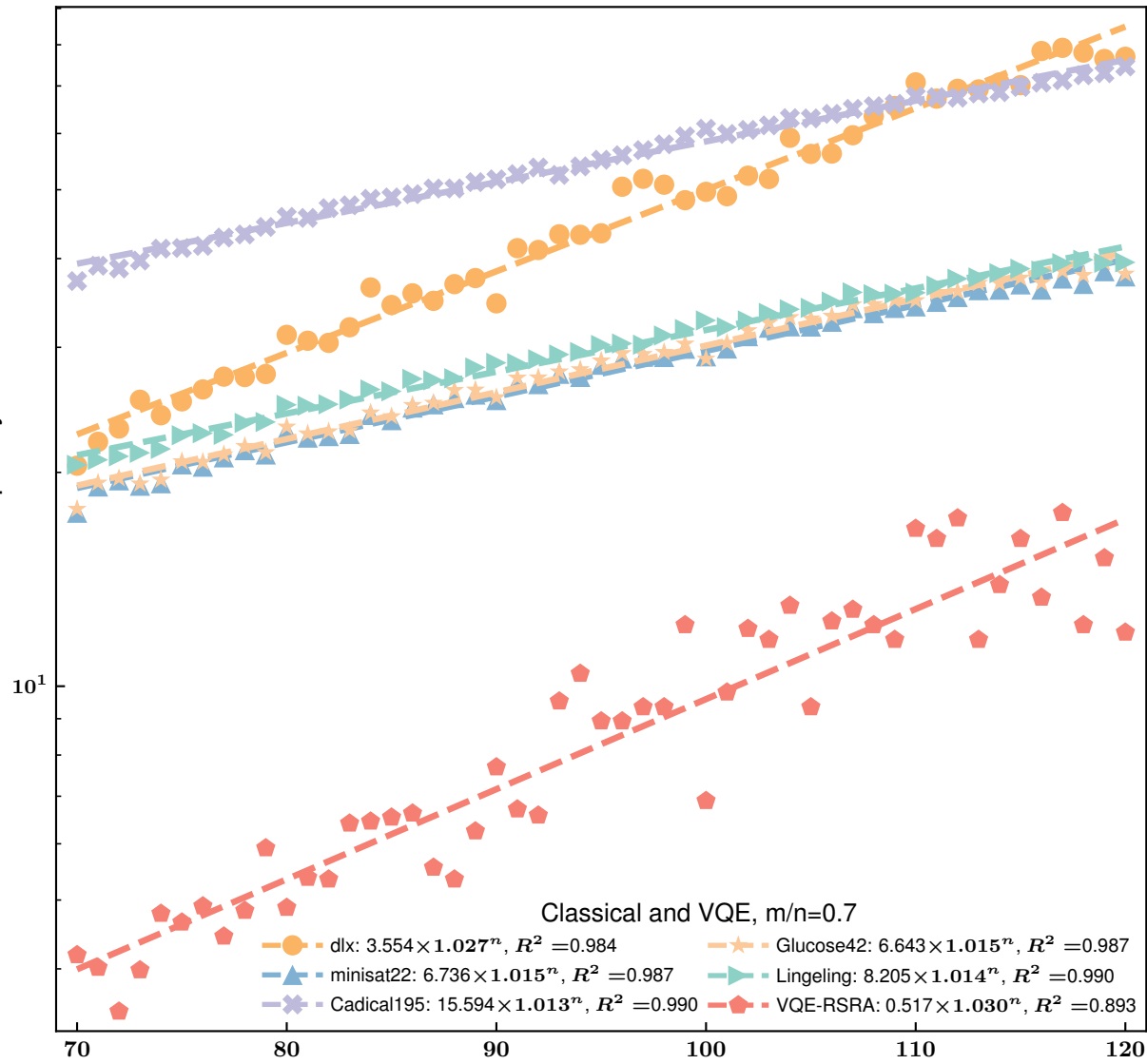


a

Time complexity



b

Time complexity

 $n$ 

100 layer QAA,  $m/n=0.7$

- QAA-RSRA:  $0.771 \times 1.010^n$ ,  $R^2 = 0.974$  (dark blue circles)
- QAA:  $0.927 \times 1.046^n$ ,  $R^2 = 0.991$  (light blue triangles)

c

Time complexity

 $n$ 

25 layer QAOA,  $m/n=0.7$

- QAOA-RSRA:  $0.832 \times 1.010^n$ ,  $R^2 = 0.951$  (dark blue circles)
- QAOA:  $0.883 \times 1.044^n$ ,  $R^2 = 0.961$  (light blue triangles)