Point Location

Kirkpatrick Structure

- Existence Of Independent Subset

Junhui DENG

deng@tsinghua.edu.cn

Subdivision As A Planar Graph

- Claim: there always exists such an IS of size $\left\lceil \frac{n}{27} \right\rceil$

- By Euler's formula

  a planar graph of n vertices has

  - at least $\left\lceil \frac{n}{2} \right\rceil$ vertices whose degrees are no more than 11
  - no more than $\left\lfloor \frac{n}{2} \right\rfloor$ vertices whose degrees are at least 12

- Kirkpatrick

  a planar graph of n vertices has

  - at least $\left\lceil \frac{n}{3} \right\rceil$ vertices whose degrees are no more than 8
  - no more than $\left\lfloor \frac{2n}{3} \right\rfloor$ vertices whose degrees are at least 9