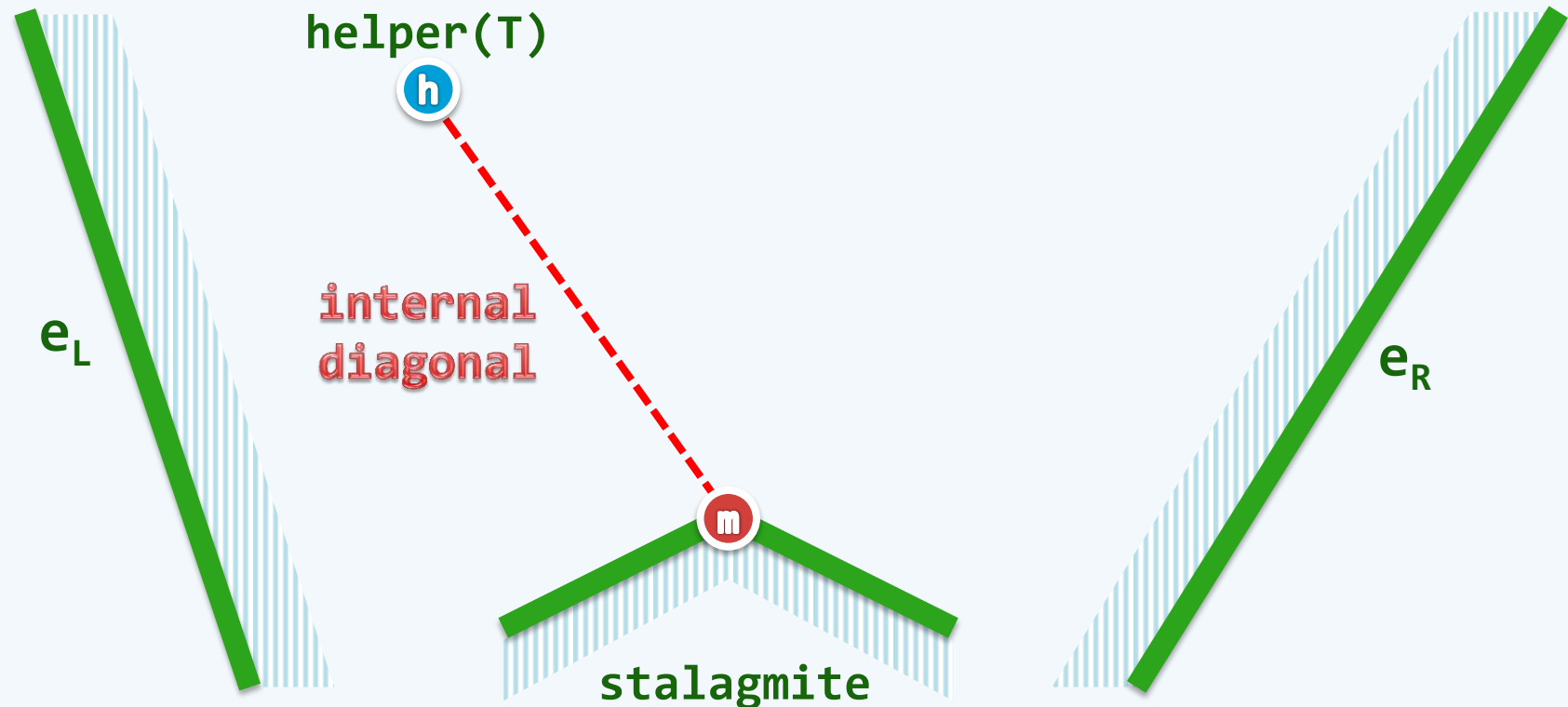# Triangulation

## Monotone Decomposition

### - Helper

Junhui DENG

deng@tsinghua.edu.cn

# Internal Diagonal

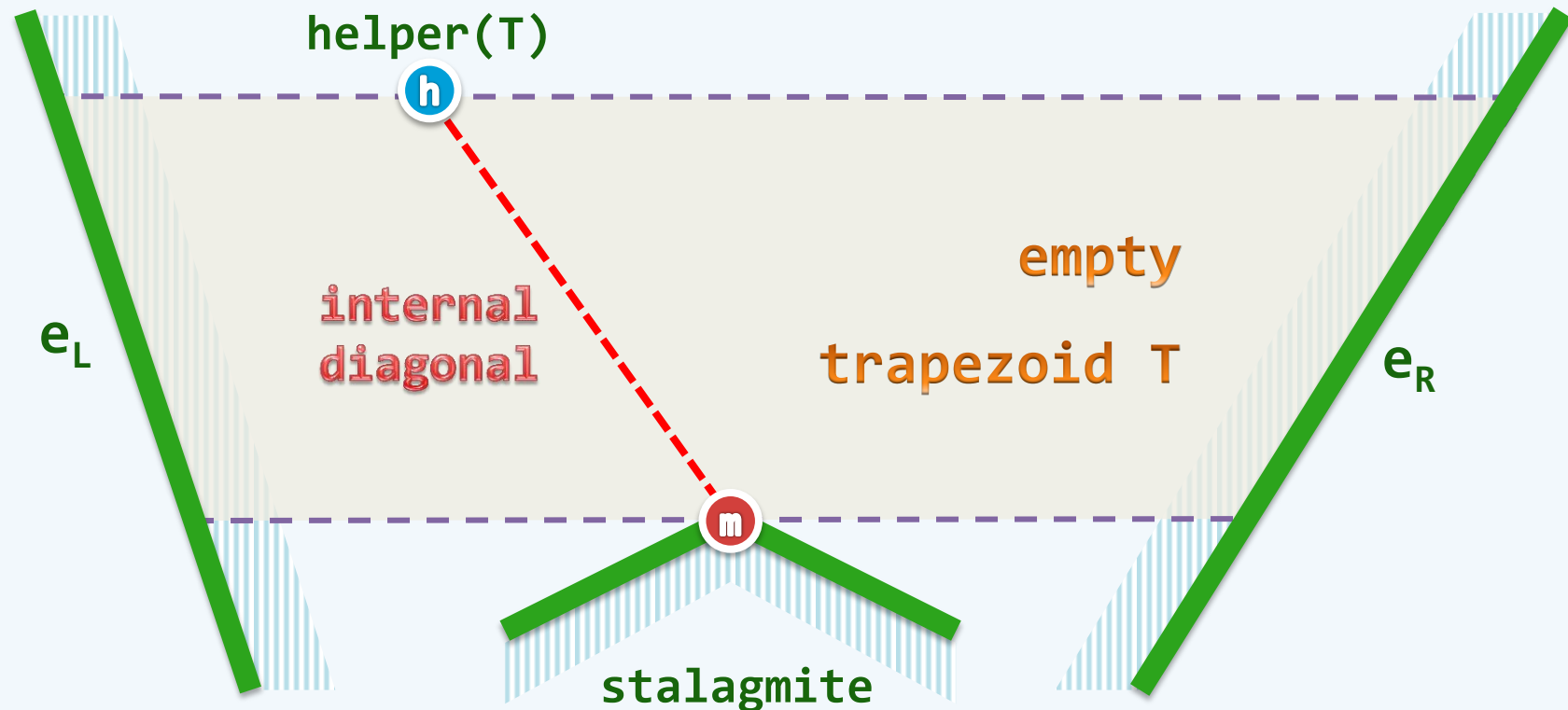❖ To break m,

  we connect it to h, a helper vertex, with an internal diagonal

❖ Which vertex could be the helper for m?

helper(T)

h

$e_L$

**internal diagonal**

$e_R$

m

**stalagmite**

## Empty Trapezoid

❖ Consider the maximal empty trapezoid $T$ supported by $m$, $e_l$ and $e_R$

❖ $h$ could be taken as the vertex supporting $T$ from above

❖ How to find $h$ for any $m$ efficiently?

helper(T)

h

$e_L$

internal
diagonal

empty

trapezoid T

$e_R$

m

stalagmite

❖ While sweeping from top down

  helper(T) is maintained/updated for each active trapezoid T̄

❖ Once an m̄ appears inside T̄, helper(T) will be connected to m̄



helper(T)

h

empty

internal
diagonal

trapezoid T

$e_L$

$e_R$

sweepline

m

stalagmite