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Sampling

Still, the 23 functions are divided into 3 groups. First group contains 12 functions, which are F1, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, and F13. The second group consists of 7 functions, namely F2, F14, F16, F17, F18, F19, and F20. The last group consists of 4 functions, i.e., F15, F21, F22, and F23.

Baldwin and Lamarck need to compute f.() twice during each iteration, but SSGA only needs to compute f.() once. So, for a given budget, say budget=10000, this means that SSGA can perform 10,000 iterations, but Baldwin and Lamarck can only perform 5000 iterations. SSGA takes the best solution every 50 iterations, but Baldwin and Lamarck take the best solution every 25 iterations.1 In this case, the final number of data points sampled is the same. We gave all 20 parameter combinations 20 runs.

First Group

Data for F4 , F8, F9, and F10 is still under running, but the others are completed.

Figure 1 shows the Budget-Best solution curve for F1, F3, F5, F6, F7, F11, F12 and F13 in first group.

Figure 2 shows the Iter-Best solution curve for F1, F3, F5, F6, F7, F11, F12 and F13 in first group.

Figure 1 Budget convergence for part of functions of first group

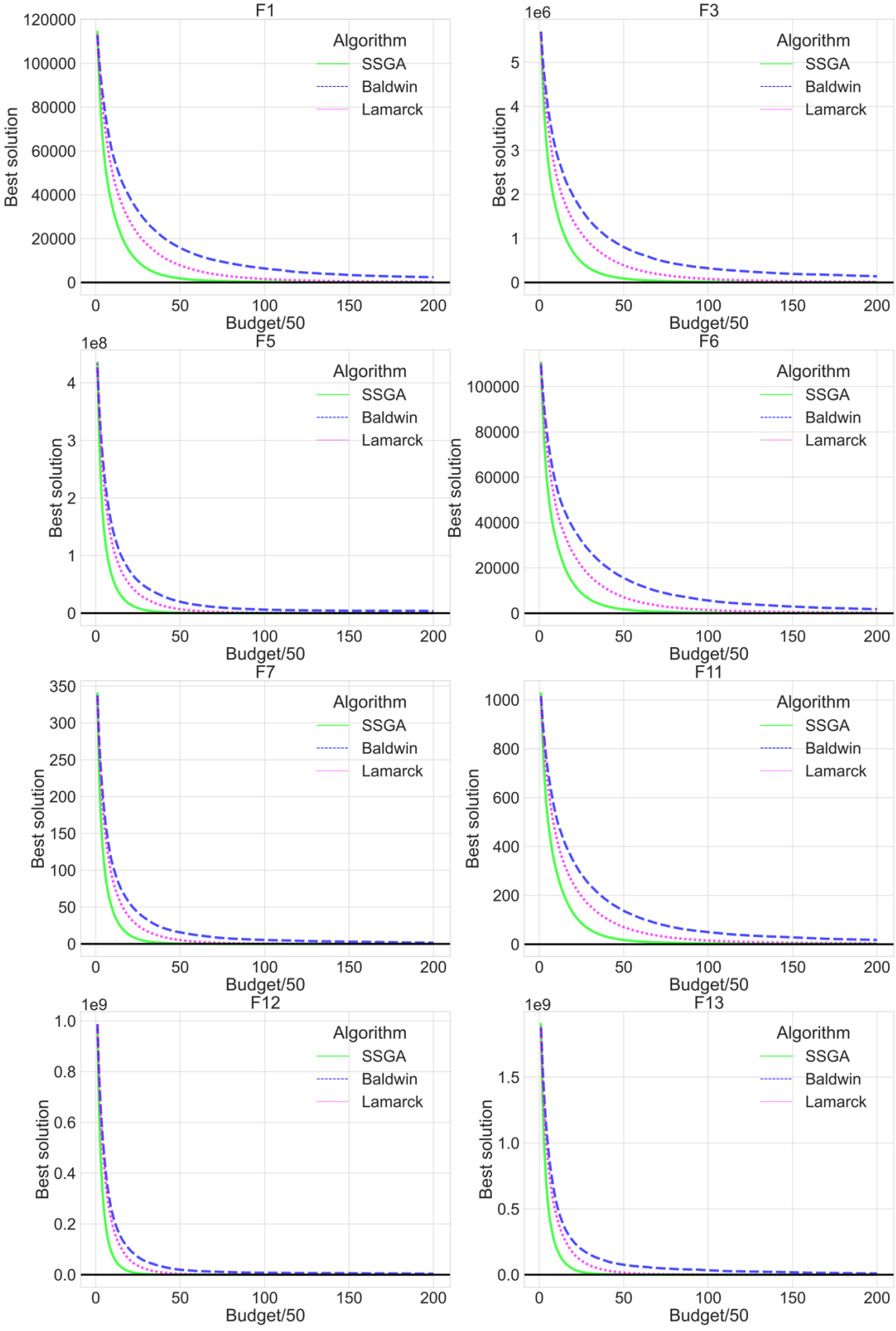
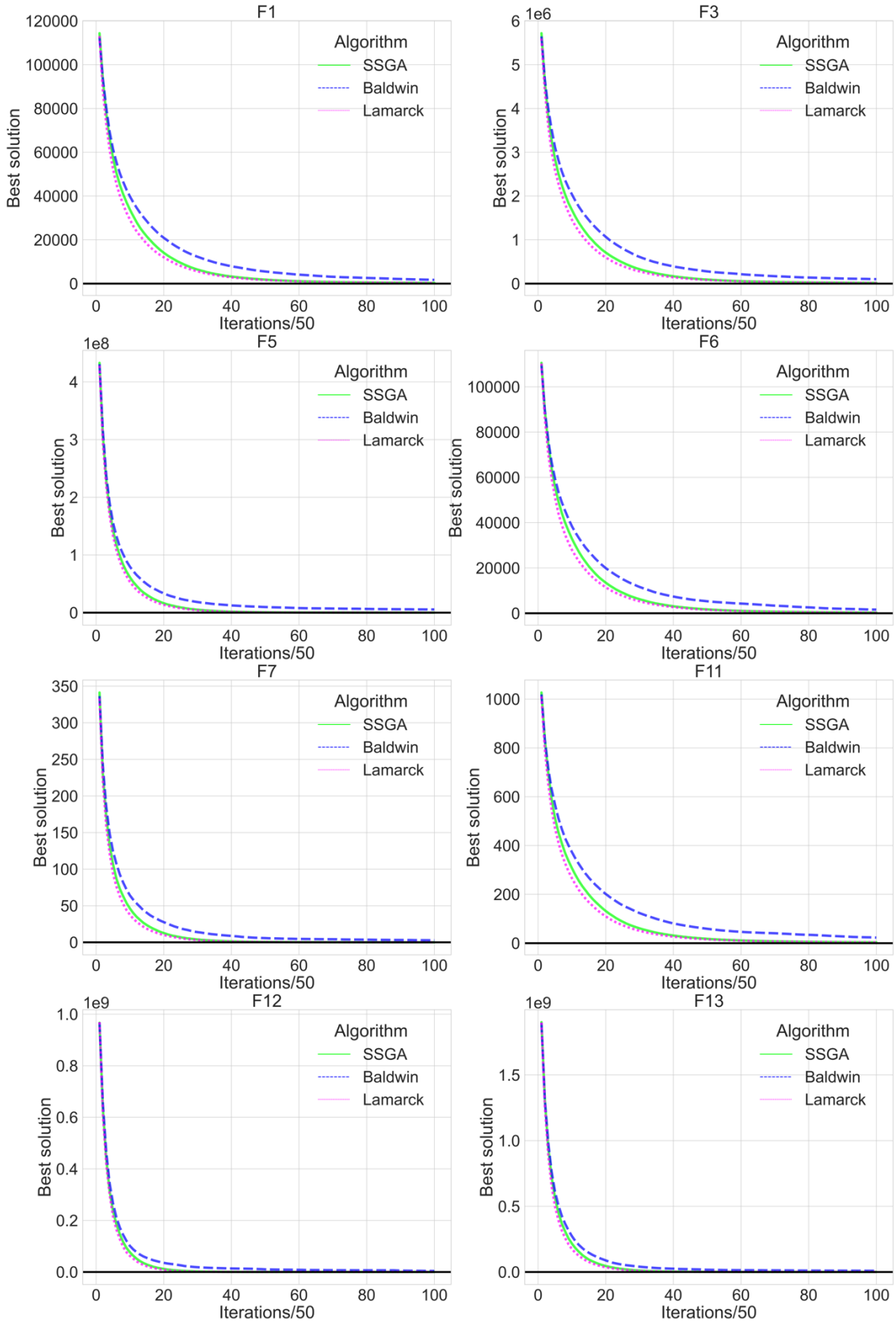


Figure 2 Iterations convergence for part of functions of first group



Second group

Figure 3 shows Budget-Best solution curve for the second group.

Figure 4 shows Iter-Best solution curve for the second group.

Figure 5 shows the first 100 budget for the second group.

Figure 3 Budget convergence for second group

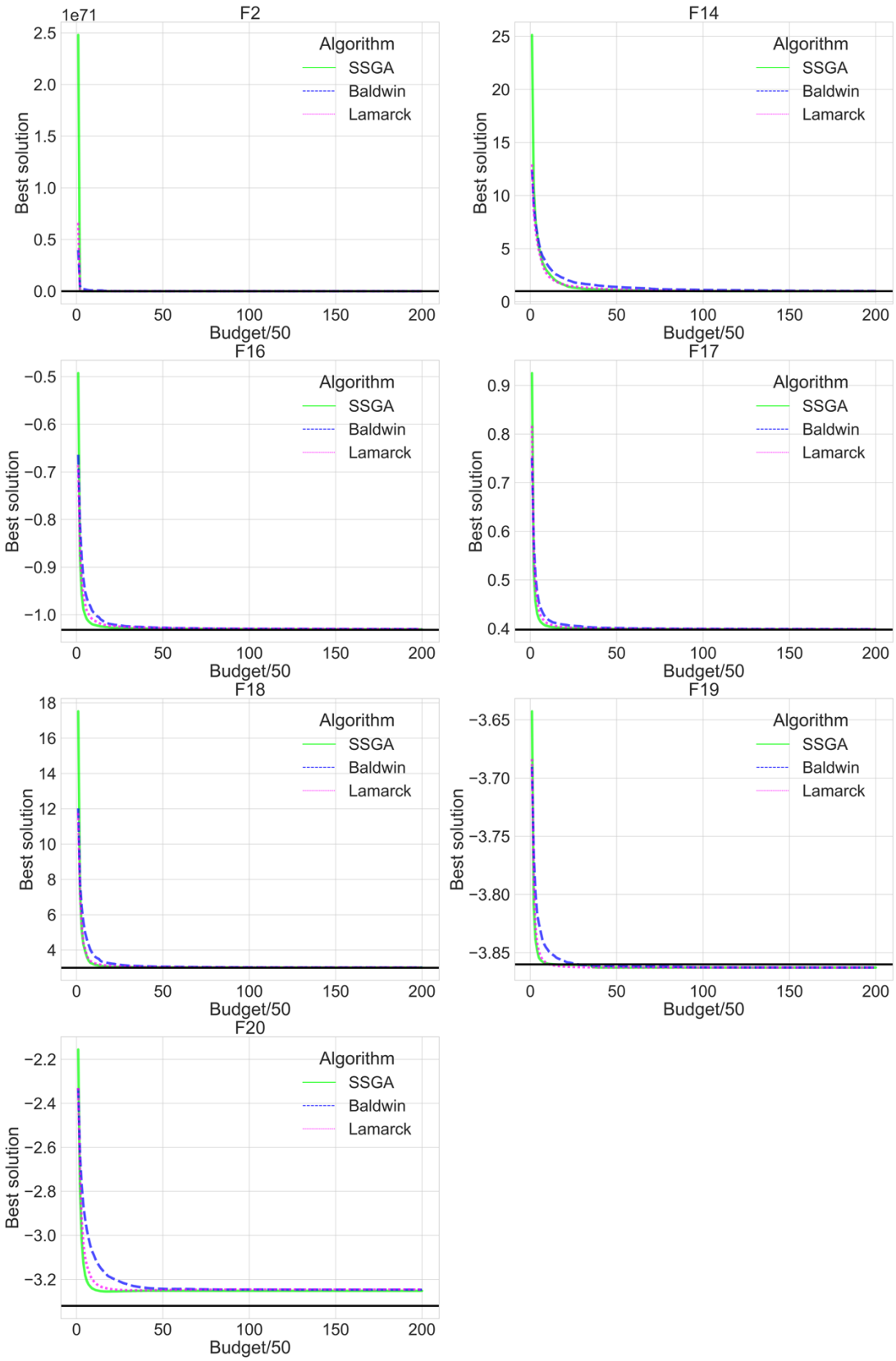


Figure 4 Iterations convergence for second group

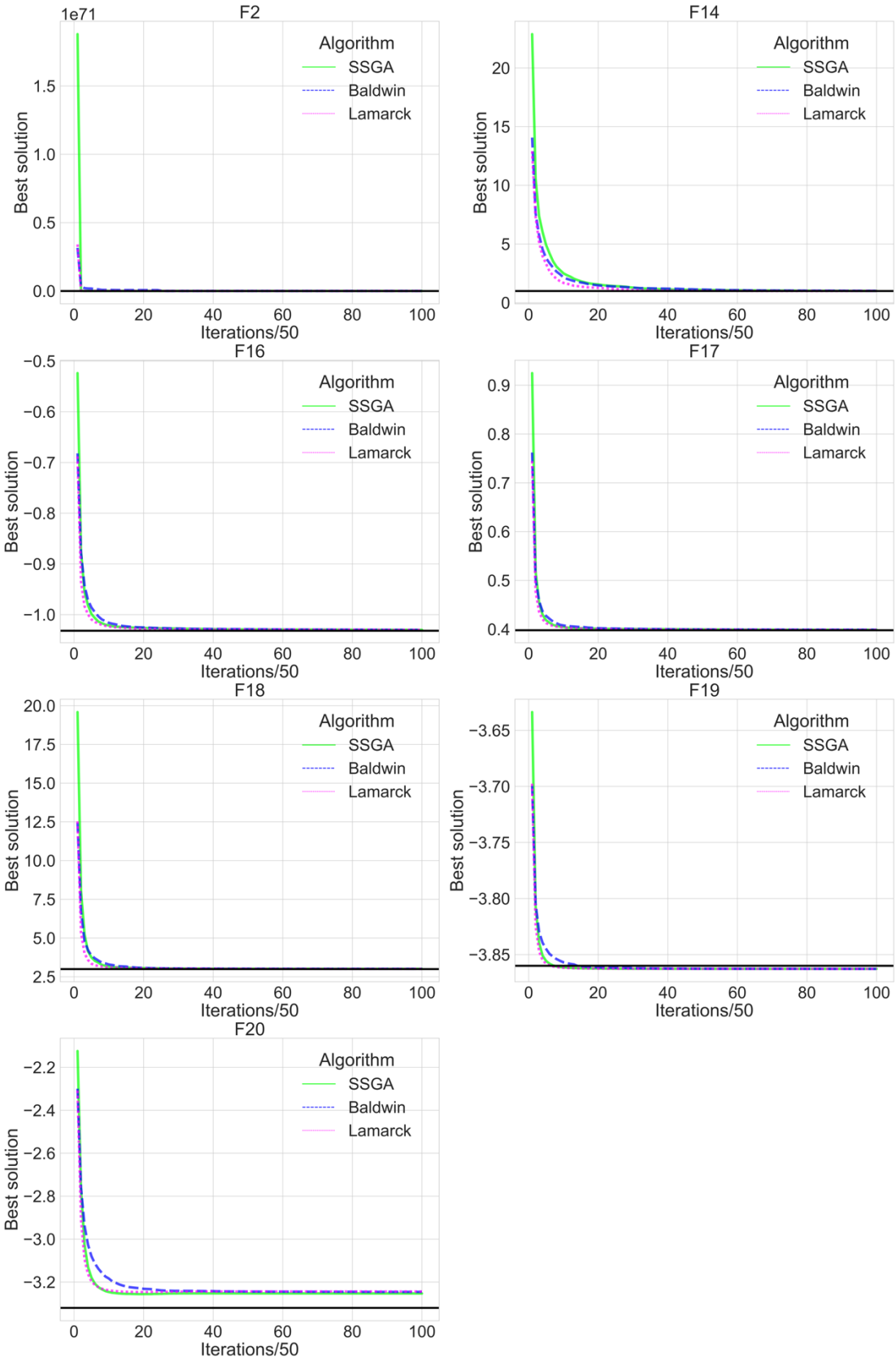
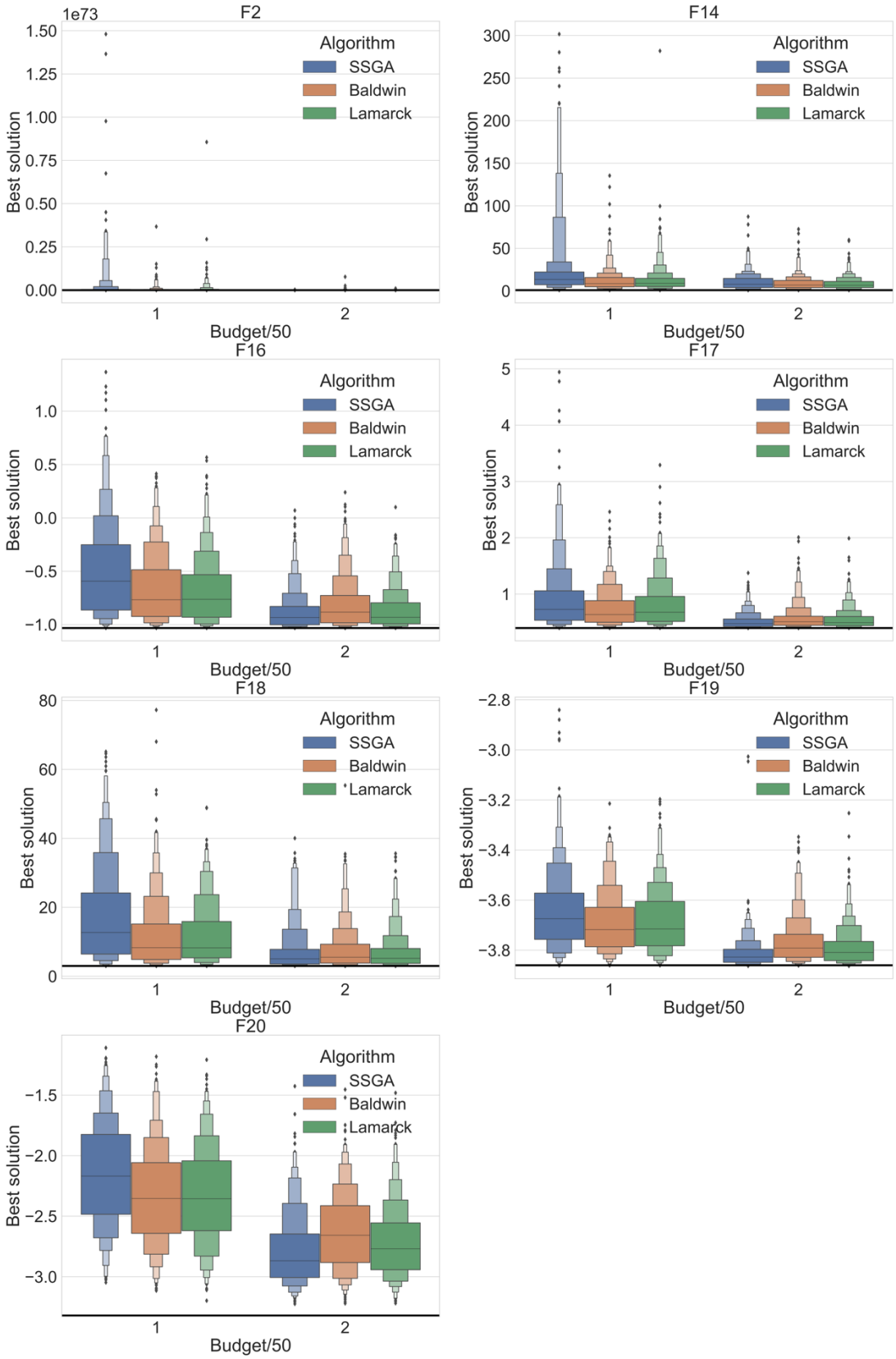


Figure 5 first 100 budget for second group



Third group

Figure 6 shows Budget-Best solution curve for the third group.

Figure 6 Budget convergence for the third group

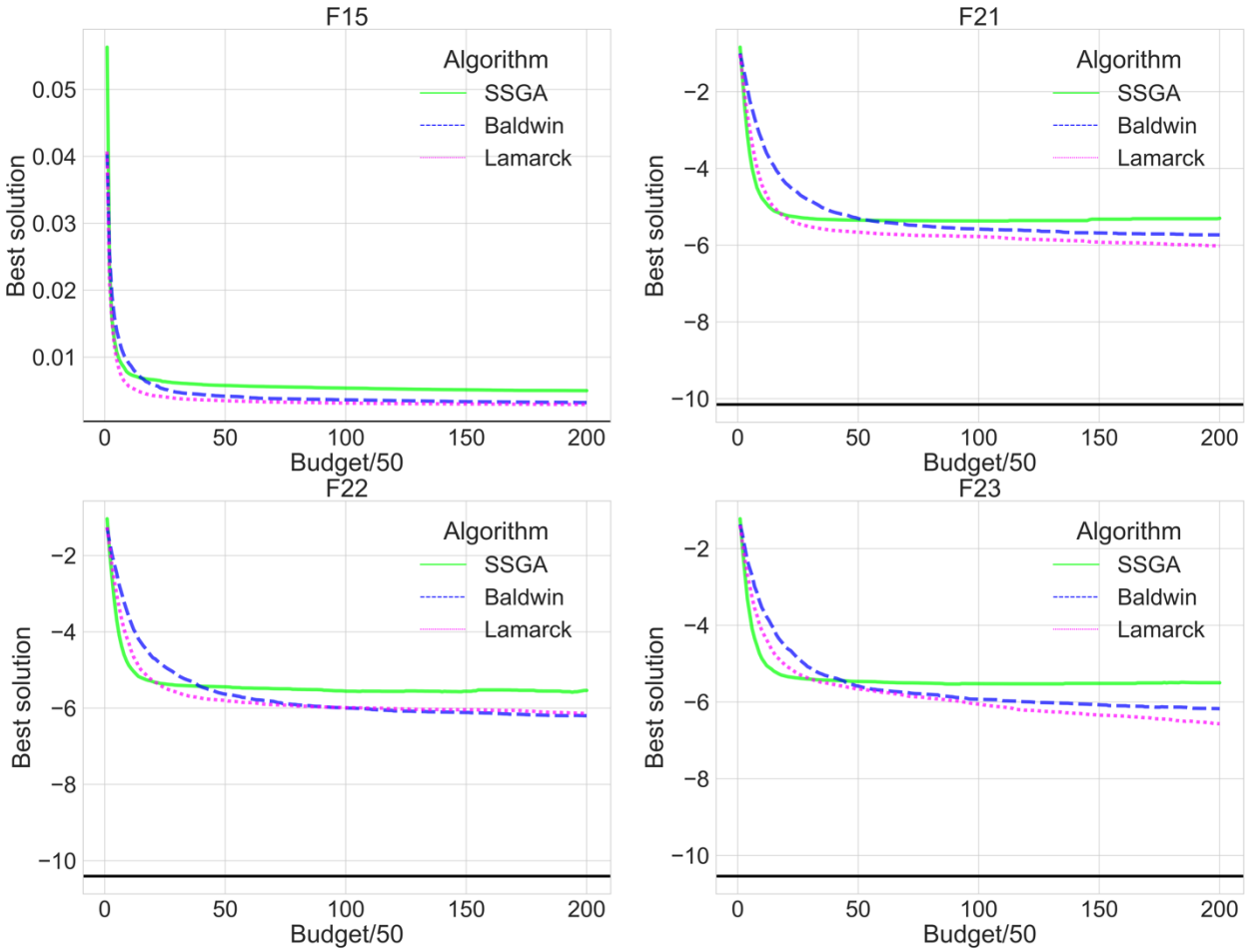


Figure 7 shows Iter-Best solution curve for the third group.

Figure 7 Iterations convergence for the third group