

The Second Workshop on Recent Progress of the Scaled Boundary Finite Element Method (SBFEM2018)

Faculty of Infrastructure Engineering, Dalian University of Technology, Dalian, China

Nov. 3-5, 2018







Foreword

The Second Workshop on Recent Progress of the Scaled Boundary Finite Element Method (SBFEM2018) is an annual meeting to exchange academic achievements, technological developments, and education experiences in the field of Scaled Boundary Finite Element Method. The First Workshop on Recent Progress of the Scaled Boundary Finite Element Method (SBFEM2017) has started and been successfully held in Hohai University, Nanjing on Nov. 5-7, 2017.

The Second Workshop on Recent Progress of the Scaled Boundary Finite Element Method (SBFEM2018) is organized by Faculty of Infrastructure Engineering, Dalian University of Technology. The research topics in the abstracts submitted by different groups in the world include the wide applications of SBFEM to wave propagation, fracture mechanics, soil-structure interaction, shell structure, heat transfer, etc.

On behalf of the organizing committee of the SBFEM2018, We would like to thank all participants to this workshop in Dalian University of Technology. We would also like to express my hearty gratitude for the great effort by the member of the local organizing committee. It is hoped that active discussions and exchanges of ideas and information may follow the presentations; pertinent areas for the future cooperation may be identified; and friendship among the members of the participating institutions may grows further.

> Conference Chair Prof. Gao Lin Dalian University of Technology, Dalian, China

> > Prof. Chongmin Song

University of New South Wales, Sydney, Australia

Organization

Conference Chairmen

- Prof. Gao Lin (Chairman), Dalian University of Technology, China
- Prof. Chongmin Song (Co-chairman), University of New South Wales, Australia

Scientific Committee

- Prof. Chongmin Song, University of New South Wales, Australia.
- Prof. Gao Lin, Dalian University of Technology, China.
- Prof. Haitian Yang, Dalian University of Technology, China.
- Prof. Degao Zou, Dalian University of Technology, China.
- Prof. Carolin Birk, Universität Duisburg-Essen, Germany.
- Prof. Chengbin Du, Hohai University, China

Conference Secretariat

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Finite Element Method (SBFEM2018)

Faculty of Infrastructure Engineering, Dalian University of Technology, Dalian, China, Nov.3~5, 2018

Conference Program

Date: November 3, 2018 (Saturday)				
Location: 1st floor, Dalian University of Technology International Conference Center(国际会议中				
心1楼大厅)				
08:30-21:30	Registration			
18:00-20:00	Welcome Dinner			
	Location: (No.2 Ban	quet Hall, 2nd floor, International Conference		
	Center (国际会议中心	2楼宴会二厅)		
Date: November 4, 2018 (Sunday)				
Location: No.2 Lecture Hall, 2nd floor, Dalian University of Technology (DLUT) International				
Conference Center(国际会议中心2楼2号报告厅)				
8:30-8:45	Opening Ceremony			
8:45-9:00	Group Photo			
	Location: Front gate of	f the DLUT International Conference Center(国际		
	会议中心正门)			
9:00-9:30	Chair:	Analysis of Spherical Shells based on Scaled		
	Prof. Chengbin Du	Boundary Finite Element Method		
		Speaker: Prof. Gao Lin		
		(Dalian University of Technology, China)		
9:30-10:00		Treatment of Nonmatching Meshes Using the		
		Scaled Boundary Finite Element Method		
		Speaker: Prof. Chongmin Song		
		(University of New South Wales, Australia)		
10:00-10:30		Numerical Modelling of Thermally - induced		
		Crack Propagation Using the Scaled Boundary		
		Finite Element Method		
		Speaker: Prof. Carolin Birk		
		(University of Duisburg-Essen, Germany)		
10:30-10:45	Coffee Break			
10:45-11:15	Chair:	Crack Propagation Modelling of Hydraulic		
	Prof. Gao Lin	Fracture in the Concrete Dam Using SBFEM		
		Speaker: Prof. Chengbin Du		
		(Hohai University, China)		
11:15-11:45		Image-based Mesoscale Fracture Analysis of		
		Concrete: A Scaled Boundary Finite Element		
		Approach		
		Speaker: Dr. E. T. Ooi		
		(Federation University, Australia)		
11:45-12:15	1	SBFEM-based Modelling of Plastic Stress Wave		
		Propagation under Transient Dynamic Loadings		

		Speaker: Prof. Zhenjun Yang
		(Zhejiang University, China)
12:20-13:20	Lunch	
	Location: No.2 Banqu	et Hall, 2nd floor, DLUT International Conference
	Center(国际会议中心	2楼宴会二厅)
14:00-14:30	Chairs	Efficient application of SBFEM-based concepts
	Prof. Chongmin Song	to the solution of elastodynamic problems at
		high frequencies
		Speaker: Dr. Hauke Gravenkamp
		(University of Duisburg-Essen, Germany)
14:30-14:50		Application of the Adaptive Quadtree Scaled
		Boundary Finite Element Method for Heat
		Transfer Problems with Phase Change
		Dr. Yiqian He
		(Dalian University of Technology, China)
14:50-15:10		Mesoscale Damage Modelling of Concrete by
		Using Image-based Scaled Boundary Finite
		Element Method
		Speaker: Dr. Zihua Zhang
		(Ningbo University, China)
15:10-15:30		A scaled boundary finite element meID 85/L E

	Speaker: Dr. Feng Yao		
	(Zhejiang University, China)		
17:10-18:00	Discussion		
18:00-20:00	Dinner		
	Location:No.2 Banquet Hall, 2nd floor, DLUT International Conference		
	Center(国际会议中心 2 楼宴会二厅)		
Date: November 5, 2018 (Monday)			
Short course: Fundamental and MATLAB Implementation of the Scaled Boundary Finite Element			
Method			
Lecturer: Prof. Chongmin Song (University of New South Wales, Australia)			
Location: Multifunction Hall(Room 529), 5th floor, No.3 Comprehensive Experiment Building,			
Faculty of Infrastructure Engineering (建设工程学部综合试验3号楼5楼多功能厅(529房间))			
9:00-12:00	(1) Basic formulations of the scaled boundary finite element method in		
	two dimensions: scaled boundary coordinates and transformation,		
	derivation of the scaled boundary finite element equation by virtual		
	work principle, and element coefficient matrices		
	(2) Solution of the scaled boundary finite element equation by eigenvalue		
	decomposition: element stiffness, strain and stress field, and mass		
	matrix.		
12:00-14:00	Lunch		
	Location:No.2 Banquet Hall, 2nd floor, DLUT International Conference		
	Center (国际会议中心2楼宴会二厅)		
14:00-17:00	(3) Platypus a MATLAB program for 2D linear static and dynamic		
	analysis using the scaled boundary finite element method		
	(4) Automatic polygon mesh generation.		
	(5) Modelling considerations in the scaled boundary finite element		
	method.		
18:00-20:00	Dinner		
	Location:No.2 Banquet Hall, 2nd floor, DLUT International Conference		
	Center (国际会议中心 2 楼宴会二厅)		

Notice:

In the short course, the computer program Platypus accompanying the book mentioned above can be downloaded from the following links provided by Prof. Chongmin Song (University of New South Wales):

https://app.sugarsync.com/iris/wf/D3010052_06904472_1407189 https://www.dropbox.com/sh/0nrc7tb9rjhfya3/AABHNwY5006SuLI2N4bnNh19a?dl=0

A computer program for 2D linear static/dynamic analysis with examples for computing the stress intensity factors can be downloaded from:

<u>https://www.researchgate.net/publication/322924708_Sample_code_of_the_scaled_boundary_f</u> inite_element_method_for_evaluation_of_stress_intensity_factors_in_2D_MATLAB

General Information

Registration & Receipt

The conference fee is 800RMB (for teacher) and 400RMB (for student) for each participant. Payment can be paid in cash on-site at the conference and receipt is provided at the registration desk. The fee will cover a copy of conference proceedings, banquet, dinner, lunches, and refreshment.

Transportation

Venue of the Conference: DLUT International Convention Center (Same with the venue

of accommodation)

The Location of the Dalian University of Technology (DLUT) in Dalian, China:



The SBFEM2018 conference will be held in the INTERNATIONAL CONVENTION CENTER near the south gate of the DLUT:



The Short course will be hold in the 5 floor Multifunction Room, Comprehensive Experiment Building 4, Faculty of Infrastructure Engineering, DLUT (About 10 minutes' walk from DLUT International Convention Center)



From Dalian International Airport to DUT International

Convention Center

Recommended Line 1: