

Subject of Presentation

GDEM: A GPU Boosted DEM Software and Its Applications

Abstract

GPU computing is powerful in speed but it is difficult for programmers to handle mixed models and complicated processes. The lecture introduces the development of the GPU powered numerical simulation software GDEM, along with its architecture, the parallel algorithms, and the following issues:

- The software architecture designed for the mixed GPU - CPU codes;

- Flexible GPU programming, for various models and complicated questions;

- Some issues in Visual computing programming;

- Applications in dynamics analyses;

- Applications in fracture system and discrete analyses;

- Applications in synthesized mining procedure simulation;

- Live demonstrations using GPU;

Lecturer

Zhaosong Ma, PhD, software architect, senior engineer of Institute of Mechanics, Chinese Academy of Sciences. He is specialized in computational mechanics, geo-mechanics, information systems, computer graphics and computer algorithms, especially in high performance computing. The GPU software developed by him and his colleagues boosts up the computing speed by over 100 times.