Scaled Boundary Finite Element Method

Overview

The course will present an overview of the principles and procedures that lead to the development of the scaled boundary finite element method (SBFEM). The SBFEM shares the advantages of the boundary element method (BEM) and the finite element method (FEM). Like the FEM, it does not require the fundamental solution and like the BEM, only the boundary of the domain is discretized. This makes the method an ideal numerical tool especially to solve problems in fracture mechanics, unbounded domain problems, wave propagation to name a few. Furthermore, this method provides a high degree of flexibility in automatic mesh generation. In this short course, the essentials of the method will be provided to enable the students to appreciate the advantages of the method and its potential in terms of further research, development and applications.

Course participants will learn these topics through lectures and hands-on numerical experiments.

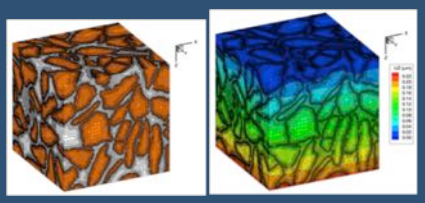
Dates for the Course	**14th November, 2016 to 18th November, 2016**
Host Institute	**IIT Madras**
No. of Credits	**1**
Maximum No. of Participants	**40**
You Should Attend If…	▪ You are a senior under graduate student, postgraduate students or a faculty in engineering and applied mathematics. ▪ Engineers and researchers from industry, government organization and R&D laboratories. ▪ You are interested in numerical methods for engineering.
Course Registration Fees	The participation fees for taking the course is as follows: **Student Participants:** Rs.1000 **Faculty Participants:** Rs.4000 **Government Research Organization Participants**: Rs.6000 **Industry Participants:** Rs.8000 The above fee is towards participation in the course, the course material, computer use for tutorials and assignments, and laboratory equipment usage charges. **Mode of payment: Demand draft in favour of "Registrar, IIT Madras" payable at Chennai**
Accommodation	The participants may be provided with hostel accommodation, depending on the availability, on payment basis. Request for hostel accommodation may be submitted through the link: http://hosteldine.iitm.ac.in/iitmhostel

Course Faculty

Prof. Chongmin Song is a Professor and Deputy Director at the Centre for Infrastructure Safety and Engineering, School of Civil & Environmental Engineering, UNSW. Prof Song's current research interests are on the development of advanced numerical methods and their application to structural and geotechnical engineering. Prof. Song is one of the two original creators of the scaled boundary finite element method.

Dr. Sundararajan Natarajan is a faculty member in the Department of Mechanical Engineering at IIT Madras. His research interests lie in the areas of computational solid mechanics and applied mathematics.

Image based analysis of meso-structure



Mesh generation from STL images

Course Coordinator

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