

数学与系统科学研究院

计算数学所学术报告

报告人: **Prof. Hang Si**

( *Weierstrass Institute for Applied Analysis and Stochastics,*  
*Germany* )

报告题目:

**A Tutorial on Open Source Mesh  
Generation Softwares**

邀请人: **崔涛 副研究员**

报告时间: **2016 年 7 月 20 日 (周三)**

**下午 14:30-16:30**

报告地点: **科技综合楼三层  
311 报告厅**

# **Abstract:**

In this tutorial, we will introduce the following open source mesh generation softwares:

- Triangle (<https://www.cs.cmu.edu/~quake/triangle.html>), and
- TetGen (<http://www.tetgen.org>),

We will briefly learn the basic data structure and algorithms that are implemented by these softwares, and we will learn how to properly use them to generate triangular and tetrahedral meshes for various purposes, namely, adaptive mesh generation and mesh quality improvement.

To generate meshes we need first create proper inputs. This may be a complicated task. We will introduce the open source software Gmsh (<http://gmsh.info>) for creating 2d polygonal inputs, and the open source tool Blender (<http://www.blender.org>) to create 3d input surface meshes to be used for tetrahedral mesh generation.

It is always helpful to visualise the generated meshes. We will introduce the use of open source software Paraview (<http://www.paraview.org>) for visualizing 2d and 3d meshes.

All these above softwares are freely available and can be downloaded from the given website. It is highly recommended that the attendees bring their laptops with the above softwares installed. For using the above softwares, it is also necessary to down the following additional code (save\_to\_ucd.c and gmshio.cpp) from:

<http://www.wias-berlin.de/people/si/course/#Softwares>

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