

a9a

$$f(x_k) - f(x^*)$$

 10^{-1}

0

1

2

3

4

5

6

Number of oracle calls

1e8

- ◆ ZO-AccSGD: $N = 10000$; $lr = 0.06361648120413012$, $\rho = 100$, $bs = 32561$, $B = 10$, $\delta = 0.01$
- ZO-AccSGD: $N = 10000$; $lr = 0.06361648120413012$, $\rho = 100$, $bs = 32561$, $B = 10$, $\delta = 0.001$
- ▲ ZO-AccSGD: $N = 10000$; $lr = 0.06361648120413012$, $\rho = 100$, $bs = 32561$, $B = 10$, $\delta = 0.0001$
- ZO-AccSGD: $N = 10000$; $lr = 0.006361648120413011$, $\rho = 100$, $bs = 32561$, $B = 10$, $\delta = 0.01$
- ★ ZO-AccSGD: $N = 10000$; $lr = 0.006361648120413011$, $\rho = 100$, $bs = 32561$, $B = 10$, $\delta = 0.001$
- ◆ ZO-AccSGD: $N = 10000$; $lr = 0.006361648120413011$, $\rho = 100$, $bs = 32561$, $B = 10$, $\delta = 0.0001$