

排序

希尔排序: Sedgewick序列

14-C5

邓俊辉

deng@tsinghua.edu.cn

# Sedgewick's Sequence

❖ **Pratt's** sequence requires **too many** iterations and hence is not good for pre-sorted sequences

❖ **Sedgewick's** sequence: a combination of **PS's** sequence with **Pratt's**

$$\{ 1 \quad 5 \quad 19 \quad 41 \quad 109 \quad 209 \quad 505 \quad 929 \quad 2161 \quad 3905 \quad 8929 \quad 16001 \quad 36289 \quad 64769 \quad \dots \}$$

$$\{ 9 \times 4^k - 9 \times 2^k + 1 \mid k \geq 0 \} \quad \cup \quad \{ 4^k - 3 \times 2^k + 1 \mid k \geq 2 \}$$

- worst  $\mathcal{O}(n^{4/3})$  & average  $\mathcal{O}(n^{7/6})$
- best performance in practice

❖ Is there a step sequence with  $\mathcal{O}(n \cdot \log n)$  worst-case performance?