



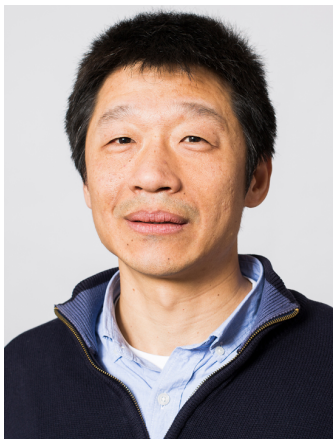
Ciclo de Coloquios 2019



El Departamento de Informática (DI) de la Universidad Técnica Federico Santa María tiene el agrado de invitar a la comunidad universitaria a una nueva charla de su ciclo de coloquios 2019. La presentación se realizará en Laboratorio de Programación Avanzada (LPA, B038) del DI Campus San Joaquín el día Jueves 4 de Abril a las 11:45 Hrs. y se transmitirá por videoconferencia al Auditorio Claudio Matamoros del DI en Casa Central.

Título: An Introduction to Unstructured Mesh Generation and Adaptation

Expositor



Hang Si

Weierstrass Institute (WIAS), Berlin

Mini Bio

Hang Si is employed by Weierstrass Institute (WIAS) in Berlin. His main research is mesh generation and the discrete and computational geometry problems behind it. The goal is to develop efficient algorithms for automatically generating tetrahedral meshes suitable for numerical methods such as finite element and finite volume methods. He developed the software, TetGen, a Delaunay tetrahedral mesh generator. It is freely available for academic use (<http://www.tetgen.org>).

Hang Si got his B.S. in Electrical Engineering in Hangzhou University (now merged in Zhejiang University) in 1994, and got his M.S. in Computer Science in Zhejiang University in 2002. He joined the research group "Numerical Mathematics and Scientific Computing" of WIAS in 2002. He received his Ph.D from the Institute of Mathematics of Technische Universität Berlin in 2008.

Abstract

Analytic solutions for most PDEs are known only for some simple domains, such as a circle, square, or sphere. In order to obtain solutions for more realistic domains, numerical approximations such as the finite element method (FEM) and finite volume methods (FVM) are used. Mesh generation is a key step prior to these numerical methods. It is itself an active research topic with background in mathematics, computer science, and engineering. Apart from numerical solution of PDEs, its applications are numerous and have practical uses in fields such as archaeology, cinematography and robotics.

In this talk, we will begin with triangle mesh generation and adaptation in the plane. This problem has been well studied. Efficient algorithms are developed. We will then move to tetrahedral mesh generation in 3d, which is still challenged by many theoretical and practical issues. The introduced algorithms as well as examples will be demonstrated using two open source codes: Detri2 and TetGen, which are under developing by the author.

Lugar y Fecha

Jueves 4 de Abril de 2019, 11:45 hrs.

Laboratorio de Programación Avanzada (LPA, B038), Campus San Joaquín.
Auditorio Claudio Matamoros, Campus Casa Central (videoconferencia).