

**Triangulation**

**Tetrahedralization**

**- Steiner Points**

**Junhui DENG**

**deng@tsinghua.edu.cn**

## Steiner Points

- ❖ In the absence of tetrahedralization,  
we have to introduce extra points  
to partition a polyhedron into tetrahedra
- ❖ The extra points used by a triangulation (tetrahedralization)  
are called **Steiner points**
- ❖ In general,  
every polyhedron can be partitioned into tetrahedra with Steiner points

## Hardness of Identification

❖ Given a polyhedron, determine

1) **Determination- $\emptyset$**

whether it admits a triangulation **without** Steiner points, and

2) **Determination- $k$**

whether  **$k$**  Steiner points suffice to triangulate it

❖ [Ruppert & Seidel, 1992]

Both **Determination- $\emptyset$**  and **Determination- $k$**  are NP-complete