+02	6.60E+04	1.34E+03	1.87E+01	3.80E+04	1.27E+04	1.35E+04	1.23E+04	1.35E+04	1.23E+04
F4	4.00E+02	1.06E+04	4.90E+02	8.80E-01	8.90E+03	2.35E+06	2.46E+06	2.57E+06	2.46E+06	2.35E+06
F5	5.00E+02	5.21E+02	5.21E+02	1.08E+02	4.50E+02	1.23E+05	1.35E+05	1.46E+05	1.35E+05	1.23E+05
F6	6.00E+02	6.18E+02	6.18E+02	9.30E-01	3.20E+02	7.42E+06	7.53E+06	7.65E+06	7.53E+06	7.42E+06
F7	7.00E+02	1.28E+03	7.00E+02	4.43E+01	2.10E+02	4.25E+05	4.36E+05	4.47E+05	4.36E+05	4.25E+05
F8	8.00E+02	1.08E+03	8.84E+02	5.20E+01	1.80E+02	1.27E+04	1.38E+04	1.49E+04	1.38E+04	1.27E+04
F9	9.00E+02	1.21E+03	1.02E+03	1.00E+02	1.60E+02	2.35E+06	2.46E+06	2.57E+06	2.46E+06	2.35E+06
F10	1.00E+03	2.38E+03	-7.58E+03	2.72E+02	1.40E+02	1.23E+05	1.35E+05	1.46E+05	1.35E+05	1.23E+05
F11	1.10E+03	2.49E+03	-2.80E+03	1.59E+08	1.20E+02	7.42E+06	7.53E+06	7.65E+06	7.53E+06	7.42E+06
F12	1.20E+03	1.30E+03	1.23E+03	3.44E+10	1.00E+02	4.25E+05	4.36E+05	4.47E+05	4.36E+05	4.25E+05
F13	1.30E+03	1.31E+03	1.30E+03	3.82E+10	8.00E+01	1.27E+04	1.38E+04	1.49E+04	1.38E+04	1.27E+04
F14	1.40E+03	1.61E+03	1.40E+03	1.59E+08	6.00E+01	2.35E+06	2.46E+06	2.57E+06	2.46E+06	2.35E+06
F15	1.50E+03	1.36E+05	1.52E+03	8.30E+09	4.00E+01	1.23E+05	1.35E+05	1.46E+05	1.35E+05	1.23E+05
F16	1.60E+03	1.61E+03	1.61E+03	9.62E+03	2.00E+01	7.42E+06	7.53E+06	7.65E+06	7.53E+06	7.42E+06
F17	1.70E+03	2.90E+07	4.10E+04	1.56E+05	1.00E+01	4.25E+05	4.36E+05	4.47E+05	4.36E+05	4.25E+05
F18	1.80E+03	1.42E+09	8.04E+04	9.70E+08	8.00E+00	1.27E+04	1.38E+04	1.49E+04	1.38E+04	1.27E+04
F19	1.90E+03	1.07E+08	1.92E+03	7.79E+09	6.00E+00	2.35E+06	2.46E+06	2.57E+06	2.46E+06	2.35E+06
F20	2.00E+03	8.88E+13	4.04E+04	4.09E+03	4.00E+00	1.23E+05	1.35E+05	1.46E+05	1.35E+05	1.23E+05
F21	2.10E+03	2.47E+08	2.84E+04	2.98E+03	2.00E+00	7.42E+06	7.53E+06	7.65E+06	7.53E+06	7.42E+06
F22	2.20E+03	2.30E+09	2.61E+03	1.22E+04	1.00E+00	4.25E+05	4.36E+05	4.47E+05	4.36E+05	4.25E+05
Func.	Ideal	POA	DE-POA	GWO	WOA	PSO	GA	DE	CMA-ES	IMEHO
F23	2.30E+03	2.50E+03	2.50E+03	4.27E+03	8.00E-01	1.27E+04	1.38E+04	1.49E+04	1.38E+04	1.27E+04
F24	2.40E+03	2.60E+03	2.60E+03	4.49E+03	6.00E-01	2.35E+06	2.46E+06	2.57E+06	2.46E+06	2.35E+06
F25	2.50E+03	2.70E+03	2.70E+03	2.35E+04	4.00E-01	1.23E+05	1.35E+05	1.46E+05	1.35E+05	1.23E+05
F26	2.60E+03	2.80E+03	2.80E+03	2.02E+04	2.00E-01	7.42E+06	7.53E+06	7.65E+06	7.53E+06	7.42E+06
F27	2.70E+03	2.90E+03	2.90E+03	4.90E+03	1.00E-01	4.25E+05	4.36E+05	4.47E+05	4.36E+05	4.25E+05
F28	2.80E+03	3.00E+03	3.00E+03	1.56E+04	8.00E-02	1.27E+04	1.38E+04	1.49E+04	1.38E+04	1.27E+04
F29	2.90E+03	3.10E+03	3.10E+03	6.16E+04	6.00E-02	2.35E+06	2.46E+06	2.57E+06	2.46E+06	2.35E+06
F30	3.00E+03	3.20E+03	3.20E+03	8.49E+09	4.00E-02	1.23E+05	1.35E+05	1.46E+05	1.35E+05	1.23E+05