6th Asia-Pacific International Conference on Computational Methods in Engineering

12th Chinese National Conference on Computational Methods in Engineering

2nd Conference on Boundary Element and Dimension Reduction Methods

ICOME 2019

第12届全国工程计算方法学术会议

第2届边界元与降维方法学术会议

Program

会议手册

27th-30th September 2019

Dalian, China

Welcome

Dear friends and colleagues:

The Asia-Pacific International Conference on Computational Methods in Engineering was developed based on eight times of the Joint China-Japan/Japan-China Symposium on Boundary Element Method. The scope of participants expanded from China and Japan to Asia-Pacific countries and regions. In addition to the BEM, the themes of the conference have been extended to the Meshless Methods, High Performance FEM and other computational methods in engineering. The first conference was held in Sapporo, Japan in 2003. The 2-nd, 3-rd and 5-th conferences were held in Hefei, Nanjing and Hangzhou, China in 2006, 2009 and 2015, respectively. The 4-th conference was held in Kyoto, Japan in 2012. This series of conferences provide an academic exchange platform for scholars from China, Japan and other Asia-Pacific regions working in these fields.

The 6-th Asia-Pacific International Conference on Computational Methods in Engineering will be held during September 27-30, 2019 in Dalian, China, combined with the 12th Chinese National Conference on Computational Methods in Engineering and the 2nd Conference on Boundary Element and Dimension Reduction Methods.

We are looking forward to seeing you at the conference in Dalian, in this September. We believe that you will enjoy the wide variety of activities of the ICOME2019, as well as your stay in this beautiful, elegant city.

亲爱的朋友和同仁们

全国工程计算方法学术会议是在全国工程中边界元法学术会议的基础上发展而来的，首届于1985年在重庆召开，以后每3年一届从未间断。随着部分原来从事边界元法研究的研究者转向无网格法等新方法研究，会议名称和主题也有了相应的扩展，主要包括边界元法、无网格法、物质点法和高性能有限元法等。此会议为我国从事边界元、无网格和其它工程中数值方法研究的同行们提供了一个交流最新成果的平台。边界元与降维方法学术会议是中国计算力学专业委员会边界元与降维方法专业组设立的每两年举行一次的全国性学术会议，首届会议于2017年在桂林召开，主要交流边界元法与其它降维方法理论与应用的最新进展。

为了进一步深入开展边界元法、无网格法以及高性能有限元法的学术交流，拟定于 2019年9月27-30日在辽宁大连举办 “第12届全国工程计算方法学术会议”暨“第2届边界元与降维方法学术会议”联合会议。同时，举办“第6届亚太国际工程中计算方法学术会议”。经会前评选，会上将颁发第3届杜庆华工程计算方法奖。

Contents

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Vice Chairs			
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12th Chinese National Conference on Computational Methods in Engineering
第12届全国工程计算方法学术会议

Chair		
Zhenhan Yao		
Vice Chairs		
Xiaowei Gao	Xiong Zhang	Song Cen

2nd Conference on Boundary Element and Dimension Reduction Methods
第2届边界元与降维方法学术会议

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Conference Instructions

会议服务指南

1. Conference Hotels 会议酒店

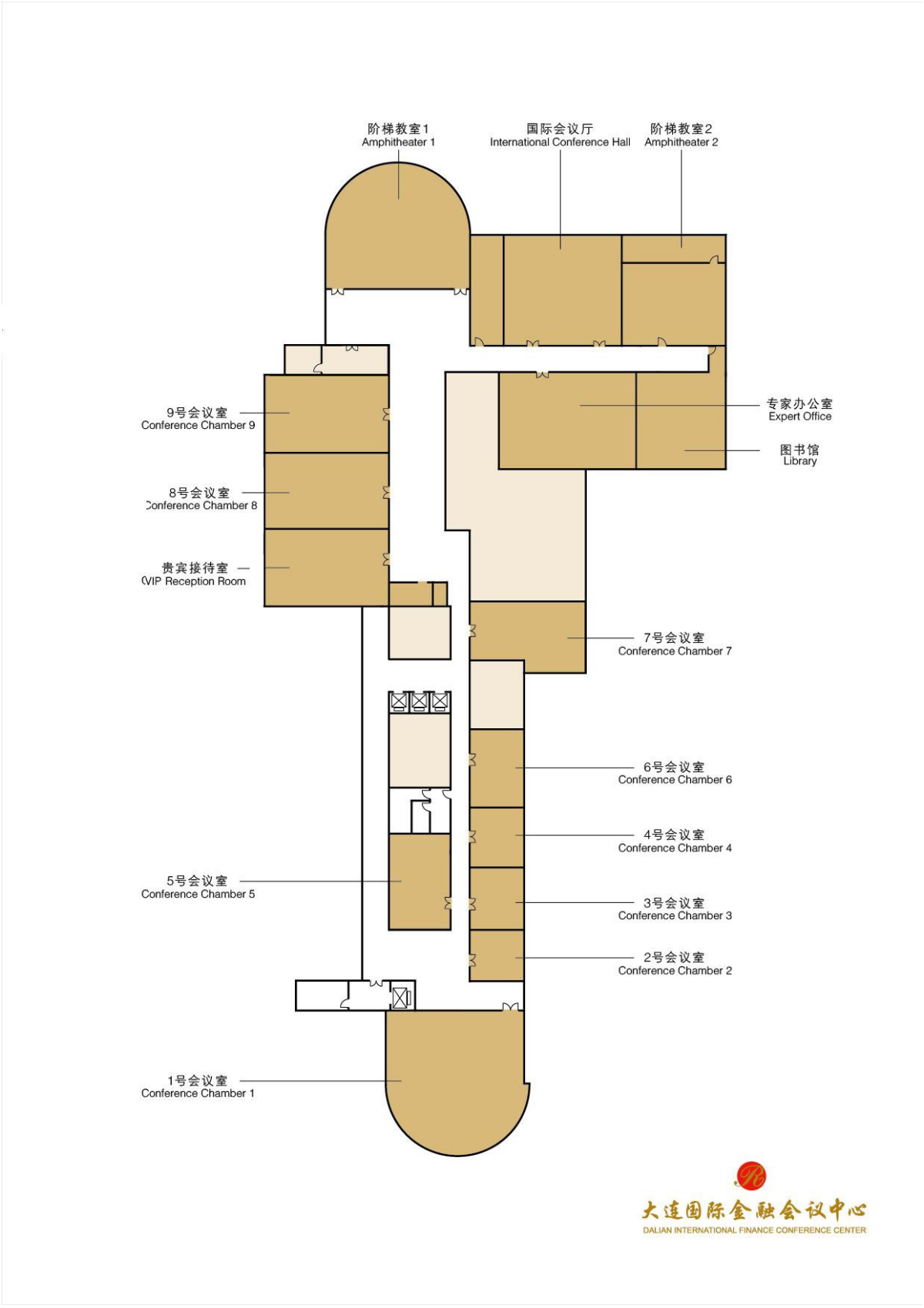
Dalian international finance conference center (No. 68 Binhai West Road, Xigang District, Dalian)
大连国际金融会议中心（大连市西岗区滨海西路 68 号）

Sea Horizon Hotel (No. 81 Binhai West Road, Xigang District, Dalian)
海天白云大酒店（大连市西岗区滨海西路 81 号）

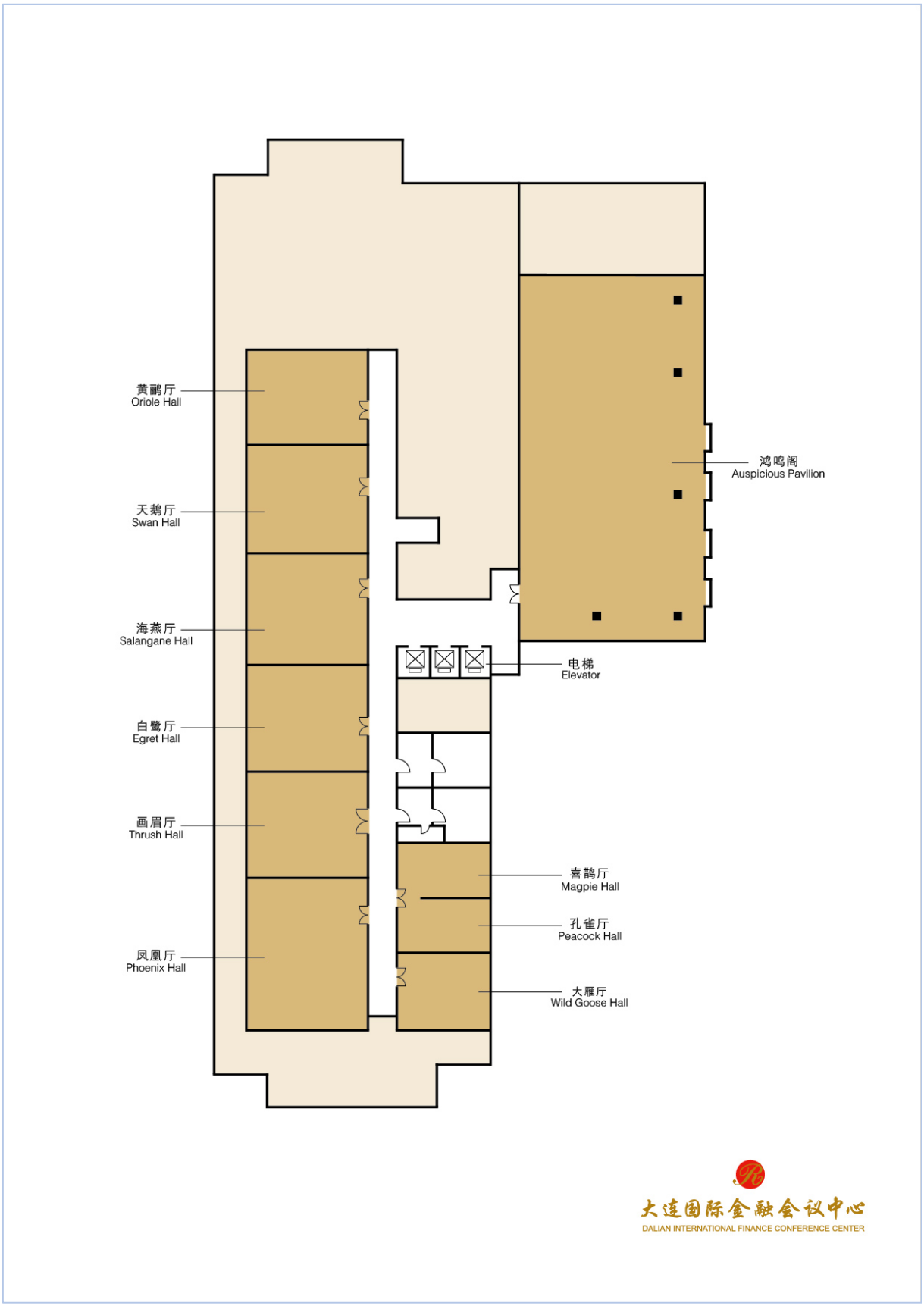
2. Map of Dalian international finance conference center 大连国际金融会议中心平面图

3. Map of the 2nd floor, Dalian international finance conference center

大连国际金融会议中心二楼平面图



4. Map of the 3rd floor, Dalian international finance conference center (Auspicious Pavilion)
大连国际金融会议中心三楼平面图（鸿鸣阁）



5. Conference Registration 会议注册

Time: 9:00-21:00, September 27th, 2019
时间:：2019 年 9 月 27 日 9:00-21:00

Place: Lobby at the first floor, Dalian international finance conference center
地点：大连国际金融会议中心一楼大厅

6. Transportation 交通路线

(1) From Dalian Zhoushuizi International Airport 大连周水子国际机场

A：Taxi: It's about 30 minutes by taxi, about 36 RMB
A：打车：全程约 30 分钟，费用约 36 元

B：Metro/Bus: Metro line 2 (Airport Station C - - People's Square Station C), and walk about 229 meters, Transfer to Bus 541 or 702 (Changchun Road Station - - Silver Beach Station)
B：地铁/公交：地铁 2 号线（机场站 C 口- -人民广场站 C 口），步行 229 米，转 541 路或 702 路（长春路站- -银沙滩站）

(2) From Dalian North Railway Station 大连北站

A：Taxi: It's about 45 minutes by taxi, about 52 RMB
A：打车：全程约 45 分钟，费用约 52 元

B：Metro: Metro line 1 to Huizhan Center Station——transfer to a taxi (about 15RMB)
B：地铁: 乘坐地铁 1 号线到会展中心站——转的士到达（约 15 元）

(3) From Dalian Railway Station 大连站

A：Taxi: It's about 30 minutes by taxi, about 26 RMB
A：打车：全程约 30 分钟，费用约 26 元

B：Bus: Walk 400 meters, Bus 702 (Youhao Square Station - - Silver Beach Station)
B：公交:步行 400 米，乘 702 路（友好广场站- -银沙滩站）

7. Kindly Reminders 温馨提示

(1) Student delegates need to show effective identity certificate at registration, e.g. student ID or certification issued by their college.
学生注册时需凭有效身份证件（如学生证或所在学院的证明材料）。

(2) Time for plenary lecture and parallel session lecture are set to be 30 minutes (including Q&A) and 15 minutes (including Q&A), respectively.

大会报告时长为 30 分钟（含提问），分会场报告时长为 15 分钟（含提问），请报告人和主持人严格控制时间。

(3) Speakers please copy their slides to conference computer in advance.
请报告人提前将报告拷贝至会场电脑。

(4) Position of conference rooms 会场位置说明
Auspicious Pavilion is located at the 3nd floor of Dalian international finance conference center; please also see the map on page 8.
鸿鸣阁位于大连国际金融会议中心三楼，请参考本手册第 8 页平面图。
VIP Room, Meeting Room 6, Meeting Room 7, Meeting Room 8, Meeting Room 9 are located at the 2nd floor of Dalian international finance conference center, please also see the map on page 7.
贵宾厅、会议室 6、会议室 7、会议室 8 和会议室 9 位于大连国际金融会议中心二楼，请参考本手册第 7 页平面图。

(5) In order to maintain the good environment during the conference, please mute your cell phone before entering the conference room.
为维持良好的会场环境，请在进入会场前将手机调为静音。

8. Contacting Information of Conference Secretary 会务人员联系方式

(1)	**Registration**	Na Li-18642816061	Miao Cui-13940816641
	注册	李娜-18642816061	崔苗-13940816641
(2)	**Hotel accommodation**	Na Li-18642816061	
	酒店住宿	李娜-18642816061	
(3)	**Conference Room**	Hai-Feng Peng-15842652176	Wei-Zhe Feng-15998661582
		Kai Yang-15898131340	Jun Lv -13591733151
	会场事务	彭海峰-15842652176	冯伟哲-15998661582，
		杨恺-15898131340	吕军-13591733151
(4)	**Session Arrangement**	Hai-Feng Peng-15842652176	
	报告安排	彭海峰-15842652176	

If you have any question or need any help, please find our conference staff who wearing the chest card with orange rope。
如需任何帮助，请与会场身挂橙色绳子胸牌的会议志愿者联系。

Program at Glance

September 27th Friday	09:00~21:00	Registration
	18:00~20:00	Dinner (Sea of Clouds Pavilion 海雲轩)
September 28th Saturday	08:00~08:25	Opening Ceremony (Auspicious Pavilion 鸿鸣阁)
	08:25~09:55	Plenary Lectures (Auspicious Pavilion 鸿鸣阁)
	09:55-10:30	Coffee Break/ Photograph
	10:30~12:00	Plenary Lectures (Auspicious Pavilion 鸿鸣阁)
	12:00~13:00	Lunch (Sea of Clouds Pavilion 海雲轩)
	14:00~15:55	5 Parallel Sessions
	15:55~16:10	Coffee Break
	16:10~18:20	5 Parallel Sessions
	18:30~21:00	Banquet (Auspicious Pavilion 鸿鸣阁)
September 29th Sunday	08:00~10:00	Plenary Lectures (Auspicious Pavilion 鸿鸣阁)
	10:00-10:20	Coffee Break
	10:20~11:50	Plenary Lectures (Auspicious Pavilion 鸿鸣阁)
	12:00~13:00	Lunch (Sea of Clouds Pavilion 海雲轩)
	14:00~15:55	4 Parallel Sessions
	15:55~16:10	Coffee Break
	16:10~18:30	4 Parallel Sessions
	18:30~20:00	Dinner (Sea of Clouds Pavilion 海雲轩)
September 30th Monday	08:00~10:00	Plenary Lectures (Auspicious Pavilion 鸿鸣阁)
	10:00-10:20	Coffee Break
	10:20~12:20	Plenary Lectures (Auspicious Pavilion 鸿鸣阁)
	12:20~12:30	Closing Ceremony (Auspicious Pavilion 鸿鸣阁)
	12:30~13:30	Lunch (Sea of Clouds Pavilion 海雲轩)
	14:00-18:00	Discussion

Opening Ceremony

Chairman: Xiao-Wei Gao

Place: Auspicious Pavilion（鸿鸣阁）

Time: 08:00~08:25, Date: 28th September

Closing Ceremony

Chairman: Xiao-Wei Gao

Place: Auspicious Pavilion（鸿鸣阁）

Time: 12:20~12:30, Date: 30th September

Plenary Lectures

Date: September 28 (Saturday); **Time**: 8:25-12:00: **Place: Auspicious Pavilion（鸿鸣阁）**

Time	Speakers	Titles	Chairmen
8:25-8:55	Zhen-Han Yao	Some research progress of HA/HP BEM	Alexander H.D. Cheng
8:55-9:25	Naoshi Nishimura	Determining eigenvalues for periodic and open domain problems with BEM	
9:25-9:55	Jeng-Tzong Chen	Paradox, paradise and parasite of the BEM/BIEM	
10:30-11:00	Geng-Dong Cheng	FEM-Cluster based reduction method for efficient numerical prediction of effective properties of heterogeneous material in nonlinear range	Xiao-Wei Gao
11:00-11:30	Alexander H.D. Cheng	Numerical solution of PDE: mesh vs. meshless, strong vs. weak Formulation, and global vs. local interpolation	
11:30-12:00	Toshiro Matsumoto	On the topology optimization with objective functional based on boundary stress	

Date: September 29 (Sunday); **Time**: 8:00-11:50 **Place: Auspicious Pavilion（鸿鸣阁）**

Time	Speakers	Titles	Chairmen
8:00-8:30	Xiong Zhang	Material point method based simulation of fluid-structure interaction problems	Hai-Bo Chen
8:30-9:00	Ney Augusto Dumont	The collocation boundary element method: consistent, correct formulation and accurate numerical evaluations	
9:00-9:30	Pi-Hua Wen	Finite block method and its applications in engineering	
9:30-10:00	Raj Das	Simulation of structures under extreme loading-penetration, impact and blasts	
10:20-10:50	Wei-Qiu Chen	3D Green's functions for quasicrystals with multiple coupling effects	Chun-Ying Dong
10:50-11:20	Wen-Jing Ye	Deep learning based methods for metamaterial design	
11:20-11:50	Zhong-Rong Niu	XBEM analyses of elastic-plastic stress fields of plane V-notched/cracked structures	

Date: September 30 (Monday); **Time**: 8:00-12:20 **Place: Auspicious Pavilion（鸿鸣阁）**

Time	Speakers	Titles	Chairmen
8:00-8:30	Dong-Dong Wang	Consistent, explicit and efficient meshfree quadrature	Cheng Su
8:30-9:00	Yi-Jun Liu	On the BIE/BEM for acoustic wave problems	
9:00-9:30	Jian-Ming Zhang	A truly seamless integration of CAE and CAD based on boundary face method	
9:30-10:00	Qing-Hua Qin	Optimization of metamaterials via deep-learning-aided surrogate modelling	
10:20-10:50	Hong Zheng	Force method of DDA	Hang Ma
10:50-11:20	Chia-Ming Fan	Developments and applications of meshless numerical wave flume by generalized finite difference method	
11:20-11:50	Ming-Song Zou	Three-dimensional sono-elasticity theory of ships with applications	
11:50-12:20	Xiao-Wei Gao	Element differential based finite element method and mesh free method	

Session Arrangement

Date	Time	VIP Room	Meeting Room 6	Meeting Room 7	Meeting Room 8	Meeting Room 9
September 28th Saturday	**14:00-15:55**	**MS01-1**	**MS02-1**	**MS05-1**	**MS08-1**	**MS04**
	16:10-18:20	**MS01-2**	**MS02-2**	**MS05-2**	**MS08-2**	**MS06**
September 29th Sunday	**14:00-15:55**	**MS01-3**	**MS03-1**	**MS07-1**	**MS09**	
	16:10-18:30	**MS01-4**	**MS03-2**	**MS07-2**	**MS10/11/12**	

MS01	Boundary Element Method	**MS07**	Coupling of Meshless and Particle Method with Other Methods
MS02	Fundamental Solution and Trefftz Method	**MS08**	High Performance Finite Element Method
MS03	Engineering Application of Boundary Element Method	**MS09**	Extended Finite Element Method
MS04	Coupling of Boundary Element Method with Other Methods	**MS10**	Multi-scale Analysis Method
MS05	Meshless and Particle Methods	**MS11**	Large-scale Computation Method
MS06	Material Point Method	**MS12**	Software Development, Verification and Validation

Parallel Session on September 28th (Saturday)

Session: MS01-1 Boundary Element Method
Date: September 28 (Saturday); **Time**:14:00-15:55; **Venue: VIP Room（贵宾厅）**
Chair: Hai-Tao Wang

Time	Speakers	Titles	Note
14:00-14:20	**Chun-Ying Dong**	**MS01046** **A new formula for calculating the energy increment of elastic heterogeneous materials and its isogeometric implementation**	**Keynote Lecture**
14:20-14:40	**Chang-Zheng Cheng**	**MS01118** **Determination of notch SIFs by characteristic analysis coupled with isogeometric BEM**	**Keynote Lecture**
14:40-14:55	Gui-Zhong Xie	MS01062 A direct approach for singular integrals in time-domain boundary element of elastodynamics	
14:55-15:10	Xian-Hui Wang	MS01023 Study of boundary element method for Lamb wave propagation and defect interaction problems	
15:10-15:25	Wei-Zhe Feng	MS01003 Evaluation of fracture parameters by using dual BEM and conservation integrals	
15:25-15:40	Fang-Ling Sun	MS01045 Fast direct isogeometric boundary element method for 3D heterogeneous materials	
15:40-15:55	Bao-Tao Chi	MS01130 A binary-tree element subdivision method for volume integrals with continuous or discontinuous kernel in BEM	

Session: MS01-2 Boundary Element Method
Date: September 28 (Saturday); **Time**: 16:10-18:20; **Venue: VIP Room（贵宾厅）**
Chair: Huan-Lin Zhou

Time	Speakers	Titles	Notes
16:10-16:30	**Yong-Qiang Chen**	**MS01082** **A new error upper bound formula for Gaussian integration**	**Keynote Lecture**
16:30-16:50	**Zhen-Ning Ba**	**MS01190** **Wave scattering of topographies in a multi-layered TI half space modeled by a IBEM using Green's functions under distributed loads as fundamental solutions**	**Keynote Lecture**
16:50-17:05	Zai-You Yan	MS01094 The pFFT accelerated BEM for 3-D acoustics problems	
17:05-17:20	Lei-Lei Chen	MS01021 Shape and topology optimization of three dimensional acoustic problems with isogeometric boundary element method	
17:20-17:35	Zhao Guo	MS01032 Numerical solutions for crack-inclusion problems in full space with the model of eigen boundary integral equations	
17:35-17:50	Xing-Shuai Zheng	MS01025 Stress analysis of three-dimensional frictional contact problems with boundary face method	
17:50-18:05	Jie Wang	MS01042 Shape optimization based on isogeometric BEM in 2D acoustics	
18:05-18:20	Cong LI	MS01010 The extended boundary element analysis of stress fields of 3D V-notched/cracked structures	

Session: **MS02-1 Fundamental Solution and Trefftz Method**
Date: September 28 (Saturday); **Time**: 14:00-15:40; **Venue**: **Meeting Room 6（会议室 6）**
Chair: **Chia-Ming Fan**

Time	Speakers	Titles	Notes
14:00-14:20	**Zhuo-Jia Fu**	**MS02047** **A robust kernel-based solver based on problem-dependent RBFs for PDEs under 2D/3D irregular domains**	**Keynote Lecture**
14:20-14:40	**Ming-Gong Lee**	**MS02084** **Dual null field methods for Dirichlet problems of Laplace's equation in circular domains with circular holes**	**Keynote Lecture**
14:40-14:55	Fu-Zhang Wang	MS02017 Combinations of the MFS and AEM for anisotropic nonlinear convection-diffusion problems	
14:55-15:10	Chih-Yu Liu	MS02015 A spacetime collocation scheme using Trefftz functions for solving transient nonlinear moving boundary problems	
15:10-15:25	Jing-En Xiao	MS02018 On solving three-dimensional laplacian problems with non–harmonic boundary conditions using the multiple source meshless method	
15:25-15:40	Jun-Pu Li	MS02009 Modified singular boundary method for Helmholtz equation with high wavenumbers	

Session: **MS02-2 Fundamental Solution and Trefftz Method**
Date: September 28 (Saturday); **Time**: 16:10-17:20; **Venue**: **Meeting Room 6（会议室 6）**
Chair: **Kai Yang**

Time	Speakers	Titles	Notes
16:10-16:30	**Hui Wang**	**MS02067** **Thermal analysis of fully anisotropic materials using hybrid n-sided polygonal finite elements involving boundary integrals only**	**Keynote Lecture**
16:30-16:50	**Zhong-Xian Liu**	**MS020189** **The broadband FMM—MFS solution to elastic wave scattering in complex media**	**Keynote Lecture**
16:50-17:05	Jun-Tang Zhang	MS02057 Coupling algorithm based on Trefftz finite element method and GFDM for solving viscoelastic problems of discontinuous materials	
17:05-17:20	Li-Dan Hong	MS02039 On solving nonlinear transient free surface flow using the collocation Trefftz method	

Session: MS04 Coupling of Boundary Element Method with Other Methods
Date: September 28 (Saturday); **Time**: 14:00-15:55; **Venue**: **Meeting Room 9（会议室 9）**
Chair: **Zheng-Hua Qian**

Time	Speakers	Titles	Notes
14:00-14:20	**Hai-Bo Chen**	**MS04049** **FEM-BEM topology optimization schemes for exterior acoustic-structure problems**	**Keynote Lecture**
14:20-14:40	**Cheng Su**	**MS04085** **Random vibration analysis of cracked plates subjected to nonstationary excitations by SFBEM-ETDM**	**Keynote Lecture**
14:40-14:55	Feng-Lin Zhou	MS04004 A precise integration scheme in time domain boundary element method for scalar wave propagation problems	
14:55-15:10	Jin-Xiu Hu	MS04033 A proper orthogonal decomposition analysis method based on RIBEM for solving two-dimensional unsteady convection-diffusion problem	
15:10-15:25	Hai-Feng Gao	MS04069 Band structure analysis of two-dimensional phononic crystals based on isogeometric boundary element method	
15:25-15:40	Bin Hu	MS04040 Plastic stress and displacement asymptotic solutions near a V-notch/crack tip	
15:40-15:55	Xuan Zhou	MS04178 Machine Learning based Crack Growth Prediction: Application to a Helicopter Component Digital Twin	

Session: **MS05-1 Meshless and Particle Methods**
Date: September 28 (Saturday); **Time**: 14:00-15:55; **Venue**: **Meeting Room 7（会议室 7）**
Chair: **Ming-Song Zou**

Time	Speakers	Titles	Notes
14:00-14:20	**Lei-Ting Dong**	**MS05016** **Fragile points method (FPM)**	**Keynote Lecture**
14:20-14:40	**Xiao-Lin Li**	**MS05106** **The element-free Galerkin method for the nonlinear Signorini problem**	**Keynote Lecture**
14:40-14:55	Hui Zheng	MS05150 RBF collocation method for band structure simulation of nanoscale phononic crystals based on nonlocal elasticity theory	
14:55-15:10	Zhuo-Chao Tang	MS05066 Research on the coupled method of meshless gen eralized finite difference and smoothed particle h ydrodynamics for nearly incompressible flows	
15:10-15:25	Yuan-Yuan Zhao	MS05072 Half boundary method for convection-diffusion-reaction equation	
15:25-15:40	Zhi-Lang Zhang	MS05030 Smoothed particle hydrodynamics (SPH) for mod eling fluid-structure interactions	
15:40-15:55	Bing-Bing Xu	MS05144 Fracture parameters predicted by Galerkin free element method	

Session: **MS05-2 Meshless and Particle Methods**
Date: September 28(Saturday); **Time**: 16:10-18:15; **Venue**: **Meeting Room 7（会议室 7）**
Chair: **Jian-Jun Yang**

Time	Speakers	Titles	Notes
16:10-16:30	**Li-Hua Wang**	**MS05024** **Stabilized reproducing kernel collocation method**	**Keynote Lecture**
16:30-16:45	Jun Lei	MS05122 A novel space-time generalized FDM for evolution equations	
16:45-17:00	Ying-Te Lee	MS05113 A new method of fundamental solutions for Laplace problems with multiply-connected domain	
17:00-17:15	Fa-Jie Wang	MS05076 Localized method of fundamental solutions (LMFS) for solving the inverse Cauchy problems	
17:15-17:30	Jun-Chao Wu	MS05059 A gradient smoothing meshfree method for brittle fracture simulation with fourth-order phase field model	
17:30-17:45	Lai-Qiang Cai	MS05103 Application of meshless calculation method for heat transfer solidification process for continuous casting round billet	
17:45-18:00	Tao Zhang	MS05104 Error estimations of element-free Galerkin method with penalty method	
18:00-18:15	Dong-Liang Qi	MS05060 An analysis of reproducing kernel meshfree collocation method for structural vibrations	

Session: MS06 Material Point Method
Date: September 28 (Saturday); **Time**: 16:10-17:45; **Venue**: **Meeting Room 9（会议室 9）**
Chair: **Miao Cui**

Time	Speakers	Titles	Notes
16:10-16:30	**Yan Liu**	**MS06027** **An improved smoothed molecular dynamics (SMD) method**	**Keynote Lecture**
16:30-16:45	Zheng Sun	MS06020 Quantitative risk assessment of rainfall-induced soil slope failure using Monte Carlo material point method	
16:45-17:00	Li-Sha He	MS06137 An algorithm to integrate MPM and SPH with nonlocal softening constitutive model for failure evolution	
17:00-17:15	You-Yun Xu	MS06036 A cell-based smoothed radial point interpolation method for underwater acoustic scattering problems	
17:15-17:30	Lei Kan	MS06050 Simulation of mitigation of shock wave generated from high explosive air blast	
17:30-17:45	Jiang Pan	MS06125 Time-discontinuous material point method for transient problems in saturated porous media	

Session: **MS08-1 High Performance Finite Element Method**
Date: September 28(Saturday); **Time**: 14:00-15:55; **Venue**: **Meeting Room 8（会议室 8）**
Chair: **Yong-Gang Zheng**

Time	Speakers	Titles	Notes
14:00-14:20	**Xiang-Rong Fu**	**MS08029** **Boundary hybrid element method in the centenary birthday of professor Qinghua Du and Professor Theodore Hsueh-Huang Pian**	**Keynote Lecture**
14:20-14:40	**Guo-Xiang Zhang**	**MS08127** **The linear coordinate transformation method constructs the high order complete non-conforming eight-node quadrilateral element**	**Keynote Lecture**
14:40-14:55	Liang Zhang	MS08065 A wrinkling model for pneumatic membranes and the complementarity computational framework	
14:55-15:10	Hui Pan	MS08070 A plane annular finite element for solving two-dimensional elasticity problems	
15:10-15:25	Ya-Kun Huan	MS08079 An eight-node Reissner-Mindlin plane element using a unsymmetric finite method	
15:25-15:40	Jian-Hua Wang	MS08124 High-order NURBS elements based isogeometric analysis method for soft materials with a growing mass	
15:40-15:55	Lan-Fang Gao	MS08185 Element differential method for electromagnetic computation	

Session: MS08-2 High Performance Finite Element Method
Date: September 28 (Saturday); **Time**: 16:10-18:05; **Venue**: **Meeting Room 8（会议室 8）**
Chair: Ke-Liang Ren

Time	Speakers	Titles	Notes
16:10-16:30	**Qing-Sheng Yang**	**MS08168** **Data-based design and analysis of matastructures**	**Keynote Lecture**
16:30-16:50	**Hong-Ling Ye**	**MS08167** **Optimal design and mechanical analysis for spatial deployable structures**	**Keynote Lecture**
16:50-17:05	Yi-Qian He	MS08115 The framework of an extended multiscale scaled boundary finite element method	
17:05-17:20	Wen Tang	MS08110 The two-phase hybrid element approach to analysis of composite materials	
17:20-17:35	Xiao-Chen Qin	MS08044 Isogeometric analyses of functionally graded plates with curvilinear stiffeners and cutouts	
17:35-17:50	Yu-Mo Zhu	MS08145 Static sound field analysis with element differential method	
17:50-18:05	Jie Mei	MS08186 An inverse elastoplastic mechanics problem solving method based on ABAQUS secondary development	

Parallel Session on September 29th (Sunday)

Session: MS01-3 Boundary Element Method
Date: September 29 (Sunday); **Time**:14:00-15:55; **Venue**: **VIP Room（贵宾厅）**
Chair: Rao Guo

Time	Speakers	Titles	Notes
14:00-14:20	**Hang Ma**	**MS01163** **On the construction and application of high order smooth boundary elements**	**Keynote Lecture**
14:20-14:40	**Chang-Jun Zheng**	**MS01055** **Applications of a half-space fast Multipole BEM**	**Keynote Lecture**
14:40-14:55	Kazuki Niino	MS01111 A formulation of the electric field integral equation with Calderon's preconditioning using integration by parts	
14:55-15:10	Zhi Xu	MS01085 Spline fictitious boundary element method for multi-crack analysis of functionally graded materials	
15:10-15:25	Zhi-Peng Wu	MS01068 Application of high performance BEM in interface debonding of composites	
15:25-15:40	Yasuhiro Matsumoto	MS01133 A Fast Direct Solver for One-Periodic Transmission Problems of Helmholtz' Equation in 2D with Burton-Miller Integral Equation	
15:40-15:55	Ting Cao	MS01073 Singular integral equation methods to two-dimensional crack in piezoelectric bimaterials	

Session: MS01-4 Boundary Element Methods
Date: September 29 (Sunday); **Time**: 16:10-18:30; **Venue**: **VIP Room（贵宾厅）**
Chair: **Guang-Xian Shen**

Time	Speakers	Titles	Notes
16:10-16:30	**De-Yi Liu**	**MS01008** **弹性问题的个性化网格边界元法**	**Keynote Lecture**
16:30-16:45	Bin Wang	MS01114 A modified boundary element method for solving lamb wave scattering by surface breaking or inter-layer cavities in plates	
16:45-17:00	Yang Yang	MS01132 A boundary integral equation methodfor wave propagation in functionally graded materials	
17:00-17:15	Dong Pan	MS01048 Analysis of heat flux singularity at 2D notch tip by boundary element technique	
17:15-17:30	Yong-Yu Yang	MS01093 Investigation of the effect of geometry shape and material property on the stress intensity of an interfacial crack from bi-material V-notch by the boundary element method	
17:30-17:45	Chuan-Ming Ju	MS01134 Fast adaptive binary-tree mesh generation	
17:45-18:00	Yong-Tong Zheng	MS01182 Super order isoparametric hole elements and their applications in BEM analysis of slender structures	
18:00-18:15	Geng-Hui Jiang	MS01181 A fast reduced-order model for radial integral boundary element method based on proper orthogonal decomposition in nonlinear transient heat conduction problems	
18:15-18:30	Chuang Lu	MS01022 Topology optimization of sound absorbing materials using subdivision surface boundary element method	

Session: **MS03-1 Engineering Application of Boundary Element Method**
Date: September 29 (Sunday); **Time**: 14:00-15:55; **Venue**: **Meeting Room 6（会议室 6）**
Chair: **De-Yi Liu**

Time	Speakers	Titles	Notes
14:00-14:20	**Sohichi Hirose**	**MS03034** **Boundary element analysis for lamb wave scattering in multi-layered plate with interface crack**	**Keynote Lecture**
14:20-14:40	**Masahiro Arai**	**MS03099** **Boundary element analyses for interfacial strength and fracture toughness of CNT coating film using laser spallation method**	**Keynote Lecture**
14:40-14:55	Ke Wang	MS03043 Application of GMRES method in wave radiation problem of plate type breakwater	
14:55-15:10	Natela Zirakashvili	MS03011 Numerical simulation of stresses and displacements localization problems by boundary element method	
15:10-15:25	Jun-Qiao Liu	MS03091 The solution of the two-dimensional heat conductive equation by using the CVBEM	
15:25-15:40	He Huang	MS03058 Application of wave superposition method on the acoustic radiation problem of axisymmetric structures in shallow sea	
15:40-15:55	Jin-Cheng Qin	MS03092 A boundary integral formulation for topology optimisation problems with frequency uncertainty	

Session: MS03-2 Engineering Application of Boundary Element Method
Date: September 29 (Sunday); **Time**: 16:10-18:30; **Venue**: **Meeting Room 6（会议室 6）**
Chair: **Tai-Yan Qin**

Time	Speakers	Titles	Notes
16:10-16:30	**Kai Yang**	**MS03183** **Non-homogeneous and nonlinear heat transfer radial integral BEM and its inverse problem**	**Keynote Lecture**
16:30-16:45	Takahiro Saitoh	MS03087 Inverse scattering based on topology sensitivity for defect detection using convolution quadrature time-domain BEM for 3-D elastodynamics	
16:45-17:00	Qian Zhao	MS03117 Electrical conductivity analysis of CFRP with boundary element method	
17:00-17:15	Jia-Wei Lee	MS03080 Null-field boundary integral equation method for solving SH-wave scattering by a circular hole buried in infinite functionally graded materials	
17:15-17:30	Yun-Qiao Dong	MS03026 Dual interpolation boundary face method for 2D crack problems	
17:30-17:45	Ya-Dong Zhang	MS03074 Investigation of the flow induced noise characteristics of the DSA380 high-speed pantograph under crosswind	
17:45-18:00	Fu-Hang Jiang	MS03038 Combined optimization of structural shape and absorbing material distribution for sound barrier using boundary element method	
18:00-18:15	Zhen-Yun Wu	MS03037 Surface contributions to radiated sound power based on FEM-BEM coupling method	
18:15-18:30	Biao Liu	MS03151 Solving domain integrals in static thermoelastic problems with line integration method based on BEM	

Session: **MS07-1 Coupling of Meshless and Particle Method with Other Methods**
Date: September 29 (Sunday); **Time**: 14:00-15:50; **Venue**: **Meeting Room 7（会议室 7）**
Chair: **Bo-Yang Ding**

Time	Speakers	Titles	Notes
14:00-14:20	**Yong-Gang Zheng**	**MS07121** **Coupling peridynamic and finite element method for the numerical simulation of crack propagation in solids**	**Keynote Lecture**
14:20-14:35	Ting Long	MS07028 Coupling smoothed finite element method with SPH for thermal-fluid-solid interaction Problems	
14:35-14:50	Yan Li	MS07135 A high-order node-based smoothed radial point interpolation method with linear strain fields	
14:50-15:05	Yan-Hua Cao	MS07164 Space-time polynomial particular solutions method for solving time-dependent problems	
15:05-15:20	Truong Nguyen	MS07097 Level-set method with lattice Boltzmann method for topology optimization of unsteady fluid flows	
15:20-15:35	Su-Qiong Xie	MS07096 Topology optimization for unsteady fluid using lattice kinetic scheme and level set method	
15:35-15:50	Suliman	MS07083 A collocation method based on radial basis functions for numerical solution of highly oscillatory integrals	

Session: **MS07-2 Coupling of Meshless and Particle Method with Other Methods**
Date: September 29 (Sunday); **Time**: 16:10-17:30; **Venue**: **Meeting Room 7（会议室 7）**
Chair: **Lei-Ting Dong**

Time	Speakers	Titles	Notes
16:10-16:30	**Jian-Jun Yang**	**MS07184** **Meshless methods based on the intervention - point principle**	**Keynote Lecture**
16:30-16:45	Hua-Yu Liu	MS07149 Improved free element method via flux reconstruction for the resolution of the Navier-Stokes equations	
16:45-17:00	Yu-Zhuo Ma	MS07086 A unified method in solving direct and inverse heat conduction problems	
17:00-17:15	Ji-Min Li	MS07128 Mechanical analysis of widespread corrosion-damaged structure based on ES-PIM	
17:15-17:30	Ran Tao	MS07100 An adaptive hybrid firefly algorithm for structural optimization with discrete variables	

Session: MS09 Extended Finite Element Method
Date: September 29 (Sunday); **Time**: 14:00-15:55; **Venue**: **Meeting Room 8（会议室 8）**
Chair: Yong-Qiang Chen

Time	Speakers	Titles	Notes
14:00-14:20	**Ke-Liang Ren**	**MS09157** **Evolution process and assessment method of corrosion damage of structure**	**Keynote Lecture**
14:20-14:40	**Jun Lv**	**MS09187** Extended multiscale finite element method for heterogeneous structures with irregular polygonal/polyhedral microstructures	**Keynote Lecture**
14:40-14:55	Bin Zhao	MS09063 Heat transfer analysis of heat exchanger based on B-spline finite element method	
14:55-15:10	Ye-Nan Wang	MS09102 Numerical simulation of crack propagation of single crystal superalloy material turbine blades	
15:10-15:25	Ding-He Li	MS09035 Dynamic propagation of the bimaterial interface crack	
15:25-15:40	Huan Li	MS09109 Interfacial debonding and matrix cracking analysis	
15:40-15:55	Kai Jiang	MS09053 Extended isogeometric analysis using B++ splines for weak discontinuous problems	

Session: MS10 Multi-scale Analysis Method/ MS11 Large-scale Computation Method /MS12 Software Development, Verification and Validation
Date: September 29 (Sunday); **Time**: 16:10-18:05; **Venue**: **Meeting Room 8**（会议室 8）
Chair: Jun Lv

Time	Speakers	Titles	Notes
16:10-16:30	**Wen-Xiang Xu**	**MS10088** **DEM and micromechanical insight into thermal conductivity of granular materials with high concentrated nonspherical grains and soft interphase**	**Keynote Lecture**
16:30-16:50	**Miao Cui**	**MS12188** **A new method for solving inverse heat conduction problems**	**Keynote Lecture**
16:50-17:05	Chao Chang	MS10067 Computational multi-scale modeling for thermal analysis of ultralightweight natural luffa material	
17:05-17:20	Zhi-Yuan Lu	MS10041 A new homogenization method for heterogeneous structures based on physically consistent boundary condition	
17:20-17:35	Ching-Sen Wu	MS12061 High-resolution simulations for gravity currents impinging on submerged obstacles	
17:35-17:50	Yu Liang	MS11143 Identification of damages in the multi-layer thermal protection system using the reduced-order model	
17:50-18:05	Ling Zhou	MS12146 Application of improved particle swarm optimization for solving a transient nonlinear heat conduction problem in a complex structure	

Brief Introduction on Local Organizers

承办单位简介

1. 大连理工大学

大连理工大学是中国共产党在新中国成立前夕，面向新中国工业体系建设亲手创办的第一所新型正规大学。大连理工大学是教育部直属全国重点大学，是国家“211 工程”和“985 工程”重点建设高校，也是世界一流大学 A 类建设高校。学校以培养精英人才、促进科技进步、传承优秀文化、引领社会风尚为宗旨，秉承“海纳百川、自强不息、厚德笃学、知行合一”为基本特质的大工精神，致力于创造、发现、传授、保存和应用知识，勇于担当社会责任，服务国家，造福人类。

大连理工大学 1949 年 4 月建校，时为大连大学工学院；1950 年 7 月大连大学建制撤销，大连大学工学院独立为大连工学院；1960 年 10 月被确定为教育部直属全国重点大学；1986 年 4 月设立研究生院；1988 年 3 月更名为大连理工大学；1996 年启动实施“211 工程”建设，教育部、辽宁省、大连市共建大连理工大学；2001 年启动实施“985 工程”建设，教育部、辽宁省、大连市重点共建大连理工大学；2003 年被中央确定为中管干部学校；2012 年正式启动领军型大学建设工程。2012 年 12 月教育部正式批准大连理工大学建设盘锦校区，该校区依照“统筹规划、错位发展、坚持标准、创新模式”的指导思想建设，与主校区同标准、同档次、同水平办学。2017 年 9 月，经国家批准，入选世界一流大学 A 类建设高校。

学校现有教职工 4167 人，其中专任教师 2520 人；学校有中国科学院和中国工程院院士 12 人、瑞典皇家工程院院士 1 人，兼职教师中的两院院士 33 人，国务院学位委员会学科评议组成员 11 人，“长江学者”奖励计划特聘教授 32 人、讲座教授 6 人、青年学者 12 人，国家杰出青年基金获得者 37 人，国家“万人计划”入选者 31 人（其中科技创新领军人才 21 人，哲学社会科学领军人才 2 人，教学名师 4 人，青年拔尖人才 4 人），“973 计划”项目首席科学家 10 人，“973 计划”青年科学家专题项目首席科学家 2 人，百千万人才工程国家级人选 16 人，科技部创新人才推进计划中青年科技创新领军人才入选者 16 人，国家“千人计划”青年项目入选者 19 人，教育部跨世纪优秀人才基金获得者 17 人，教育部“新世纪优秀人才支持计划”入选者 116 人，“国家级教学名师奖”获得者 4 人，辽宁省普通高等学校本科教学名师 35 人；博士生导师 846 人，专任教师中正高级职称 859 人，副高级职称 1132 人。

学校的工程学和化学学科领域入选国家世界一流学科建设名单，优势学科资源丰富、研究实力雄厚。有一级学科国家重点学科 4 个，二级学科国家重点学科 6 个。在世界一流大学建设中，学校重点建设 7 个学科群，涵盖 17 个一级学科，辽宁省重点建设 20 个一级学科。

目前有 9 个学科领域进入 ESI 国际学科排名前 1%，其中工程学、化学、材料科学进入前 1‰；10 个学科领域进入 QS 世界学科排名前 500 名；在全国第四轮学科评估结果中，共有 32 个一级学科参评，7 个学科进入 A 类，19 个学科进入 B 类（其中 B+，8 个）；上海软科最好学科排名中，13 个学科进入全国前 10%。在 2016 年首次专业学位水平评估中，获得 2 个 A-。

面向未来，学校将传承大工红色基因，发扬大工精神，以建设特色鲜明的世界一流大学为目标，践行“四个服务”历史使命，深化综合改革，强化内涵特色，努力推动学校发展实现新的历史跨越。

2. 航空航天学院

大连理工大学航空航天学院成立于 2008 年 12 月 17 日。根据学校学科发展总体布局和规划，定位为学校航空航天工程学科专业的“牵总单位”。航空航天学院坚持开放、合作、共赢方针，积极开展与学术界和工业界的交流与合作，充分利用大连理工大学优良的学术氛围和雄厚的综合学科优势，努力把学院建设成为航空宇航科学与技术领域精英人才培养基地、新理论和新方法研究基地、新技术和新产品研发创新基地，力争建成国际知名的航空航天工程学科领域科研及教学机构，为我国航空航天事业的发展做出应有的贡献。

航空航天学院建有“辽宁省空天飞行器前沿技术重点实验室”，现有教师 41 人，其中教授 13 人，副教授 19 人，副研究员 1 人，讲师 6 人，工程师 2 人。教师中包括博士生导师 16 人，4 人获得教育部“新世纪优秀人才支持计划”，3 人次为教育部高等学校航空航天类教学指导委员会委员。学院还有双聘院士 1 人，兼职教授 8 人。在全院教师共同努力下，学院取得了丰硕的科研成果。获国防科学技术进步奖（二等奖）、教育部自然科学奖（二等奖）、辽宁省科学技术奖二等奖等诸多科研奖项。

航空航天学院成立以来，统筹学科建设、人才引进、科技创新和国际交流合作等各方面的工作，努力构筑“人才带动学科，学科培养人才”的良性循环机制，实现了教学与科研的全面协调与可持续性发展。学院设立了飞行器气动与推进、飞行器结构与材料、飞行器动力学与控制三个主要的教学与科研方向，可为本科生、硕士生及博士生的培养提供良好的支撑条件。学院目前的主要科研领域和方向包括：气动与推进（先进飞行器气动布局与推进技术、计算空气动力学、航空航天推进技术、航空航天热防护技术）、结构与材料（飞行器复合材料性能分析及设计、飞行器特种材料与结构、飞行器结构设计与评估、飞行器结构安全与监测）、动力学与控制（飞行器动力学、飞行器导航制导与控制、飞行器系统仿真、空间微振动与精密系统、无人飞行器技术）。

3. 工业装备结构分析国家重点实验室

工业装备结构分析国家重点实验室，是世界银行贷款重点学科发展项目建设的第二批国家重点实验室。1988 年进行可行性论证，并得到国家教委和国家计委初步确认，1991 年开始建设，1995 年 5 月通过国家教委验收并正式对外开放。2003 年、2008 年和 2013 年三次以良好成绩通过国家科技部组织的评估。

实验室以重大工业装备和结构工程以及高新技术中的关键力学及多学科耦合问题为背景，在计算力学和工程科学计算领域开展创新性应用基础研究，加强与航空航天、船舶与海洋工程、汽车工程、土木工程等领域的结合，以及与先进材料与制造、生物医学工程等学科的交叉，承担国家基础研究课题和重大工程项目，在应用基础研究、科研基地和学术队伍建设、培养优秀人才等方面达到国际先进水平，发挥重点实验室的国家基地作用。

实验室主要的研究方向包括：

1）计算力学与工程科学计算的理论和方法；2）结构优化设计的现代理论和计算方法；3）大规模计算工程软件系统研究开发和应用；4）复杂环境下重大工程和工业装备结构的试验、分析与评价。

实验室近年来取得的代表性研究成果有：1）计算力学的辛数值方法；2）结构优化的若干前沿问题研究；3）工程与科学计算软件集成平台 SiPESC；4）海洋工程装备结构自主概念设计研究；5）能源装备设计与制造中的力学问题等。

在国家与依托单位的长期支持下，实验室建设了六个实验平台，高性能科学与工程计算平台，先进材料力学性能实验平台，装备结构力学性能实验平台，船舶与海洋工程装备实验平台，汽车工程装备实验平台，航空航天装备实验平台。实验室还拥有自主开发的有限元分析与优化设计软件系统。