



Query Lower Bounds

- See if similar techniques can be employed to study matrix-vector product lower bounds for



- Current algorithms use  $\mathcal{O}(k/\sqrt{\varepsilon})$  matrix-vector products

- Tight for  $k = 1$  [Bakshi, Narayanan '23]

- Extending it to all  $k$ ?

$$\|A - B\|_2 \leq (1 + \varepsilon) \sigma_{k+1}(A)$$



3

9

# Query Lower Bounds

- See if similar techniques can be employed to study matrix-vector product lower bounds for

$$\|A - B\|_2 \leq (1 + \varepsilon)\sigma_{k+1}(A)$$

- Current algorithms use  $O(k/\sqrt{\varepsilon})$  matrix-vector products
  - Tight for  $k = 1$  [Bakshi, Narayanan '23]
  - Extending it to all  $k$ ?

# Streaming