



International Conference on Information and Computational Science

August 2-6, 2016

Dalian, China

Host

- **Dalian University of Technology, China**

Sponsors

- **Dalian University of Technology, China**
- **National Natural Science Foundation of China**

Information for Participants

- **Hotel:** DUT International Convention Center (DUTICC)
(neighbor to the South Gate of DUT), Dalian University of
Technology (DUT).
Web: http://hotel.dlut.edu.cn/index_ch.asp
酒店与会议就餐地点: 大连理工大学国际会议中心(又称科
技园酒店), 在学校南门内.
- **Conference Site:** Bo Chuan Library (BCL), DUT.
会议地点: 大连理工大学伯川图书馆 报告厅(大会报告)与普
罗名特厅(分组报告), 从图书馆北侧门进入.
- **Registration:** Registration will take place on August 2 from 8:00
to 20:00, and August 3 from 8:00 to 12:00, at the lobby of DUT
International Convention Center.
注册: 会议注册时间为8月2日8:00至20:00, 8月3日8:00至
12:00, 注册地点为国际会议中心大堂.
- **Transportation:** Taking a taxi is the easiest way from Dalian
International Airport, or Dalian Railway Station, or Dalian North
Railway Station to the hotel, and the taxi fare is about 30, 35, or
45 RMB, respectively.

Local Map

Distance from DUTICC to BCL: about 600m.

国际会议中心与伯川图书馆之间的距离约600米，步行约9分钟。



General Chair

- Ren-Hong Wang (Dalian University of Technology, China)

Programme Committee:

- Xiquan Shi (Co-Chair, Delaware State University, USA)
- Jieqing Tan (Co-Chair, Hefei University of Technology, China)
- Zhongxuan Luo (Co-Chair, Dalian University of Technology, China)
- Falai Chen (University of Science and Technology of China, China)
- Shimin Hu (Tsinghua University, China)
- Chongjun Li (Dalian University of Technology, China)
- Xiuping Liu (Dalian University of Technology, China)
- Xiaonan Luo (Sun Yat-sen University, China)
- Lizhuang Ma (Shanghai Jiao Tong University, China)
- Zhixun Su (Dalian University of Technology, China)
- Ruofeng Tong (Zhejiang University, China)
- Wei Wu (Dalian University of Technology, China)
- Zongmin Wu (Fudan University, China)
- Baocai Yin (Dalian University of Technology, China)
- Bo Yu (Dalian University of Technology, China)
- Chungang Zhu (Dalian University of Technology, China)

Organizing Committee:

- Zhixun Su (Co-Chair, Dalian University of Technology, China)
- Xiuping Liu (Co-Chair, Dalian University of Technology, China)
- Chongjun Li (Dalian University of Technology, China)
- Chungang Zhu (Dalian University of Technology, China)
- Xiaoyuan Qian (Dalian University of Technology, China)
- Guohui Zhao (Dalian University of Technology, China)
- Jielin Zhang (Dalian University of Technology, China)
- Zhaoliang Meng (Dalian University of Technology, China)
- Junjie Cao (Dalian University of Technology, China)
- Min Xu (Dalian University of Technology, China)
- Feng Guo (Dalian University of Technology, China)
- Renquan Zhang (Dalian University of Technology, China)
- Qingjie Guo (Dalian University of Technology, China)

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Plenary Speakers:

- **Falai Chen**

University of Science and Technology of China, China

- **Xianfeng Gu**

State University of New York at Stony Brook, USA

- **Shimin Hu**

Tsinghua University, China

- **Emil Saucan**

Technion-Israel Institute of Technology, Israel

Max Planck Institute of Mathematics in the Sciences, Leipzig,
Germany

- **Tomohiro Sogabe**

Nagoya University, Japan

- **Zongmin Wu**

Fudan University, China

- **Hongkai Zhao**

University of California (Irvine), USA

Schedule

DUTICC(国际会议中心): DUT International Convention Center, DUT.

BCL(伯川图书馆): Bo Chuan Library, DUT.

2 August, 2016				
8:00-20:00	Registration			Lobby, DUTICC
18:00-20:00	Dinner DUTICC			
3 August, 2016				
8:00-8:20	Opening Ceremony			Lecture Hall, BCL Chair: Jieqing Tan
8:20-8:40	Photo Taking			
8:40-9:40	Plenary talk, <i>Prof. Falai Chen</i> Applications of Quasi-conformal Mappings in Geometry, Graphics and Images			Lecture Hall, BCL Chair: Zhongxuan Luo
9:40-10:00	Coffee Break			
10:00-11:00	Plenary talk, <i>Prof. Hongkai Zhao</i> Geometric understanding and analysis of unstructured data			Lecture Hall, BCL Chair: Baocai Yin
12:00-14:00	Lunch DUTICC			
14:00-15:20	Numerical Analysis I Room 1 Chair: Lihong Cui	Computer Graphics I Room 2 Chair: Ruomei Wang	Scientific Computing I Room 3 Chair: Jinming Wu	Computational Geometry I Room 4 Chair: Renzhong Feng
15:20-15:40	Coffee Break			
15:40-17:20	Numerical Analysis II Room 1 Chair: Chunjing Li	Computer Graphics II Room 2 Chair: Weiming Wang	Scientific Computing II Room 3 Chair: Yanxiang Zhao	Computational Geometry II Room 4 Chair: Jincai Chang
18:00-19:30	Dinner DUTICC			

4 August, 2016				
8:30-9:30	Plenary talk, <i>Prof. Emil Saucan</i> Forman-Ricci curvature based detection of changes and anomalies in discrete data			Lecture Hall, BCL Chair: Xiaonan Luo
9:30-10:00	Coffee Break			
10:00-11:00	Plenary talk, <i>Prof. Zongmin Wu</i> 芥子须弥-一个点所包含的信息,与 π 所包含的信息			Lecture Hall, BCL Chair: Zhixun Su
11:00-12:00	Plenary talk, <i>Prof. Tomohiro Sogabe</i> A block Krylov subspace method for shifted linear systems with complex symmetric matrices			Lecture Hall, BCL Chair: Shaoliang Zhang
12:00-14:00	Lunch DUTICC			
14:00-15:20	Numerical Analysis III Room 1 Chair: Weihua Tong	Image and Visualization I Room 2 Chair: Zhixun Su	Scientific Computing III Room 3 Chair: Ran Zhang	Computational Geometry III Room 4 Chair: Yisheng Lai
15:20-15:40	Coffee Break			
15:40-17:00	Numerical Analysis IV Room 1 Chair: Jiansong Deng	Image and Visualization II Room 2 Chair: Junjie Cao	Scientific Computing IV Room 3 Chair: Xin Fan	Computational Geometry IV Room 4 Chair: Li Zhang
18:00-20:00	Banquet DUTICC			
5 August, 2016				
9:00-10:00	Plenary talk, <i>Prof. Xianfeng Gu</i> Discrete Optimal Mass Transportation, Theory and Applications			Lecture Hall, BCL Chair: Xiquan Shi
10:00-10:30	Coffee Break			
10:30-11:30	Plenary talk, <i>Prof. Shimin Hu</i> TBA			Lecture Hall, BCL Chair: Xiuping Liu
12:00-13:00	Lunch DUTICC			

Sessions

Site: ProMinent Hall, BCL.

地点: 伯川图书馆, 普罗名特厅.

*: speaker

Afternoon, 3 August 2016

Numerical Analysis I Chair: Lihong Cui Room 1, ProMinent Hall

14:00-14:20	Information matrix splitting <i>Shengxin Zhu</i> *(Institute of Applied Physics and Computational Mathematics)
14:20-14:40	Analysis of Orthogonal Collocation Method for Sobolev Equations Ning Ma, <i>Xiaofei Lu</i> *(中国石油大学(北京)理学院)
14:40-15:00	Extended error expansion of classical mid-point rectangle rule for Cauchy principal value integrals on an interval <i>Chunxiao Yu</i> *(Yanshan University); Lingling Wei; Jin Li,
15:00-15:20	On Relaxed Averaged Alternating Reflections (RAAR) Algorithm for Phase Retrieval from Structured Illuminations <i>Ji Li</i> *(Peking University);Tie Zhou

Numerical Analysis II Chair: Chunjing Li Room 1, ProMinent Hall

15:40-16:00	The Method of Approximate Particular Solutions for a Kind of Nonlinear Time-Dependent Reaction-Diffusion Equations <i>Lingde Su</i> *(Linyi University); Ziwu Jiang; Jiang Tongsong
16:00-16:20	Approximation orders and shape preserving properties of the multiquadric trigonometric B-spline quasi-interpolant <i>Wenwu Gao</i> *(Anhui University); Zongmin Wu
16:20-16:40	Generalized preconditioners for a sort of saddle point matrices in electromagnetics <i>Li-Tao Zhang</i> *(Zhengzhou University of Aeronautics)
16:40-17:00	A new quasi-interpolation method with high order accuracy <i>Ziwu Jiang</i> *(Linyi University)
17:00-17:20	VRP-GMRES(m) Iteration Algorithm for Fast Multipole Boundary Element Method <i>Chunxiao Yu</i> *(North China University of Science and Technology); Cuihuan Ren; Bai Xueting; Shen Guangxian; Yang Han

Computer Graphics I Chair: Ruomei Wang Room 2, ProMinent Hall

14:00-14:20	Tempo-spatial Segmentation based Signature for 3D Animations <i>Guoliang Luo</i> *(Jiangxi Normal University); Haopeng Lei
14:20-14:40	Composite Features for 2D Sketch Based 3D Model Retrieval <i>Yuhua Li</i> *(Zhengzhou University of Light Industry); Shujin Lin
14:40-15:00	Free-hand Sketch based 3D Shape Retrieval Using Attributes <i>Haopeng Lei</i> *(Jiangxi Normal University); Guoliang Luo
15:00-15:20	A New Geometric Modeling Approach for Woven Fabric Based on Frenet Frame and Spiral Equation <i>Daiguo Deng</i> *(Sun Yat-sen University); Ruomei Wang; Hefeng Wu

Computer Graphics II Chair: Weiming Wang Room 2, ProMinent Hall

15:40-16:00	Mesh Segmentation by Combining Mesh Saliency With Spectral Clustering <i>Xue Jiao</i> *(Jilin University); Xuzhou Qin; Tieru Wu
16:00-16:20	3D Shape Segmentation by Multiple Random Walk Xiuping Liu; <i>Jun Zhou</i> *(Dalian University of Technology); Weiming Wang; Jie Zhang
16:20-16:40	A Novel Local/Global Approach to Spherical Parameterization <i>Zhao Wang</i> *(Dalian University of Technology); Zhongxuan Luo; Zhang Jielin; Saucan Emil
16:40-17:00	A Novel Shape Retrieval Method for 3D Models obtained through Acquisition Techniques <i>Junxiao Xue</i> *(Zhengzhou University); Chengming Liu
17:00-17:20	Generalized B-splines' geometric iterative fitting method with mutually different weights <i>Li Zhang</i> *(Hefei University of Technology); Jieqing Tan; Ge Xianyu

Scientific Computing I **Chair: Jinming Wu** **Room 3, ProMinent Hall**

14:00-14:20	Crawling and turning in a minimal reaction-diffusion cell motility model <i>Yanxiang Zhao</i> *(George Washington University)
14:20-14:40	Rolling Model Simulation Based on Genetic Algorithm and SVM <i>Wen-Kang Sun</i> *(North China University of Science and Technology); Chang Xiao; Tian-Long Li; Shan-Shan Li
14:40-15:00	An information hidden model holding cover distributions <i>Min Fu</i> *(Wuhan Institute of Technology); Chao Cai; Dai Zuxu
15:00-15:20	Identification of corn leaf disease based on dynamic multiple classifiers fusion Liangfeng Xu; <i>Xiaobing Xu</i> *(Hefei University of Technology); Min Hu; Xiangyu Bu; Ying Chen

Scientific Computing II **Chair: Yanxiang Zhao** **Room 3, ProMinent Hall**

15:40-16:00	Based on the Fuzzy Comprehensive Evaluation of the Quantitative Evaluation of Converter Process of Waste Heat Recovery Effect Research <i>Wen-Kang Sun</i> *(North China University of Science and Technology); Chang Xiao; Shan-Shan Li; Tian-Long Li
16:00-16:20	A second-order positivity-preserving finite volume scheme for diffusion equations on general meshes <i>Zhiming Gao</i> *(Institute of Applied Physics and Computational Mathematics); Jiming Wu
16:20-16:40	Rape Disease Recognition Method of Multi-feature Fusion based on D-S Evidence Theory <i>Xiangyu Bu</i> *(Hefei University of Technology); Min Hu; Zixi Yu; Yaona Zhen
16:40-17:00	Some modifications of Newton's iterative methods with higher-order convergence for solving nonlinear equations <i>Jingjing Yu</i> *(Hefei University of Technology); Ping Jiang

Computational Geometry I Chair: Renzhong Feng Room 4, ProMinent Hall

14:00-14:20	The Mechanical Model of Bivariable Cubic Spline over Rectangular Partition <i>Jincai Chang</i> *(North China University of Science and Technology); Hongyang Zhu
14:20-14:40	Algorithm for Control Vertexes of B-spline Curve Based on Mechanical Model <i>Jincai Chang</i> *(North China University of Science and Technology)
14:40-15:00	Scattered Data Interpolation Based Upon Bivariate Recursive Polynomials <i>Jiang Qian</i> *(Hohai University)
15:00-15:20	New Upper Bounds on the Number of Solutions of Polynomial Systems and Compact Components of a Hypersurface <i>Yisheng Lai</i> *(Zhejiang Gongshang University); Renhong Wang; Du Weiping

Computational Geometry II Chair: Jincai Chang Room 4, ProMinent Hall

15:40-16:00	Bivariate truncated hierarchical quartic C^2 spline spaces on hierarchical type-1 partitions <i>Jian-Ping Zhou</i> *(Dalian University of Technology); Ren-Hong Wang; Li Chong-Jun
16:00-16:20	Multivariate Spline over Sectorial Partition <i>Jincai Chang</i> *(North China University of Science and Technology); Xiaolong Zhang; Yajing Qi; Dianxuan Gong
16:20-16:40	Analysis of inflection and singular points on parametric curve with a shape factor <i>Zhi Liu</i> *(Hefei University of Technology)
16:40-17:00	Quasi-interpolation Scheme for Arbitrary Dimensional Scattered Data Approximation Based on Natural Neighbors and RBF Interpolation <i>Renzhong Feng</i> *(Beihang University); Shun Peng; Lifang Song
17:00-17:20	Singular Points of Parametric Piecewise Algebraic Curves <i>Jinming Wu</i> *(Zhejiang Gongshang University); Yisheng Lai; Zhu Chungang

Afternoon, 4 August 2016

Numerical Analysis III Chair: Weihua Tong Room 1, ProMinent Hall

14:00-14:20	Wavelet Decomposition of Matrix and its Application in k-means Clustering <i>Xiquan Shi*</i> (Delaware State University)
14:20-14:40	Extrapolation Methods for Computing Supersingular Integral on a Circle <i>Jin Li*</i> (Shandong Jianzhu University)
14:40-15:00	Vertex-centered linearity-preserving schemes for nonlinear parabolic problems on arbitrary polygonal grids <i>Jiming Wu*</i> (IAPCM)
15:00-15:20	Hierarchical B++ Splines and its Applications in Isogeometric Analysis <i>Xuefeng Zhu*</i> (Dalian University of Technology); Ping Hu; Ma Zheng-Dong

Numerical Analysis IV Chair: Jiansong Deng Room 1, ProMinent Hall

15:40-16:00	Numerical Differentiation By Kernel-based Probability Leevan Ling; <i>Qi Ye*</i> (South China Normal University)
16:00-16:20	Assisted reservoir history matching based on response technology and optimization <i>Wenshu Zha*</i> (Hefei University of Technology); Daolun Li; Detang Lu; Xuhui Wang; Guiqing Liu; Deng Bin; Wang Jinju; Yan Xing; Huimin Li
16:20-16:40	Piecewise Linear Approximation Method with Stochastic Sampling Sites <i>Junbin Li*</i> (Dalian University of Technology); Min Xu; Renhong Wang; Qin Fang
16:40-17:00	Global modulus-based synchronous multisplitting multi-parameters TOR methods for linear complementarity problems <i>Li-Tao Zhang*</i> (Zhengzhou University of Aeronautics)

Image and Visualization I Chair: Zhixun Su Room 2, ProMinent Hall

14:00-14:20	Survey of Parameter Problem Issues in Image Magnification Based on Radial Basis Functions <i>Chunjing Li</i> (Tongji University)
14:20-14:40	Research and Application of an Intelligent Coupling Algorithm Ai-Min Yang; <i>Yang Han</i> *(North China University of Science and Technology); Jin-Ze Li; Lei-Jie Shen; Yan Long; Zhang Yu-Zhu
14:40-15:00	Related Reductive Structure-Aware Regression Filter <i>Zhuo Su</i> *(Sun Yat-sen University); Biyi Zeng; Jichao Yan; Xuebiao Wu; Xiaonan Luo
15:00-15:20	Visual Object Tracking with Deep Correlation Filter and Online Discriminative Learning <i>Hanhui Li</i> *(Sun Yat-sen University); Hefeng Wu; Shujin Lin; Luo Xiaonan

Image and Visualization II Chair: Junjie Cao Room 2, ProMinent Hall

15:40-16:00	A Patch-based Low-rank Tensor Approximation Model for Multiframe Image Denoising <i>Ruru Hao</i> *(Dalian University of Technology); Zhixun Su
16:00-16:20	Adaptive Image Interpolation by Rational Spline Function with Parameters <i>Yunfeng Zhang</i> *(Shandong University of Finance and Economics); Xunxiang Yao; Bao Fangxun; Liu Yifang; Zhang Caiming
16:20-16:40	Image Interpolation via Scanning line algorithm <i>Cheng-ming Liu</i> *(Zhengzhou University)
16:40-17:00	基于阵列图像立体匹配的深度信息获取方法 Jiancheng ZOU; <i>Dan LI</i> *(北方工业大学)

Scientific Computing III Chair: Ran Zhang Room 3, ProMinent Hall

14:00-14:20	Forman-Ricci flow for change detection in large dynamic data sets Melanie Weber; Jurgen Jost; <i>Saucan Emil*</i> (MPI MIS Leipzig Germany and Technion Haifa Israel)
14:20-14:40	Geometric Approach to Detecting Volumetric Changes in Medical Images Alexander Naitzat; Shichao Cheng; <i>Fan Xin*</i> (Dalian University of Technology); Emil Saucan
14:40-15:00	Gale dual systems and solving sparse polynomial systems <i>Weiping Du*</i> (Zhe Jiang Gongshang University); Yisheng Lai
15:00-15:20	Numerical Simulation of Hypervelocity Impact FEM-SPH Algorithm Based on Large Deformation of Material Ai-Min Yang; <i>Jin-Ze Li*</i> (North China University of Science and Technology); Yang Han; Can Tian; Yu-Zhu Zhang; Yu-Hang Pan; Yan-Hong Kang; Xing-Jun Luo

Scientific Computing IV Chair: Fan Xin Room 3, ProMinent Hall

15:40-16:00	An accelerated algorithm for spherical harmonic expansions <i>ShuLiang Lin*</i> (National University of Defense Technology); ShengGuo Li; Cheng LiZhi
16:00-16:20	Connection-number-similarity-measure-based new method for multi-attribute decision-making with triangular fuzzy numbers Chun-Feng Liu; <i>Li-Ting Wang*</i> (North China University of Science and Technology)
16:20-16:40	A New Modified Weak Galerkin Finite Element Scheme for solving the stationary Stokes Equations Tian Tian; Qilong Zhai; <i>Ran Zhang*</i> (Jilin University)
16:40-17:00	Quasi-interpolation operators of bivariate quintic spline space and their applications <i>Rengui Yu*</i> (Henan Agricultural University)
17:00-17:20	A robust numerical method for the Maxwell equations with random interfaces via shape calculus and low-rank approximation <i>Kai Zhang*</i> (Jilin University)

Computational Geometry III Chair: Yisheng Lai Room 4, ProMinent Hall

14:00-14:20	A 4-point C3 ternary non-stationary subdivision scheme <i>Qianqian Lü*</i> (Hefei University Of Technology); Jieqing Tan; Sun Jiaze
14:20-14:40	A five-point subdivision scheme with two parameters and a four-point shape-preserving scheme Jieqing Tan; <i>Bo Wang*</i> (Hefei University Of Technology)
14:40-15:00	Smooth Orientation Interpolation Using Quaternion Interpolation Splines with Parameters Jieqing Tan; <i>Yan Xing*</i> (Hefei University Of Technology); Fan Wen; Hong Peilin
15:00-15:20	Fractal Behavior of A Ternary 4-point Rational Interpolation Subdivision Scheme <i>Kaijun Pen*</i> (Hefei University Of Technology)

Computational Geometry IV Chair: Li Zhang Room 4, ProMinent Hall

15:40-16:00	The C^1 and C^2 quasi-Plateau problem <i>Yong-Xia Hao*</i> (Jiangsu University); Chong-Jun Li; Wang Ren-Hong
16:00-16:20	G^1 continuity of four pieces of developable surfaces with Bezier boundaries <i>Caiyun Li*</i> (Dalian University of Technology); Chungang Zhu
16:20-16:40	Reconstructions of curves and surfaces based on the differential equations models Chong-Jun Li; <i>Lin-Lin Xie*</i> (Dalian University of Technology); Du Wen-Bin; Li Hai-Dong; Bao Huan
16:40-17:00	The number of regular control surfaces of toric patch <i>Han Wang*</i> (Dalian University of Technology); Chun-Gang Zhu; Zhao Xuan-Yi